Differentiation According to Educators: Using the Delphi Approach

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Preface

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It is my distinct privilege to pen the preface for this thesis submitted to the School of Education at Durham University. I do so humbly and with overwhelming gratitude, not for what the ends might be, but for the means undertaken by my wife Billie Dysinger in crafting a piece of research that so clearly spoke to her enduring passion as an educator. The core message within these pages is incredibly simple at heart: all students can learn. A modest truth, perhaps, but one taken for granted far too often, which is why Billie viewed it as a moral imperative for teachers to recognize and embrace the belief that no two children are alike and our instruction should reflect this understanding. It was a principle Billie carried forward into all aspects of her life as she took joy in celebrating the uniqueness found within every person.

I first met Billie as an anxious and quiet fourteen-year old high school freshman in Central California, and she was this dynamo of enthusiasm, compassion, and positivity, even at such a young age. Never would I have conceived that such a uniquely beautiful soul would one day exchange lifetime vows of love with me. So I consider myself blessed, truly blessed, to have shared in a life full of joy and laughter by her side, and each day I am reminded of the lasting lessons she imparted that continue to shape the husband, father, and man I am this day.

You see, to understand Billie was to know her as a teacher and nurturer, a role she cherished from her earliest days in Hawaii and through a professional career that carried her across the world. As a classroom teacher and instructional coach, Billie was a towering presence in our school, one that shaped it not through force but rather love and patience. The central premise of her thesis, differentiated and responsive instruction, was the lens through which she trained and supported teachers, modeling the power in developing a responsive curriculum to meet the needs of the individual child. The resulting success of the students from such instructional practices made true believers out of her colleagues and inspired Billie to better understand these methods through her own research, which is why she entered Durham's ISIP program despite being seven months pregnant with our son.

The summer of our second year, our cohort was asked to identify focal points for our culminating theses, and Billie never hesitated in her desire to research and better understand differentiation. At times, the process was a struggle, made even more daunting by full-time employment and her beloved role as a mother. Yet she persisted, determined to see it through all of life's ups and downs. To this end, Billie was blessed to have Per Kind as an advisor, a man that mirrored her compassion and empathy. They were kindred spirits in so many ways, and the night she learned Per was ill, she cried harder than I had seen since we were kids. Through everything, he provided patience and guidance in shaping her research, and when we lost him, she pushed even harder, wanting to finish as much for him as herself.

However, in the early winter of 2017 Billie was diagnosed with a rare cancer. Devastated is not strong enough to describe my reaction and the many, many others that loved Billie. But not her. No, she attacked this disease with the same determination and positivity as she had

every other obstacle in her life, speaking often of the immense gratitude she felt for the time she had with her family and friends. Even as her fight neared its end, she continued her work on this research, drafting sections, analyzing data points, and making plans for its completion. It was a journey whose end she would not see, but in the months following her death, I began to compile her research for possible submission, hoping to carry forward what was so close to completion. It was through the direction and support of my doctoral advisor, Professor Steve Higgins, that we can present her research to you this day. I know I speak for all of Billie's extended family, and her as well, when I say we are so incredibly grateful for all he has done to bring us to this point.

So, thank you for taking time to read the work of an incredible mother, wife, and teacher because we can think of no better way to celebrate a life dedicated to teaching others. We celebrate not because life is short but because life is beautiful. And what a uniquely beautiful live Billie led and inspired in so many.

Love and Light to you all.

Richard and Logan Dysinger

July 2020

Abstract

Differentiation is a well-known and popularly endorsed aspect of teaching. However, the lack of effective adoption and implementation of it as a practical classroom strategy suggests some uncertainty relating to the definition and indicates the challenge or difficulty of effective implementation.

This study sought to investigate primary school teachers' understanding of the idea and explores the educational concept through the Delphi technique, which uses both qualitative and quantitative methods (open-ended survey responses, Likert scale questions, semi-structured questions and response to summaries of previous rounds). The main research question for the study is 'what definitions can be generated in regard to the teaching and assessment strategies associated with differentiation among a group of teachers working in a similar environment?', a series of secondary questions explore further aspects of teachers' thinking about differentiation. Four rounds of surveys following the Delphi methodology were completed by 19 primary school teachers. A series of different questionnaire types were used to enable a panel of teachers to reach a final consensus by analysing and refocusing each subsequent round of survey questions.

The data collected in each round produced a total of 38 teaching and 20 assessment strategies relating to differentiation. The final round led to 32 teaching strategies and 15 assessment strategies reaching consensus. This left a six teaching and five assessment strategies that did not reach consensus.

A key to developing a better understanding of concerns among educators may be through the process of creating a shared definition by practitioners and not relying upon handed-down terms and definitions. By engaging teachers with an opportunity to jointly create, discuss, and reflect upon the meaning and strategies of complex pedagogy like differentiation through active consensus-building such as the Delphi methodology, schools and professional development leaders can address misconceptions and develop and reinforce a shared understanding and common vocabulary that enables collegial support to be timely, effective, and more importantly, understandable for the educator. While such consensus-building efforts like this research project are time-intensive, they are also valuable because the process allows teachers to engage in professional discourse that is meaningful for the teacher and perhaps better suited to support ongoing professional development efforts for increased implementation. This implementation of a best practices pedagogy like differentiation may, in turn, help improve student learning, which is ultimately the end goal of any educational endeavor.

Keywords

Differentiation, classroom teaching, Delphi technique, mixed methods.

Statement of Copyright

Supervisor's Note

As Rich noted in the Preface, Billie died before completing her thesis. In a few places she had left notes about what she intended to do or where she still had questions. I have picked these up in brief comments as footnotes and indicated where I think Billie's ideas may have developed further either as she finished the final draft or as a result of discussion in her viva. We thought it was important to retain her voice throughout the thesis and readers should be aware that her work was still incomplete.

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Chapter 1 - Introduction

I can still remember that feeling in the pit of my stomach.

Following an abbreviated six-week mentoring program, I entered my first classroom convinced I was ready for anything, even working in an impoverished community and Title I School where a lack of resources was the standard. I'd studied my curriculum, taken an arsenal of education methodology courses, and even stocked my cupboards with enough paper and pencils to fill a dozen classes.

However, none of this adequately prepared me for the thirty-four sets of expectant eyes watching my every move, each representing a vast array of academic, social, and emotional needs that I had to address individually. To say I was overwhelmed by the enormity of the task before me was and still is an understatement.

As an educator, this was and still remains my greatest challenge in a classroom. The sheer divide between comprehension levels, abilities, and approaches to learning[1] found in that room and everyone since remains humbling. Nevertheless, through many failed attempts, late night tears, emotional self-reflections, and eventual help from my colleagues, I found the answer to my dilemma in the form of differentiated instruction, something that over the years has become my passion, one I still seek to fully utilize and understand.

Indeed, in the world today, such circumstances are not uncommon but rather the norm as educators habitually face a diverse population of student needs, backgrounds, and approaches to learning, which makes it difficult to provide adequate targeted instruction to all (Mathes et al., 2001). However, a paradigm gaining popularity in education is differentiated instruction,

[1] Supervisor's note: this was originally learning 'styles' but the concept is problematic. See the discussion on pages 29-31.

which is designed to meet individual needs and help students become more motivated and focused, and ultimately autonomous learners (Subban, 2006; Tomlinson, 2008). Such instructional techniques can meet the needs of this diverse population by offering a varying approach to teaching.

However, there are many layers to consider when discussing differentiation. The predominant definition appears simple and easily defined; differentiated instruction is student aware teaching, but upon deeper discussion with teachers, such general definitions give way to differences in interpretation based upon individual perceptions (Tomlinson, 2008; Roiha, 2012). In fact, teacher perception on differentiation is an issue that must be considered (Latz et al., 2008; Puzio et al., 2015; Joseph, 2013). These differences sometimes show a lack of shared understanding of the strategies that support the implementation of differentiated instruction. Such differences ultimately impact not just the application but also the discussion and shared understanding of the teaching pedagogy.

As Lortie (1975) stated, "teaching is not like crafts and professions whose members talk in language specific to them and their work" (Lortie, 1975 pg. 123). His argument referenced the importance of having a common "technical language" so that novice teachers have access to the pre-existing knowledge of teaching (Lortie, 1975). This suggests larger concerns, essentially if teachers do not share a definition or even a common vocabulary regarding their practices, how will they be able to learn from one another and discuss nuances about their pedagogy with fellow professionals? Grossman and McDonald (2008) continued this line of reasoning by recognizing that thirty years later there still exists no collective framework for teaching that identifies key components across grade levels and content areas.

Recognizing these concerns, this study will argue for the importance of building a shared practitioners' definition[2] of differentiation, especially in considering professional development and collegial feedback's role in aiding pedagogical change in schools. Such variance in personal outlook may stymie effective professional learning and implementation within classrooms. More specifically, this research will generate common definitions among a group of educators regarding differentiated instructional and assessment strategies by examining existing beliefs and practices and allowing for joint discussions of these ideas via a consensus-building methodology. In doing so, this research aims to make a clear argument that to understand such pedagogy, it is imperative to move beyond the general and examine the specific degrees of the teaching practices to support communal professional learning, which in turn may help support implementation in the teaching and learning environment.

1.2 Existing Issues

It is important to note that the teaching pedagogy of differentiation is very complex and there is no one way to implement it, which makes implementation varied, or in other cases, minimal (Tomlinson, 2000). This variance of interpretation and implementation brings to question the level of common understanding held by professional educators. Particularly concerning is the absence of a shared practitioners' definition, causing a lack of shared vocabulary among professional and perhaps leading to inconsistency in implementation due to varied perspectives.

Many of the teachers I worked with as a literacy facilitator would identify themselves as differentiating their lessons to meet the needs of their students, although their approaches were completely different. This is the problem with the implementation of differentiation; it

[2] Supervisor's comment: throughout the thesis there is an unresolved tension between developing an agreed definition of differentiation and reaching a shared understanding of a complex educational concept. This is reflected in some of the methodological challenges inherent in the Delph technique and the attempt to reach consensus as well as measure disagreement.

can look so different in each classroom. Roiha (2012) described teachers as holding different perceptions of differentiation, and it is this variety of interpretations that influences the variability in implementation. In fact, there is an overwhelming amount of research about the varying approaches of differentiation, and likewise, studies also show a lack of effective implementation in classrooms (Burns 2006; Moon et al., 1995, Tomlinson et al., 1998). Even in situations where teachers realize that students in their classrooms have different needs, it does not mean that a teacher will automatically differentiate. There are many examples of such findings (Tomlinson, Moon & Callahan, 1998; Smit & Humpert, 2012; Moon et al., 2002; Brimijoin, 2002; Moon et al.,1995; Moon et al., 2003; Tomlinson et al., 1995). Within these discrepancies rests an opportunity for deeper understanding.

The examination of research uncovers much information regarding differentiation, the strategies that support it, and the assessments that help guide it, but there is little about a practitioner-derived definition. Numerous studies evaluate perceptions, self-reporting level of implementations, and actual observations of classroom implementation, but such studies utilize predetermined lists of teaching and assessment strategies rather than generating a practitioner-derived definition from the ground up (Moon et al., 1995, Moon et al., 2003, Schumm & Vaughn, 1995; Tomlinson et al., 2003). This lack of a practitioners' definition may impact practices and even research conducted in classrooms. Indeed, Tomlinson (1999) found conflicting evidence between teacher interviews and classroom observations and noted through further evaluation that the participants were not lying, but rather there was a lack of common vocabulary.

The concern of not having a professional vocabulary in the field of education is not a new notion. Lortie (1975) identified this lack of technical vocabulary, something furthered by Grossman and McDonald (2008) who discussed a need for a framework of teaching necessary to develop common language and identify key components of teaching across

grade levels. Strides have been made in creating a professional vocabulary in other pockets of education. For example, the National Education Goals Panel found there was a need to create a document that established common vocabulary in child development in hopes to create further dialogue promoting the healthy development of children (Kagan, 1985). Freeman & Johnson (1998) argued that a lack of theoretical framework for language teachers hindered the development of professional knowledge. Both studies acknowledge the need for building a common vocabulary in specific fields.

With a complex teaching pedagogy like differentiation, it is critical to build a practitioner's definition that will become the foundation for a professional vocabulary in our field because doing so allows educators to discuss pertinent topics about their profession and learn from one another.

Such a shared vocabulary has become common in other professions. For example, in the field of computer science, discussions of creating formal ontologies among professionals can result in activities like the implementation of conceptual analysis and domain modeling a standard form of methodologies (Guarino, 1998). An ontology, as understood in this context, is a body of formal knowledge that is based on these formal conceptualizations that create a common view of the world in that profession (Gruber, 1993).

Building such conceptualizations or formal representations of common knowledge allows for a systematic way that pedagogy can be defined and discussed. When teachers have a formal conceptualization, it allows them to have a simplified and common view. Once this shared view is created, the educators can then engage in professional conversations sharing ideas and learning from one another. The missing piece remains that common language or ontology where the professionals have a common vision. By creating this shared vocabulary, it will allow for deeper knowledge sharing to take place within the teaching profession.

Ultimately, educational research evaluates numerous aspects of differentiation: the amount of implementation, varying levels of implementation, preservice teachers and their needs to differentiate, and perceptional research regarding differentiation from the teacher, student and administrator levels (Brimijoin, 2002; Moon et al.,1995; Moon et al., 2003; Tomlinson et al., 1999). Yet, little existing research has been created regarding a practitioner-derived definition. There is a need for such an understanding to be built among the practitioners, so rather than a handed-down philosophy, it is group-generated and aligns with the ideology of educators.

1.3 Research Questions

A major issue with differentiated instruction is the limited level of implementation, part of which may stem from the fact that differentiation has been variously conceived by teachers (Moon et al., 1995; Mills et al., 2014). Likewise, there is no prescribed way to implement differentiation because there is no single way to differentiate (Tomlinson, 2000). Essentially, teachers may have a general definition of differentiation, but in practice, differences in nuances present themselves, hindering effective communication and dialogue among colleagues. As such, for true understanding or implementation of differentiation, educators must to be able to define and understand the teaching and assessment strategies that support this approach.

Thus, the Research Questions for this proposed study are as follows:

PRIMARY QUESTION: What definitions can be generated in regard to the teaching and assessment strategies associated with differentiation among a group of teachers working in a similar environment?

SECONDARY QUESTION: To what extent is there a shared definition among elementary school teachers?

SECONDARY QUESTION: What types of discussions, concessions, or conflicts will originate among these elementary teachers as they generate a definition of teaching and assessment strategies of differentiation?

SECONDARY QUESTION: To what extent do teachers adjust their definitions of the teaching strategies and assessment strategies as they communicate their understandings with fellow colleagues?

1.4 Methodology Overview

By developing a practitioner definition, the aim of this study is to examine differentiation not in general terms, but in the exact teaching and assessment strategies that support an elementary school setting. This study completed four rounds using the Delphi method as a consensus-building process with each pass allowing participants to share their ideas with the group while remaining anonymous. The Delphi method was created to encourage true debate between experts with the absence of personalities (Gordon, 1994). During the process of creating a shared definition, the panel of teachers must identify and define strategies of differentiation and defend their thinking with peers.

This study evaluated the information gathered from the panel of primary educators through each round of the Delphi study as they created a shared definition. This process allowed participants to converse about differentiation in the safety of anonymity, which the Delphi model uses to encourage true opinions regardless of conflict between panel members. This methodology allowed the opportunity to recognize where definitions differed and the subsequent discussions and evaluations of disagreements, thereby altering teacher viewpoints to a consensus based on communal input of fellow colleagues.

This study brought together nineteen primary educators and had them build a shared definition on the teaching and assessment strategies of differentiation. A complex pedagogy,

research has proven there is a lack of understanding and effective implementation. This methodology created an opportunity where these professionals formulated common definitions which developed the foundation for self-reflection of their pedagogical views and created an opportunity for collegial conversations. The Delphi consensus model forced all teachers in this study to participate collecting the individual and group data through each round of the study. Collecting data in this manner allowed the researcher to document discussions, changes in viewpoints, and themes throughout the process. All participants were forced to be actively engaged in the conversation whether it was through sharing of their own definitions or evaluating concepts presented to the group for consensus analysis.

Since there are no clearly established rules in how differentiation should look in a classroom, this makes it all the more important to develop a shared practitioner definition where common vocabulary and vision are created and help construct an ontology of common understanding among a group of professionals.

1.5 Contribution

> "What we call *differentiation* is not a recipe for teaching. It is not an instructional strategy. It is not what a teacher does when he or she has time. It is a way of thinking about teaching and learning. It is a philosophy." (Tomlinson, 2000 pg. 6.)

This research has a unique goal to build a definition at the practitioner level and to see if a culture of teachers can learn from and influence one another. More specifically, this work sought to create a shared definition among practitioners, and in the process, generate an ontology to serve as a basis of understanding among colleagues. These shared definitions can then build an ontological commitment among these teachers, thereby creating a shared understanding and commonalities in the methodologies to implement it. Furthermore, this

research's objective was to also determine if a culture of teachers can learn and teach one another. By having teachers share their variations of differentiation and then evaluating these definitions by a group of fellow teachers, they can create a commitment to the definition.

If teachers are expected to implement a framework as complex as differentiation, it is therefore important to have a practitioners' viewpoint and definition. Theory and research are critical to understanding differentiation, but implementation happens at the classroom level and teachers are the facilitators. Definitions, concepts, and theories should not be handed down and consumed without consideration. Using this existing approach of telling teachers the strategies and definitions has shown that teachers are not fully grasping it. This study adopts a novel methodology for this area of research, one that puts the emphasis on gathering the definitions from the teachers themselves, because ultimately, they are the ones responsible for understanding and implementing it. Teachers were sharing, learning, and changing their ideas based on the interactions they had from one another. It could be a new way to create a real understanding among educators to use as a building block for future learning.

1.6 Personal Relevance

My background as an educator is diverse with opportunities to teach at intermediate and primary levels as a classroom teacher and support specialist across three different continents. This accumulation of experience directly inspires and motivates my research, especially the necessity of differentiation as a teaching strategy.

As a teacher transitioning from California and its scripted curriculum and mandated scope and sequence to the Department of Defense Education Activity (DODEA) worldwide district where the curriculum was viewed as a resource, not a requirement, it became clear I had a lot to learn. When I began with DODEA, I was faced with a drastically different teaching

experience, specifically an increased accessibility to resources, curriculum, and coaching support with a heightened focus on ongoing professional learning and reflection. Likewise, the focus of instruction was less on the curriculum and more on specific grade level content standards, but it was completely up to me how I accomplished this task. My head spun with the fear and excitement that comes with professional freedom, but it was this very freedom that helped inspire my pedagogical passion for differentiation.

The flames of this passion were further sparked when DODEA instituted the Pacific Literacy Project (PLP), a Balanced Literacy program focused on the differentiated approach for reading and writing and the appointment of a Literacy Facilitator (LF) in each school across the district. This LF encouraged reciprocal support among colleagues so we could jointly develop a richer understanding of differentiation within our classroom instruction and assessment. A powerful, professionally-altering experience, it was also here that I first recognized the influence of collegial discussion and consensus-building.

Flash forward several years and I had assumed the role of LF myself where my new title shifted my focus from students to the practices of teachers within my school. By observing and participating in so many classrooms, I was able to see firsthand that the understanding of differentiation differed, often extremely, from class to class and teacher to teacher despite similarities in a generalized definition. Often it required my leading discussions to help develop a truly shared understanding of what differentiation might look like. While variety is important, it was the differences in interpretation and application that fascinated me and informed my belief that it is within the culture of peers working together and feeling secure to share their ideology that self-reflection, change, and true understanding can take place.

Recognizing this challenge facing teachers today, I sought to examine how teachers create, reflect, and modify their thinking regarding differentiation among colleagues (Tomlinson,

2000). This study gave teachers a chance to share their own understanding as they created a shared definition in the safe, nonjudgmental environment of the Delphi methodology.

1.7 Thesis Overview

Chapter 1: Introduction

The introductory chapter provides an overview of the research background, contributions of the study, research objectives, methodology, and personal relevance.

Chapter 2: Differentiation Background

Chapter Two details the background of differentiation to include definitions, classroom demands, supporting theories, ways of implementations, and the strategies and assessments supporting differentiation.

Chapter 3: Methodology

Chapter Three defines and analyzes the Delphi model identifying its strengths and weaknesses and the different nuances of this type of consensus-building methodology. This chapter also specifies in detail the research objectives and design for the study including sampling choices, survey round designs, and data collection methodology.

Chapter 4: Results

Chapter Four examines the findings of each Delphi round and presents group outcomes and individual responses.

Chapter 5: Discussion/Analysis

Chapter Five reviews all findings and themes derived from this research and links it to existing literature.

Chapter 6: Conclusions and Follow-up

Chapter Six provides conclusions regarding the research findings in relation to the primary and secondary research questions, as well as identifying weaknesses and potential follow-up research.

Bibliography and Appendices

This final section provides a bibliography, and supporting information in a series of appendices, as indicated in the preceding chapters.

Chapter 2 - Literature Review

2.1 Introduction

Differentiation is far from a new notion within academic research with intensive focus placed on the potential benefits when applied to the learning setting. However, this study is seeking to identify a practitioner-derived definition of the pedagogy, one grounded in the perspectives and practices of educators within classrooms. Such a notion may highlight the lack of a common technical language, something that hinders the professional discourse and collaboration between teachers. In review of existing literature, attention will be placed on an analysis of differentiation itself to include its definition, philosophical underpinnings, correlation to assessment, and the need for an operational definition.

2.2 Defining Differentiation

A complex term like differentiation possesses multiple layers from the macro to micro level, with each built upon the other, beginning with identifying labels, establishing a general definition, and discussing the core foundational elements. While referenced occasionally in the literature as a tool, the term pedagogy is used because, as Tomlinson (2003) notes, this philosophy encompasses an overall approach to teaching by educators.

It is critical, therefore, to start with the examination of the label 'differentiation', and other terms researchers may associate with this pedagogy. Differentiated instruction can be used interchangeably with the term responsive teaching as both are viewed as synonymous. While the same author in a different article described a teacher's response to a student's need as the beginning point of differentiation, both Tomlinson (2003) and Edison (2003) use one term to

describe or even define the other. These two terms have much in common and even have an interrelated relationship.

However, professional development resources used by teachers, including the referenced material below, describe these terms separately, but still identify their inherent link in how they work in tandem to create a powerful differentiated classroom:

> "Responsive teaching is a way of thinking about teaching and learning. Responsive teaching in the differentiated classroom connects the learner and the content in meaningful, respectful, and effective ways. It is grounded in the teacher's understanding of and connection with each student" Professional Learning. (n.d.). (Retrieved June 3, 2017, from https://www.ncps-k12.org/Page/101.)

This explanation shows that, even though responsive teaching and differentiation work together, some consider them as separate concepts. This conflicts with the previous research, which views these two terms synonymously. While, the concept of a responsive approach works well with the ideals of differentiation, for the sake of this study the labeling term of differentiation will be used as the pedagogical topic. Phrases such as 'responding to student needs' or 'using a responsive approach' may be used, but the prevailing label for this pedagogy will be differentiated instruction.

Within this pedagogical label of differentiation, an analysis of existing general definitions of this type of instruction is necessary. There are countless definitions provided in the existing literature, but again the problem are terms used interchangeably by researchers, adding to the confusion. When looking at the overarching definitions of differentiation, there seems to be some similarities in the terminology used across literature, and many terms are used interchangeably.

> "Differentiated instruction is matching **instruction** to meet the **different needs** of learners in a given classroom" (Kosanovich et al., 2007 p. 1).

> "Differentiated instruction is a **pedagogy** that inspires the learning process for a **diverse group** of students" (Heacox, 2002, p. 1).

> "At the most basic level, differentiation consists of the **efforts of teachers** to respond to a **variance among learners** in the classroom" (Tomlinson, 2000, p. 6).

A few similarities or themes emerge when analyzing general definitions for differentiated instruction. In these definitions, terms like **instruction**, **pedagogy**, or **efforts of teachers** all reference the way an educator approaches teaching, demonstrating that differentiation is an action implemented by the teacher. They also all imply a common idea that the educator is an active participant in the teaching process and differentiation is something that is played out by the teacher in a facilitator role.

Another common theme identified within these definitions is the teaching approach of differentiation is used to meet the needs of **different**, **diverse**, or a **variance of learners**. These terms indicate that the demands of the student population are very diverse, and therefore, a teacher's approach will need to be just as varied as the students within the class. An assumption can be made that if the population is diverse, then the response of the teacher needs to compensate for this variance in some way, insinuating that this cannot be a one-dimensional approach.

In analyzing the similarities of these general definitions of differentiation found across literature, commonalities are noted, but sometimes words such as “strategy” are loosely used to mean and/or imply different things. Thus, it is important to examine the role and meaning of the word “strategy” when used in the general definition of differentiation. At first glance, there seems to be conflicting views of whether differentiation is a single strategy or incorporates a plethora of strategies in this teaching pedagogy. The assumption that differentiation encompasses more than a single strategy to meet a different, diverse, or variance of learners needs to be examined closer and not just blindly accepted.

Some research identifies differentiation as “one strategy to facilitate academic success” In other words, suggesting that differentiation is a single strategy that gives a direct approach to teaching (Berbaum, 2009 p. 1). Further examination of Berbaum’s argument identifies that for successful differentiation it “necessitates that educators maintain flexibility in their methods of instruction” (Berbaum, 2009 pg. 173). It highlights that differentiation includes the plural form of methods, not just a singular approach. In fact, the whole premise of this study was to discuss several strategies identified as differentiation and evaluate how they were perceived by teachers. It is almost as if the word ‘strategy’ is used broadly when discussing differentiation, assuming the reader acknowledges differentiation as an overarching topic with many ways to implement.

Berbaum’s study is not alone in the way the word “strategy” is used in research of differentiation, DeBaryshe and colleagues (2009) also described differentiation as a singular strategy for meeting diverse needs. The authors, however, go on to explain differentiation as an instructional model, so even though the singular term of strategy may be used to define differentiation, later it is explained as a model, implying a multi-faceted approach (DeBaryshe et al., 2009). With these studies, differentiation is seemingly described as not a single tactic but rather having many encompassing components. A similar problem is evident

when phrases like “a particular pedagogical strategy like differentiation” is used, again implying again it is a single approach (Mills et al., 2014 p. 15). In the same study the viewpoint is expanded by the idea that “differentiation is a complex concept” that has many different nuances (Mills et al., 2014 p. 15). In fact, one of the main researchers in the field of differentiation, Tomlinson (2000), describes differentiation as *not* simply a strategy but a pedagogical philosophy of how to approach teaching.

> “It is not an instructional strategy. It is not what a teacher does when he or she has time. It is a way of thinking about teaching and learning. It is a philosophy.” (Tomlinson, 2000 pg. 6.)

These studies demonstrate that by using the word “philosophy” to describe differentiation, it suggests a broadness of approach rather than a single teaching tactic. Even when the singular term strategy is used, there is an underlying assumption that differentiation is an accumulation of tactics or a framework for multiple strategies working together and not just a single approach.

Accepting the common themes in existing research, this study will define differentiation as a responsive teaching pedagogy that implements multiple strategies to meet the needs of a diverse population of students. Likewise, recognition is paid to the notion that differentiation is not a single strategy but rather a complicated pedagogy with many distinct components or layers. In fact, it is in these layers and finer details of the strategies that support differentiation where the true interest of this study resides.

2.3 Differentiation Traits

Differentiation, therefore, is a pedagogy that suggests curriculum should be determined based on the needs of the child. While there are seemingly countless ways that a teacher can differentiate the content for a classroom, Stone (1996) and Tomlinson (2003) extend similar ideas that a teacher must respond to the different traits or capabilities of the child through differentiated instruction using content, process, product, and environment. This is the foundation of differentiation and became known as the four elements of all the teaching strategies of differentiation. Understanding the meaning of content, process, product, and environment is the key to creating strategies of differentiation.

Content is the essential goal, especially in a society with state standards and high-stakes standardized tests (Santamaria, 2009). It addresses the question of what a child is learning. Content is the idea that the same topic or standard will be taught to all students, but the complexity will change depending on the need of each individual child (Santamaria, 2009). A teacher would use different resources varying in difficulty so that way students can all receive the critical information but at their level of complexity. Content deals with the information that the students need to learn to understand a topic or standards.

Differentiated instruction by **process** allows for challenging tasks to be given to students at varying levels and pace (Santamaria, 2009). Process is the "how" a child obtains the information and develops their understanding of the new material. There are several ways that differentiation can take place at the process level, including such things as tiered activities, it allows the learners to work on a similar skill at different levels of support (Tomlinson, 2000). The teacher has the same goals in the mind for every student, but the steps in how they achieve these may differ. Some students may have several levels of support, while another child may have less scaffolds during the process stage.

Product is the assessment, or the demonstration of the new knowledge gained by the student (Tomlinson, 2003). Essentially, the product is that final piece in how students show their learning and can include giving students options - for example: a puppet show, writing a letter, or creating a mural with labels - of how they showcase their learning (Tomlinson, 2000). Differentiation in products allows for different levels of scoring, evaluation, and difficulty depending on the student's ability (Santamaria, 20009). How these products are evaluated can also be individualized.

To differentiate a product, a teacher could use rubrics that assess varied skills to meet the needs of students (Tomlinson, 2000). It is this alternative look at evaluation or assessments where differentiation can allow students to shine in different ways. Not all students may perform well in a typical chapter assessment. Some may do better with the immersion of technology through the creation of a PowerPoint highlighting the important details of a particular unit or standard. It is in the power of variety or a custom look at students' capabilities that effective differentiation can take place.

Content, process, and product may be the foundation of strategies for differentiation, but it is the fourth element, **environment**, that encourages learning and sets the stage for the success of differentiation. Creating and designing the physical environment for a classroom is critical (Stone, 1996). Creating a positive learning environment is not a new concept, but one that holds a particular importance with differentiated instruction, and is often created in three ways; organization of the physical environment, a teacher consistent schedule, and clear expectations of behavior (Bickart, Jablon, & Dodge 1999). The environment in the classroom sets the tone for learning. The environment is not just a location for learning, but rather a medium that helps to encourage learning and can help a topic come to life for the students (Smutny & Fremd, 2004). Therefore, creating a positive learning place is no longer just the

idea that a classroom should look a certain way, but rather a very thoughtful reflection done by the teacher to create an environment that provides new learning opportunities.

There has been a historic shift in the field of education to make it more child-centered. With this philosophy, it supports the idea that the environment acts as a catalyst to the learning that takes place (Smutny & Fremd, 2004; Subban, 2006). Creating the classroom environment, incudes thinking about the space and visual stimulation, availability of resources, flexibility of seating, and creating areas for whole and small group transitions (Smutny & Fremd, 2004; Tomlinson, 2000). With proper planning, the classroom environment will support differentiated instruction and the encouragement of learning. The physical environment can convey a strong message to students sending a message of safety and comfort, but the classroom environment goes beyond the physical, deeper to include aspects of community-building (Bickart et al., 1999). Environment of a classroom deals with much more than just organization of furniture and materials, it goes deeper into the feelings, expectations, and sense of community. Creating an atmosphere in a classroom encompasses clear behavior expectations, engaging ways to begin daily routines, encourages respectful relationships, and models safe risk-taking (Smutny & Fremd, 2004). Students who are vested in their classroom have a sense of belonging, are more likely to take risks in their learning, and therefore, more likely to make gains in their learning (Gibbs, 2001). Creating a positive learning environment is the setting where the teaching and assessment strategies of differentiation occur.

Although assessments will be looked at closer, it is important to note that all assessments have their own place of importance or value. A powerful program should recognize the development of the whole child, something embraced by differentiation pedagogy (Stone, 1996). Yet, defining differentiation is complex and features many layers, so it is critical to label, define, and examine the foundational core elements that ultimately support the

pedagogy. Likewise, it is important to discuss and examine more closely the supporting foundational theories associated with differentiation.

2.3 Theory to Explain Differentiation

Differentiation is grounded in the theory of Lev Vygotsky's Zone of Proximal Development (ZPD), which speaks about teaching at a particular level to ensure the learning success of a child (Roiha, 2012). ZPD explains that for a child to reach required mastery, the task needs to be scaffolded to meet their specific needs (Tomlinson et al., 2003). The point of differentiation is to align the learning goal to the capability of the child, and teachers with an expertise in differentiation can use a plethora of research-based strategies to teach and engage the learners (Brimijoin, 2002). Research seems to support the idea that for a learner to pick up a new task it should be at the right level or within their ZPD (Tomlinson et al., 2003). It is found that a teacher using instructional strategies can influence learning almost the same as aptitude (Stronge et al., 2007). Likewise, qualitative studies suggest that students do poorly if an academic task is not at their current level (Tomlinson et al., 2003).

Implementing ZPD theory to ensure learner success is no easy task. The teacher faces many variables in the classroom and the reality of the class environment is mix-ability and even mixed-ages (Kerry & Kerry, 1997). Teaching the average student means that a teacher is not engaging the students who need more challenges or reaching the needs of the students who are struggling. It is essential that teachers address the needs of the "middle band" but also face the demands of pupils with higher and lower abilities, giving an educator the task of teaching on a broad continuum of ability (Kerry & Kerry, 1997). Using a single task approach for all learners of different needs with only slight modifications may fall short because, the tasks are below or above their ZPD (Tomlinson et al., 2003). To truly meet the

diverse needs of a classroom student population strategies and interventions of differentiation need to be interwoven throughout the curricular framework.

A classroom should accommodate the vast range of children needs, their knowledge, experiences, interests, learning rate, and styles to facilitate a continuous learning environment (Stone, 1996). ZPD is the foundational theory of differentiation but additions to this learning theory were created to help teachers identify how and where to differentiate to the needs of the child. Essentially, these attributes - learner's readiness, interests, learning profile - acknowledge different preferences a student may have by assessing a child's ZPD for their individual learning (McTighe & Brown, 2005).

Readiness is a trait that deals with the level that a child is at in their learning continuum. As Tomlinson (2003) notes, readiness refers to a child's understanding and existing skill set that they currently have. Inclusive classrooms consist of a community of learners with a wide range of abilities and interest and student readiness deals with the fact that students are at different levels in their academic skills and social skills (Ruhl & Berlinghoff, 1992). Differentiation takes such factors into consideration when creating a powerful curriculum to reach all learners. In essence, this is the idea that the teacher needs to understand the level of readiness of each student so that way they can teach the child at their level of development. When a teacher is aware of a child's readiness, it allows them to scaffold to their ability which is the goal of ZPD, to allow a variety of learners to work within their area of development (Santamaria, 2009).

The trait of interest refers to the area or topic that motivates or impassions the child's learning. Student interest is a powerful motivator, which a proficient teacher should take advantage of in a differentiated classroom (Tomlinson, 2008). When a child finds a topic interesting, they have a higher motivation to want to learn about that specific topic. Allowing

for choice or variety of topics to be learned in the classroom setting can be a driving force for a child to want to learn.

Children learn in different ways and when creating a curriculum, it is important to understand that each child may have preferences in learning (Sternberg & Zhang, 2005). Differentiated instruction is an approach to teaching that accommodates for differences in how students learn as well as their different capabilities (Ruhl & Berlinghoff, 1992). The actual learning 'style' of a child consistently changes and develops as they grow and mature, and some key fundamental understands for learning styles and preferences include:

Styles or preferences can vary across tasks and situations;

People differ in strengths of their stylistic preferences;

People differ in flexibility in their styles or preferences;

Styles and preferences are socialized;

Styles and preferences can very across lifespan they are not fixed;

Styles are modifiable;

(Sternberg & Zhang, 2005).

Awareness of a student's learning preferences or 'style' can have a dramatic effect on their success, but while learning styles or approaches to learning are an important factor, it is also crucial to realize that "styles are preferences not abilities" (Sternberg & Zhang, 2005). A learning style is not a type of identified intelligence or ability but rather a preference in a learning approach.

The trait of affect is how a child views and feels about themselves, their work, and the classroom, and the key to affect is that the teacher acknowledges there is more to a student's

learning than just content area knowledge. The student's affect is the gateway to help a student become more engaged and therefore more successful in the learning continuum (Tomlinson, 2003). When the teacher is aware of affect, there is a realization that a child has emotions and feelings that pervade their learning. Essentially, what might motivate one child may hinder another.

When examining these elements of learning, it is important to note that there is a strong body of research that contradicts the notion of learning style. In fact, conflicting evidence of a theory of learning 'styles' is now incorporated in countless educational literature questioning its validity.

> "Although the literature on learning styles is enormous, very few studies have even used an experimental methodology capable of testing the validity of learning styles applied to education. Moreover, of those that did use an appropriate method, several found results that flatly contradict the popular meshing hypothesis" (Pashler et al., 2008 p. 105).

For this study, it was important to recognize these conflicting perspectives regarding learning styles, but it will not discuss in depth the contradictory points. Instead it will refer to the theoretical roots of differentiated instruction and its links to constructionism, more specifically Vygotsky's Zone of Proximal Development (Santamaria, 2009) and recognize the intuitive appeal of the concept of learning 'styles' and preferences to practitioners. This is to reflect accurately and without judgement teachers' perspectives on differentiation.

2.4 Assessments

When evaluating the teaching strategies of differentiated instruction, it is valuable to examine the assessment strategies used to support this pedagogy because assessments are closely

linked to differentiated instruction (Mills et al., 2014). Assessments give information to the teacher to help them support the learning of the students (Smutny & Fremd, 2004). Often broken into the subcategories of formative and summative assessment, the latter is a new way of looking at assessment with a different purpose in mind. The goal of formative or assessment for learning is to inform the educator on the skills that a child possesses and what needs reinforcement. The goal of this assessment is to establish an authentic picture of the child's knowledge because assessments need to require a demonstration of understanding of a topic or subject area not the simple ability of recall (McTighe & Brown, 2005).

Assessments should be viewed as integral part of the teaching and learning cycle, and when used properly, these assessments guide and inform a teacher's instruction. (Stone, 1996). Thus, formative assessment plays a critical role in differentiated instruction, and it is clear that instruction and formative assessments go hand-in-hand and therefore cannot be divided into separate entities (Black & Wiliam, 1998). Formative assessment is not separate from instruction it can demonstrate to the educator the knowledge, understanding, and skills that are emerging for each student at a different time (Tomlinson, 2007). If differentiation is supposed to be responding to the learners needs, then it is the assessments that help inform the instructor where the student's needs rest. In the past, assessment was seen primarily as a way of gauging ability and achievement (Smutny & Fremd, 2004). In fact, a differentiated class tends to be one of the most regularly assessed, yet least evident in schools (Mills et al., 2014). Indeed, for assessments to work formatively, a teacher must use the information to adjust their teaching methodology (Black & Wiliam, 1998). A developmentally appropriate classroom will use instructional strategies designed to "fit the child" and their development (Stone, 1996). Formative assessment has a symbiotic relationship with differentiated instruction; to have one you need the other.

Assessment is an ongoing process which is tightly correlated with the instruction that takes place (Tomlinson, 2000). For differentiated instruction to take place at its most optimal capacity, there needs to be a constant rhythm and flow between assessment, instruction, reflection, and implementation. This cycle in a differentiated classroom allows a teacher to ensure the goals for a child is at their individual learning level.

This balance between assessment and differentiated instruction is especially critical in the primary age groups. During the primary years of learning there tends to be a larger gap of learning ability between students (Smutny & Fremd, 2004). This gap in ability in the younger age groups puts a larger pressure on the teacher to respond accordingly, and a teacher may need to use a plethora of assessments to gain a true understanding of a child's academic ability. The younger the ages, the more dramatic the variations are in assessments and performance tasks creating a larger variety of developmental levels (Smutny & Fremd, 2004). So, for true differentiation, a teacher must constantly assess to gather information on student needs (Brimijoin, 2002). Therefore, formative assessments play such a critical role in this type of pedagogy because a teacher cannot differentiate without knowing the needs and skills of their students.

2.5 Demands of the Classroom

The demands on the teacher go much further than the four walls of the classroom and includes legislative pressures, standardized test expectations, increased content standards, and classroom demands related to individual student needs. The foundation of the United States is dependent on the building blocks of a strong education (http://m.whitehouse.gov/issues/education/k-12). Creating academically responsive classrooms is important when the foundation of United States values are equity and excellence (Tomlinson, 1999). In 2002, a landmark government policy changed the climate

of educational policy. The No Child Left Behind Act of 2002 required years to draft and promised a new solution to the educational problems of the nation.

> "This plan is a promise to our children and their parents and to our young people seeking higher education. We promise to improve the quality of education and to raise our expectations of what students can accomplish. We promise to leave no student behind."
>
> (https://www2.ed.gov/about/reports/strat/plan2002-07/plan.doc)

This new legislation in the US discussed holding teachers accountable and linked the assessment results to federal funding, the result being added pressure for educators that you must perform to get paid (Debray-Pelot & McGuinn, 2009). The core philosophy of this legislation calls for little argument. The goals of this policy were to improve education by using research-based best practices, demand high expectations of students and hold the teachers accountable for student learning. The principles seem reasonable, but the evolution of this legislation altered the landscape of education.

Hot topics such as standards of learning and assessment in the educational field have provoked governmental interest in finding ways to increase learning and standards in education, seeing components of this philosophy as the key to unlock learning potential (Black & Wiliam, 1998). The election of President Barack Obama likewise led to modifications of existing policy to encourage further reform.

> "Race to the Top has helped drive states nationwide to pursue higher standards, improve teacher effectiveness, use data effectively in the classroom, and adopt new strategies to help struggling schools."
>
> (http://www.whitehouse.gov/issues/education/k-12/race-to-the-top)

This reform included significant funding of over four billion dollars and highlighted four key areas where change was necessary to improve the educational system of the United States.

The four key areas:

- Develop rigorous standards and assessments
- Create a data system to collect student performance
- Support educators to be more effective
- Increase emphasis and resources for interventions that can turn around low performing schools.

  (http://www.whitehouse.gov/issues/education/k-12/race-to-the-top)

With these new reforms came even more pressure as school or district funding continued to be linked to performance. With outside pressures to perform at an all-time high and legislation demanding results, Moon et al., (2003) found that accountability through high-stakes testing had a tremendous impact on teachers, their teaching practices, and learning process.

Governmental policy in the US and UK is now being built on the assumption that higher standards equates to higher success for our children, but an important question posed by McTighe and Brown (2005) was whether differentiation and standards can coexist, suggesting a paradox (http://m.whitehouse.gov/issues/education/k-12). Yet, when we have students unable to reach these high expectations, there are limited choices that an educator can do to ensure that their students are reaching for academic excellence. Subsequently, there is a growing need to bridge the world of standards driven accountability and address the individual needs of a diverse population of learners (McTighe & Brown, 2005). Differentiated instruction can be that bridge and act as a framework for scaffolding student learning to meet the high expectation of standards.

The pressures on educators beyond governmental oversight include a diverse student population as teachers work with students with English as a Second Language (ESL), learning impaired (LI), gifted and talented students (GATE) services, not to mention cultural and socioeconomic variations. These student variables lead to achievement gaps noted in media publications and academic research, some of which inspired the creation of educational resources such as gifted programs, response to intervention (RTI) models, and individualized educational plans (Santamaria, 2009). These programs aid the child and teacher but do not change the need for core instruction in an inclusive classroom.

There are no two classrooms alike and there is no single answer to meet the needs of such a diverse population of students, but it is reassuring to know that high-quality classrooms can help close the gap between children at high risks of school failure (Hamre & Pianta, 2005). The pressure to perform as an educator is at an all-time high and combined with a demanding population of students creates a stressful environment.

2.6 Academic Success

There are many challenges in serving students with varying academic, cultural, linguistic, socioeconomic, and other needs that preoccupy teachers since the publication of research highlighting achievement gaps (Santamaria, 20009). With these noted deficiencies, a constant mantra has been that differentiation is a potential solution (Tomlinson, 2000).

However, within the literature are limited examples of empirical data to support the effects of differentiation, and despite differentiation being acknowledged as an important methodology of instruction, little experimental research has been done on this particular pedagogy (Reis et al., 2011; Smit & Humpert, 2012; Tieso, 2004). Countless studies regarding differentiation exist, studying such phenomena as level of implementation of strategies, preservice teachers'

support of differentiation, teacher perspectives, administrator perspectives, and even student perspectives about differentiation (Brimijoin, 2002; Moon et al.,1995; Schumm & Vaughn, 1995; Tomlinson et al., 1995). These studies all measured different attributes of differentiation, but few addressed the impact on student achievement. With such a limited amount of research on differentiation and the impact it has on student achievement, it provides an opportunity to shed light on this pedagogy, especially when the studies that have been conducted showed promise.

Ferrier (2007) conducted a study looking specifically at the achievement changes when second graders were taught using a differentiated approach. Across the board greater testing scores and a significant impact on student learning was noted when the strategies of differentiation were implemented (Ferrier, 2007). Another study looked more specifically at the strategies of differentiation implemented for reading instruction and significant growth was measured in students' vocabulary and reading comprehension (McCullough, 2011). A study conducted by Brimijoin (2001) found that achievement gains were made in classrooms on standardized tests regardless of economic status. Similar results were concluded in a dissertation by Tieso (2002) which evaluated the effects of differentiated instruction on mathematics achievement through a series of pretests and post-tests. Cusumano & Mueller (2007) found that a small school in Fresno, California put an emphasis on implementing differentiation to meet the needs of struggling students and the results showed the school's overall ranking increased steadily as well as a decrease in discipline referrals, improved teacher morale, and significant gains in student reading, writing, and math skills (Cusumano & Mueller, 2007).

In a multi-age classroom a teacher is faced with multiple ages and grade levels which can cause educators to differentiate their instruction at a higher rate. By examining a broader scope of differentiated instruction there are studies that examined the achievement score of

multi-age classrooms versus single-grade classrooms and the overall motivation of students learning because of differentiated instruction. In these multi-age classrooms teachers are more likely to implement differentiated instruction because of age difference and therefore a high academic diversity is found in these classrooms. The pressure of being a multi-age teacher adds pressure for a higher level of differentiation (Kobelin, 2009). Miller (1990) found that multi-age classrooms had an increase on achievement tests compared to their counterparts of a single-grade level classroom. Even student motivation to learn was evaluated when differentiation was implemented. A study done in small schools looked specifically at a link between differentiation and motivation of the learner and found a significant link between this teaching approach and student motivation towards learning (Smit & Humpert, 2012).

These studies have looked at the achievement in single subject areas, across subject areas, classroom level, school level, effects on discipline, teacher morale, and even the overall motivation of the learners. Although the data displays a strong support for differentiation more research is needed, including a more system approach to examining the impact of this teaching.

2.7 Challenges with Implementation

While research shows that differentiation supports learning achievement with a diverse population, studies also show a lack of actual implementation. In a national survey of middle school teachers, 50% of respondents said they did not differentiate instruction based on readiness, interest, or learning profile, because they felt there was no need to do so (Moon et al.,1995). In fact, there were only a few strategies of differentiation being used in middle school classrooms, and the researchers described the use of these strategies more as tailoring of an assignment rather than true differentiation (Moon et al.,1995). Simple alterations are

not enough to reach the diverse population of students, rather there needs to be changes in the teachers' approach to create an impact.

This study was not alone in finding that teachers only do minor modifications to meet the diverse needs of their students as two separate studies arrived at the same conclusions as Moon and colleagues. The first study, a national survey on gifted education approaches, and the other, an observational study on gifted education instruction, both concluded that teachers did only minimal adjustments to meet the needs of students identified has having gifted needs (Archambault, 1993; Westberg et al., 1993). The results of these studies were later confirmed by McIntosh et al. (1993) when observations were being made to evaluate teachers making modifications for students with learning disabilities and found that teachers would do only minor modifications and minimal instructional changes to meet the needs (McIntosh et al., 1994). These studies proved that even when teachers are faced with identified learners with special needs whether it is gifted or learning impaired they implemented only minimal changes to their teaching methodological approach. This raises concerns when there is a lack of implementation of differentiated instruction even when teachers were faced with such diversity in the classroom. With an apparent lack of implementation of this type of instruction it becomes important to examine teacher perceptions about this pedagogy.

Schumm and Vaughn (1995) summarized the results of several longitudinal studies to describe instruction to special education students in mainstream classrooms, including a combination of interviews and questionnaires given to over 1,000 teachers and 3,000 students (Schumm & Vaughn, 1995). The results provided interesting insight as to teachers' understanding and perceptions of differentiated instruction. The explanations given by the educators for rejecting differences: modifications drew negative attention to learners, it was not their job, they were unaware of learner needs, and such special treatment will not prepare the student for real life (Schumm & Vaughn, 1995). Studies like this show a strong

disconnect between the research and implementation of this best practice approach due to perceptions held by the teachers.

Teachers' perceptions seem to aid in the lack of implementation of differentiation in several aspects. One study found that some teachers perceived differentiated instruction as a fad that would change over time (Subban, 2006). It also showed teacher concerns regarding the time needed to prepare differentiated lessons, the discomfort of student assessments, preparing for testing, concerns with classroom management, and an insecurity over the role of the teacher in this new environment (Subban, 2006). There are many reasons or even excuses on why differentiation is not being implemented in classrooms on a daily basis, and these findings were not unique as Roiha (2012) noted.

> "I think that in an ideal world many teachers would differentiate more than they actually do in practice." (Roiha, 2012, p. 10.)

These barriers created by perception may impact implementation. Roiha (2012) revealed that teachers who perceive differentiated instruction with a narrow definition often focused merely on differentiation as a task or assignment. This narrow perception can have a very limiting effect on the implementation practice of the educator. It was also noted that there seems to be a statistically significant correlation between the relationship of teacher's perceptions of differentiation and the ways they actually differentiate in the class (Roiha, 2012). However, a broader approach to differentiation seemed to lead to more purposeful and systematic way they implemented differentiation in the classroom (Roiha, 2012). Evidence suggests that teachers lack the confidence and don't know how to identify specific needs of students and therefore struggle to move away from "one lesson for all" (Tomlinson et al., 1995).

Another potential cause for the lack of implementation of differentiated strategies is due to the preparedness of the teacher. Many teachers need help to incorporate a variety of instructional strategies for differentiation (Holloway, 2000). Teachers can struggle to modify curriculum for students who are beyond the grade level standards and curriculum (Tomlinson et al., 2003). These shortfalls in differentiation by the teacher is apparent whether a student's needs are due to learning difficulties, enrichment needs, second language acquisition, or a cultural variance (Tomlinson et al., 2003). In fact, a doctoral dissertation done in 2002 incorporated a multifaceted qualitative study that demonstrated the complexity and therefore difficulty in-service teachers faced within the development of their skills of differentiation including process, product, and content (Brimijoin, 2002). Brimijoin's study outlined the varying levels of knowledge and developmental process for understanding differentiation for each teacher, but very time consuming for all.

Teachers identify numerous challenges with differentiation which included large class sizes, lack of time, limited resources, and minimal knowledge of differentiation strategies (Roiha, 2012). The time it takes for planning differentiated instruction can be a problem even for veteran teachers as Robison (2004) found that more investigation needs to be done in how teachers view time demands for planning differentiation and posed that this could be a potential barrier to implementation. Some of these barriers remain fixed because of funding and large student population, while others need further investigation.

These perceptions also may impact the implementation of the pedagogy of differentiation. A study by Tomlinson (1995) involving preservice teachers found that to truly inspire change in an educator's approach to teaching, it takes more than just a simple training or workshops on differentiation. Without some type of intervention, the gap would potentially widen between their belief system and actual practice of differentiation. The preservice teachers that demonstrated the most knowledge and desire to learn about differentiation were those who

participated in a training with a curriculum coach and a supportive environment created by administrators and fellow colleagues (Tomlinson et al., 1995). This study highlighted the importance of a supporting environment by school and district administrators to support differentiation, something reinforced by a three-year qualitative study that found that principals play a critical role in the teachers' "willingness and ability" to differentiate (Hertberg-Davis & Brighton, 2006). The environment that a principal creates impacts the implementation of this pedagogy because differentiation is not a single strategy or intervention but rather a complex set of nuances embedded in the philosophy of teaching. The implementation is not easy and takes several key components working together to make it successful. The complexity of this pedagogy requires continuous support and professional development (Blozowich, 2001).

Research seems to show a real struggle with implementation of differentiation. By creating a shared practitioner definition, it may help minimize some of these barriers and change some perceptions. Creating this operational definition could be a step in altering some of these barriers. Without having a shared vocabulary, it can limit the types of conversations that professional teachers can have but by building an ontology it builds a certain common understanding (Gruber, 1993). This is the goal of this research to create a common understanding among practitioners so discussions and learning can take place.

2.8 Creating A Common Vocabulary

Building an ontology among professionals is not a new idea and has been discussed in several other professional fields like computer science (Guarino, 1998). Ontology is the premise that there is an explicit specification of a conceptualization and it creates a common understanding held by a group of professionals (Gruber, 1993). By building an ontology among professionals, it creates a common ground of understanding and a certain level of

commitment to the understanding and implementation of that strategy. Ontological commitment is the exact idea that a group agrees on the meaning of something, coinciding with an understanding of how to implement it (Grossman & McDonald 2008).

Lortie (1975) expressed that there is a missing "common technical language" in the field of education. Decades later researchers claim that there is still a missing framework to talk about teaching, making it difficult to analyze teaching as impacting the learning of novice teachers (Grossman & McDonald 2008). Not having a shared understanding makes professional conversations extremely difficult because assumptions must be made that may lead to misconceptions by either party involved.

This lack of common vocabulary also affects the researchers in the field when interviewing and collecting data from teachers. Tomlinson (1995) interviewed teachers and found they identified themselves as using a differentiated teaching approach, but follow-up observations found little to no differentiation was in these same classrooms (Tomlinson, 1995).

> "In the absence of an operational definition, the most often repeated assumption among Midland teachers was, "we already do that"
>
> (Tomlinson, 1995, p. 80).

This study concluded that teachers were not attempting to deceive in their interviews but rather it was clear there was a lack of a common definition or shared understanding held by these teachers on this pedagogy of differentiation (Tomlinson, 1995, p. 79). Essentially, they didn't fully understand or share a definition of differentiation. Earl (2005) found that common terminology was again missing among teachers and concluded that teachers actually may do more differentiation but either did not recognize it as differentiation or just call it something else. The researcher stressed the importance that teachers need to strive to learn more about differentiation (Earl, 2005). This missing common vocabulary or understanding

is a theme in research on differentiation. A study done looking at differentiation in secondary classrooms found that a major theme was a lack of understanding by the teachers in the focus groups (Kiley, 2011). They all had different ideas of differentiation and in some cases the researcher was unsure if differentiation even occurred in the classroom setting (Kiley, 2011).

Many of these studies show that there is a lack of common vocabulary not just in the field of teaching, but in particular when discussing the pedagogy of differentiation. The lack of common definitions cause confusion in the studies themselves and shows how a missing practitioner definition is also impacting the implementation of this pedagogy.

However, building a professional vocabulary is not easy. Grossman and McDonald (2008) cautioned that to build a framework a common vocabulary would be incredibly difficult because of the complexity of teaching and that making decisions in the wrong places could impact the integrity of the framework. They also expressed that this same type of common vocabulary would improve educational research and professional education (Grossman & McDonald, 2008). Furthermore, this shared definition can create an ontological commitment among these professionals, defined as "agreement to use the shared vocabulary in a coherent and consistent manner" (Gruber, 1993 page 2).

It is important to realize that this shared definition or new formalized ontology does not mean that all participants will have a complete shared knowledge base. There will still exist a variation of the basic level of knowledge of each participant. Likewise, even with creating this ontological conceptualization, it does not mean all participants of this study will have the same content understanding or be able to answer all questions that could be asked in this field of study (Gruber 1993). It is important to understand that by creating this joint definition it becomes a steppingstone of a shared vision, a common understanding, and where teachers as professionals can discuss their teaching with a certain level of commitment of its meaning. Creating this ontological conceptualization will create this commitment to its definitions,

understanding, and implementation, but this "commitment to a common ontology is a guarantee of consistency, but not completeness" (Gruber, 1993 page 2).

As this study created an operational definition and built an ontological conceptualization the researcher examined the dynamics of the interpsychological and intrapsychological relations around the discussion of differentiation. The Delphi methodology allowed a group of peers to witness opinions of fellow colleagues and identify if there is any effect on their existing pedagogical viewpoints on the teaching and assessment strategies of differentiated instruction. Using the theoretical lens of Sociocultural theory, it will establish the rationale of how important this culture among teachers can be. The Sociocultural perspective was originally developed by Vygotsky with a belief that culture has a strong influence on the development of learning (Smutny & Fremd, 2004). Sociocultural theory provides a lens for the researcher to understand human behavior based on the rules of that social group they reside in. These social cultures have tools, semiotic mediation, and language, one could say an interconnectedness within them (John-Steiner & Mahn, 1996). Sociocultural theory has a strong belief that it is the culture that shapes the learner. For this study the educators selected for the panel are a part of a somewhat unique culture. The researcher will evaluate the changes that take place as the group developed a shared definition but also examine the individual changes throughout the process.

Chapter 3 - Methodology

3.1 Introduction

This study completed four rounds of surveys following the Delphi methodology. The Delphi model is characterized as structured communication to allow for an effective method in solving a complex problem by a group of individuals (Linstone & Turoff, 1978). This method uses a series of questionnaires to enable a panel of participants to reach a final consensus. This consensus can help solve existing problems in a particular field or even be used for forecasting the potential outcomes to a problem (Powell, 2003).

For this study, the focus was to develop a shared operational definition among a group of teachers and the Delphi model provided an optimal framework to do so. The Delphi method was created to encourage true debate between experts with the absence of personalities (Gordon, 1994). The research questions for this study were driven with the idea that a group of educators would create a shared operational definition of differentiation through the process of debate. The Delphi model was the necessary design to answer these critical questions.

Turoff (1970) laid out the four criterion of when to use the Delphi model:

- Explore or expose underlying assumptions that concludes different judgments.
- Seek out information and generate a consensus with a respondent group.
- Gather judgments on a topic that spans multiple subject areas.
- To educate the respondent group of a complex topic that has many key attributes.

With differentiated instruction being so complex, ways of implementation so diverse, and usage in classrooms sparse, using the Delphi model helped gather judgements and assumptions held by teachers. Any assumptions and understandings held by the panel members were evaluated by each other through each round of the Delphi. This process allowed judgments to be gathered and explore assumptions at an individual and a group level. This multi-iteration process of the Delphi encouraged a consensus to be built among this panel of educators. With the numerous rounds of the Delphi, complex topic of differentiation was broken down into the key strategies and defining attributes that support it. Utilizing the Delphi process each round had the potential to educate and alter, while creating a shared definition among a group of teachers[3].

3.2 Research Questions

A group of professionals need to have a shared understanding if they are to institute something across numerous environments. In the most basic terms, if teachers are expected to implement a teaching approach it is important that they can define it in their own words. Developing a common language can serve as a powerful tool in uniting a community of practitioners and researchers to improve teaching and teacher education (Grossman & McDonald, 2008). Building this common definition is the stepping stone to understanding and possible change. These are the foundational ideas of these research questions and the driving force for this study.

[3] Supervisor's comment: the Delphi technique has a number of challenges in its search for consensus and shared definitions. This reflects the tension, noted in Chapter 1, of the difficulty of trying to reach an agreed definition of differentiation whilst also seeking a shared professional understanding of what is involved pedagogically. Overt agreement and disagreement, even with anonymized statements, in a professional setting is complex and the reasons for each individual's responses will vary according to their experience, confidence and professional role. Ambiguity can be an important part of developing a shared consensus. An agreed definition can militate against such a consensus and understanding being achieved. In her notes and comments, Billie showed she was acutely aware of the challenge her role as researcher and as teacher posed in here engagement in the process of leading the research. This is reflected in the challenge of developing a shared professional understanding through the resolution process in the rounds of the Delphi technique.

PRIMARY QUESTION: What definitions can be generated in regard to the teaching and assessment strategies associated with differentiation among a group of teachers working in a similar environment?

SECONDARY QUESTION: To what extent is there a shared definition among elementary school teachers?

SECONDARY QUESTION: What types of discussions, concessions, or conflicts will originate among these elementary teachers as they generate a definition of teaching and assessment strategies of differentiation?

SECONDARY QUESTION: To what extent do teachers adjust their definitions of the teaching strategies and assessment strategies as they communicate their understandings with fellow colleagues?

This study offers a new approach at working through the particulars of a very complex aspect of pedagogy by the people who are inherently most responsible for its execution in its real-world application, namely the classroom. By letting teachers identify, define, and evaluate terms for their level of association to differentiation, it allows for a common understanding to develop within this group of educators. Since differentiation is so complex, developing a shared understanding can be difficult and therefore affects implementation. This study seeks to break this complex pedagogy into smaller parts so the panel of educators can jointly create definitions of its strategies. Building this shared definition will possibly help develop deeper understandings of the concepts surrounding differentiation.

3.3 Research Design

The Delphi technique has been used in multiple fields of study for decades. The Delphi method was originally developed in the 1950s by the RAND Corporation as a technological forecasting technique (Dalkey, & Helmer, 1963; Powell, 2003; Hsu & Sandford, 2007). The name of this methodological approach was created after the famous oracle Delphi because of her ability to foresee the future (Hasson et al., 2000). Between the years of 1950 and 1963, the lead researcher developed the Delphi model and used it through a series of experiments although these experiments had military affiliations and were, therefore, kept secret until 1963 when some of the findings were finally published (Okoli & Pawlowski, 2004; Woudenberg,1991).

This methodology allows a panel of experts in a particular field of study to make predictions and estimate unknown parameters. In the early uses of Delphi, it was used primarily as a forecasting tool with a strong quantitative approach (Woudenberg, 1991). It was a way to help foresee what problems may occur and at times even have experts suggest ways to help solve such issues. Sometime later, researchers relabeled the Delphi as a "communicative device" that focused on a more qualitative approach measuring success through the satisfaction of the participants (Woudenberg, 1991).

The Delphi model has evolved considerably over time to include countless fields of study and has taken many modified forms (Hasson et al., 2000). These forms of the Delphi technique helped diversify the use of this approach and the Delphi model has evolved over time to be used in a multitude of situations to help with solving problems by identifying agreement and disagreement (Linstone & Turoff, 1978; Okoli & Pawlowski, 2004).

The main attributes of the Delphi model consist of a process of iterations with controlled feedback and anonymity (Hsu & Sandford, 2007; Rowe, Wright, & Bolger, 1991). The Delphi approach is known for its attributes of bringing a group of experts together to form

one consensus. This research methodology at its core strength builds a consensus by a multi-iteration process.

> "A Delphi survey is a group facilitation technique which is an iteration multistage process, designed to transform opinion into group consensus."
>
> (Hasson et al., 2000, p. 1008.)

These stages build onto one another as a form of checks and balances. At each stage there is something new added, but the spiral effect ensures all analysis that is done by the researcher is constantly given back to the participants for their approval. For every level of the Delphi, there is constant feedback given to panel members, which is another strength of this model. All interpretations done by the researcher is given to the participants for their approval (Scheibe et al., 2002). This provides a sense of validity with the controlled feedback between the participants and the researcher with controlled feedback defined as a well-organized summary of the previous iteration (Hsu & Sandford, 2007). This helps to limit the biases of the researcher from interfering with the panel's judgements or explanations. It is critical that the researcher does not add to the collective data and the wording comes from the participants (Hasson et al., 2000). Dalkey (1972) described feedback of the Delphi process as a way to eliminate the "noise" that can take place. Dalkey's explanation of noise is the communication that distorts the data and deals with the interests of the individuals, not of the study (Dalkey, 1972). By using a controlled feedback method, it allows for an open forum to ensure that tampering by the researcher is not taking place and discussion stay on target. Also, this consistent feedback allows the panel to have the status of the collective ideas of the group (Hasson et al., 2000).

Another important aspect of using the Delphi Model is the anonymity that is held throughout all the stages (Rowe, Wright, & Bolger, 1991). Anonymity is created by the use of a

constructed questionnaire over a series of rounds. This allowed the participants to make alterations as seen necessary without the need for face-to-face discussions. A level of security and comfort is also added with this anonymity. There is a certain security created when a participant is not singled out and therefore feels a higher comfort level to submit an idea. A participant may then feel more comfortable to put forward a more controversial or questionable idea since the group does not know who or where the idea came from. It can reflect a truer sense of someone's beliefs or understandings because they can say what they believe, and no one can be ridiculed or belittled for their thoughts (Rowe, Wright, & Bolger, 1991).

A study conducted by the RAND Cooperation in 1949 put forward that the idea that unstructured and direct interaction is not the most accurate way to create predictions (Dalkey, & Helmer, 1963). This philosophy held true in a cross examination of multiple studies done by Woundenberg decades later in 1991. This study found that that there are three major conclusions about the Delphi methodology.

1. Several individual judgements are more accurate than of one random individual judgement.
2. Judgements resulting from interacting groups is more accurate than statistically aggregated judgments.
3. Unstructured, direct interactions have disadvantages that can lead to decrease in accuracy (Woundenberg, 1991).

The Delphi model allowed participants a safety shield of being unknown and therefore builds a sense of security to risk sharing ones' true thoughts. This safe environment can also help with the reliability of the data collected since no one was identified by their opinions.

The participants in this study were anonymous to each other and feedback occurred at every round allowing for the responses of the group to be summarized by the researcher and then given back for the approval of the panel. This elimination of Dalkey's "noise" was considered, and by using this method, side conversations were avoided. Nor would discussions be dominated by one panel member, and all panel members had to participate. This format of using questionnaires versus face-to-face allows for independent thought by individuals and not a hasty response that can arise within a group discussion (Dalkey, & Helmer, 1963). This consensus building methodology gently forces members to stay on topic through the structure of the survey. The framework of the Delphi model forced individual responses, and no voice was silenced. In fact, Skulmoski, Hartman, and Krahn, (2007) describe the Delphi technique as an interactive process because of its collaborative nature of panel members and controlled feedback. The Delphi approach provided the model to encourage all participants to have a voice, a safety in anonymity, and the security of multi-iterations to help avoid misleading interpretations by the researcher.

3.4 Research Methods

The purpose of this is study is to build a common definition for differentiation among professionals in the education field. In reviewing existing literature on differentiation, little focus was found on acquiring an operational definition of the strategies of differentiated instruction. More so, little was found on building a practitioner definition of differentiated instruction, indicating a need for such research. Grossman and McDonald (2008) argued that for teacher education to make strides forward first we need to reconnect to the field to address the complexity of teaching as a practice. Likewise, Smit and Humpert (2012) found that collaboration among a team by discussing and learning about differentiation caused the

highest level of implementation. This study thus reconnects to the field by creating a definition among practitioners through collaboration of the consensus building Delphi model.

Following the Delphi model, this study began at the individual level via a first-round use of an open-ended questionnaire to ask the panel to identify and define teaching and assessment strategies of differentiation: **see Appendix A.**

The first questionnaire should be unstructured allowing a more open response approach. (Powell, 2003) By using an open-ended response survey, it allowed the teachers to input their opinions on what they believed were the strategies of differentiation. This round allowed for the most input to be gathered by the panel members. It contained only minor limitations so that it could collect the unfiltered input of the panel. With the first-round so opened-ended, it allowed the teachers in this study to identify and define strategies of differentiation with no preconceived ideas given by the researcher because the goal of the first-round survey is to identify issues to address later in the study (Powell, 2003). The terms that they identified and the definitions that were derived all originated from the panel members themselves.

After the initial questionnaire is received back, the researcher then uses a qualitative analysis of the results to construct the second survey (Powell, 2003). Once the data of Round One was collected, the researcher analyzed it, looking specifically for shared understandings to emerge using NVIVO for coding: **see Appendix B**.

The data of the first questionnaire was analyzed, categorized, and then sent back to the participants for a second round of the Delphi model. “Controlled feedback” takes place in-between each round, and this is where the researcher showcases a summary of answers to all members (Rowe, Wright, & Bolger, 1991). The goal of the researcher was to organize the information from the panel in a systematic way, minimizing manipulation to maintain validity of the findings. With this approach, the participants’ responses were the foundation

for the categories that were used in the second round of the questionnaire. These individual responses are then evaluated by the researchers to consolidate the responses into a single set to be used and evaluated in future rounds. (Rowe, Wright, & Bolger, 1991) The role of the researcher is to make sure the data is organized and ready to be evaluated by the panel in the next round. It is therefore important that the length of Round Two does not exhaust the panel, creating a drop out of the respondents since having subject motivation to continue their participation in the study is critical to the success of the research (Hsu & Sandford, 2007).

The second round asked the panel members to do an evaluation using a Likert Scale: **see Appendix C.**

In this round, there is a certain validity because the interpretation of the researcher is then evaluated by the panel. In Round Two of this study, the panel evaluated the collected responses because after each round the goal is to present the information to the participants to re-evaluate the information (Rowe, Wright, & Bolger, 1991). By giving back the information collected from the individuals and presenting it to the group, it can generate discourse. Individual panel members may hold different ideals and understandings and in the second round the group must evaluate the data that was collected from round one. The Delphi model allows effective decisions to be made in situations where contradiction can take place or if there is an insufficient amount of information (Hasson et al., 2000).

At this stage, the respondents used a Likert Scale to show their level of agreement or disagreement on particular terms and definitions. The statistical group response is done at the end of the round when the judgments of the group are expressed as a median to showcase the strength of the consensus (Rowe, Wright, & Bolger, 1991).

The panel thus evaluated the collected responses to see if there was agreement among them that these terms and definitions are teaching and assessment strategies for differentiation. At the conclusion of round two, the researcher statistically analyzed the level of agreement or disagreement by the group. This new data is what will be used by the researcher to create round three.

One challenge with the Delphi is to ensure there is no predetermined threshold of what makes a consensus (Walker & Selfe, 1996; Heiko, 2012). Some studies have used 70% or even an arbitrary number as 66% as a consensus threshold (Walker & Selfe, 1996). Loughlin and Moore (1979) established that 51% was enough to be identified as a consensus and this was supported later by McKenna (1994). Other studies have chosen to have a much higher level of a threshold to represent consensus being met. Verhagen and colleagues (1998) used 70% as the threshold of agreement while Rodríguez and colleagues (2013) used 80% as a benchmark showing high agreement while building a common definition of frailty to build understanding in the health of functionality of an older person.

With such differences in thresholds it was on the researcher to choose a benchmark that best fit the research questions and demands of this study. A threshold of 80% of agreement was used as the consensus benchmark to be identified as a shared definition. The researcher set the consensus threshold high because the goal was to build a common vocabulary which meant flushing out the details of each definition of the teaching and assessment strategies. The goal of this shared definition was to build an ontology or a formal conceptualization with this group of educators. Having a higher consensus threshold forces discussion to take place where differences in the details may reside building a stronger and clearer sense of understanding.

During the third round, the participants will reevaluate the strategies of differentiation and allow for follow-up input on any terms that did not meet the consensus benchmark. The panel

was given a statistical summary of the second round, and it showed the terms and definitions of the teaching and assessment strategies of differentiation that did not meet consensus: **see Appendix D.**

The third round asked for the panel to explain their opinion for each term and definition provided. It required the panel members to write a short response on why or why not the teaching and/or assessment strategy provided is or is not a form of differentiation. This allowed the researcher to collect the opinions of the panel members on each remaining strategy. The qualitative data collected was then reorganized into three categories - agree, disagree, and undecided - for the panel's final review in round four.

In round four, the participants were provided a summary of the previous rounds and finally asked to use the same five-point Likert scale from Round Two to see if the group has reached a new consensus: **see Appendix E.**

The statistical calculations at the end of Round Four were then compared to those of round two. An examination of changes that occurred to the groups opinion will be discussed in detail in the results and discussion chapters of this thesis.

The strength of the Delphi model is its ability for anonymity, multiple iterations, and consistent feedback allows for strength to be found in this approach, which is why it was selected for this research design (Hsu & Sandford, 2007; Rowe, Wright, & Bolger, 1991). The Delphi technique is an existing methodology that gives a strong foundation by building a consensus through the iteration process and it is widely accepted for achieving opinions and real-world knowledge by a panel of experts (Hsu & Sandford, 2007). This methodology helped create a check and balances to ensure there is a certain level of agreement with not only the terms/definitions put forth but also the interpretations by the researcher. It also

highlighted points of contention and allowed for further discussions to take place by the panel members.

Another reason why the Delphi technique was used for this study was because of the type of data that can be collected when using this type of methodology. The Delphi model allowed the researcher to use both data collected from a quantitative and qualitative approach. Round one, used a qualitative approach to analyze collected data identifying themes and nodes using NVIVO. In round two, quantitative data was collected from the Likert scale that will show where consensus and disagreements have occurred. In round three, qualitative data was collected as the panel writes their opinions in support or opposition for those particular terms that did not reach consensus. In the final round, all the information from Round Three will be organized and then given back to the panel to reevaluate these terms using the Likert scale. Through the multi-iterations it created opportunities for the researcher to document discussions made by panel members along each step and evaluate changes in opinions as each round of the Delphi take place.

The statistical calculations at the end of Round Four were then compared to those of round two. An examination of changes that occurred to the groups opinion will be discussed in detail in the results and discussion chapters of this thesis.

Anonymity provided another reason why the Delphi technique was the chosen method for this study. The anonymous format allows the participants to take risks in their sharing and be truthful in their thoughts and can help diminish the effects of dominant individuals in group-based formats (Hsu & Sandford, 2007). It can be easier to share one's beliefs in an environment where no one knows who you are, taking risks and sharing beliefs that maybe in a face-to-face format may seem intimidating. While the participants were anonymous to each other, the researcher could track the individual responses of the panel members as they go through the process of each stage. It allowed the researcher to monitor opinions and note

changes through each round. Anonymity provides an environment that encourages involvement and also permits a certain level of comfort in that no one in the group knows who says what or who decided to change their opinion.

Finally, with the chosen study population being a worldwide school system, using the Delphi model allowed participants in this study to share their viewpoints even though they worked in different schools, districts, or even countries. The design model allowed for data collection digitally, making it so participants can complete it at their leisure. The Delphi approach created a strong framework to meet the needs and demands of the research questions while also providing convenience with the population of panel members in this study.

3.5 Sampling

The educators selected for the panel are part of a unique culture of teachers living and working abroad for the Department of Defense Education Activity (DODEA). DODEA teachers live away from family, choosing to live and work overseas in a foreign country, so this culture of teachers become a support system for one another. In fact, many of these teachers they have spent most of the professional career working as a DODEA teacher (Richmond, 2015).

This population of teachers were chosen for four main reasons. First, DODEA schools provide a structure that allows teachers the opportunity to implement curriculum in unique ways. Department of Defense Schools are located all over the world on American military instillations which allows them to fall under a different jurisdiction than the Department of Education, so it does not need to follow all the same legislations that other districts and schools are required too (Richmond, 2015). As a whole, the teachers of DODEA have more flexibility with curriculum choices and therefore their approach to teaching is not as heavily

influenced by legislation and mandated policies like other public schools (Richmond, 2015). One of the largest regulations DODEA schools are not required to follow is the No Child Left Behind Act of 2000 (Bush, 2002). This law added enormous pressures for schools across the United States to increase testing and reporting. A similar effect took place with President Obama's Race to the Top initiative (Obama, 2010). DODEA was not required to follow the mandates of either legislation, although it is important to note DODEA schools do participate in annual standardized testing like Terra Nova, NAEP, and SAT. This makes the population of educators unique because DODEA is a school system that still allows its teachers to make individual curricular decisions. DODEA requires content area standards to be taught but how a teacher decides to teach those expectations is up to their professional discretion.

Secondly, this population of teachers are offered extensive training opportunities. Training modules were integrated into every DODEA schools' professional development agenda including the model Using Data to Differentiate Instruction (UDDI) (http://www.feaonline.org/passport/communication/updates/president/9-16-10.htm). This included a series of trainings formulated at DODEA headquarters and then filtered to superintendents, administrators, and teachers around the world. DODEA schools have spent a significant amount of time, money, and instruction for their educators to help provide them with the tools and knowledge of differentiation. The format in which the trainings were facilitated may have been controversial, but the message was clear, DODEA wanted teachers to use data to differentiate their instruction.

In addition, all schools have professional development days that are focused around their Continuous School Improvement (CSI) Plan (http://www.dodea.edu/CSP/). For CSI, schools have a mission statement, a vision, and two goals supported by the use of certain interventions. These goals will have to be measurable and documented throughout the CSI cycle that lasts approximately five to seven years (http://www.dodea.edu/CSP/). There is no

way to collect all the specific data on each and every school of DODEA due to privacy and security concerns. Although, it has been the experience of this researcher from working at three different DODEA sites that there is always some type of professional development involved with CSI, some of which encompassed differentiated instruction. For example: ways to differentiate learning centers or how to interpret Benchmark Assessment System (BAS) data to identify strategies to reach readers. In fact, a recent CSI goal and now mandate for the Europe East School District scheduled weekly collaboration meetings to examine student achievement, academic support for students, and using DuFour's guiding questions to reflect on teaching approach (http://www.dodea.edu/Europe/east/index.cfm).

The third reason for this population choice is the special culture of DODEA. These teachers live and work abroad, leaving their family thousands of miles away. This helps create a culture of teachers that at many times depend on each other for much more than just professional support. They live in a foreign country where their family becomes those they work with and live next to one another on military installations. This community of teachers have their children grow up together, travel together, and become both a professional and personal support for one another. In an article written about DODEA teachers and students for the US News mentioned that DODEA and the military community it supports is a closed system, meaning that the students, parents, and teachers all live in close proximity and work diligently together as a community (Richmond, 2015). The same article spoke specifically about DODEA teachers in general stating that they are typically highly educated and that there is a low turnover rate with DODEA teachers (Richmond, 2015). This means the population for this study tends to be part of this community of for a long time working and collaborating together.

The final reason for the selection of this population for this study was access. I have worked for the DODEA schools for fourteen years in the capacity as a classroom teacher, reading

specialist, and instructional support specialist (teacher trainer). Being a part of this particular community of teachers gave me unique access to the educators within it. DODEA uses Microsoft Outlook where a global system of teachers are a click away through e-mail. This allowed easy communication and provided a common platform to contact and collect data systematically for this study. No matter what school, district, or country a teacher works in, communication was simple, and DODEA's global e-mail system made disbursement of surveys and information effective and simple.

The general population for this study was DODEA elementary school teachers, but a review of the literature shows some discrepancies when it comes to panel selection and evaluating what makes an 'expert'. There are many arguments regarding what makes an expert, including experience, educational background and even eagerness to learn. However, much time is spent arguing whether experience is the telling trait, essentially whether a veteran teacher offers more expertise than a new instructor.

Hattie (2003) did extensive research on the differences between experienced versus expert teachers and found that there are sixteen attributes that distinguish them. None of these attributes link directly to years as an educator in a classroom, but rather it was the ability for a teacher to challenge their students and create deep processing in their students thinking (Hattie, 2003). The research suggests that to have the best dialogue or most reliable data it is based on the expertise of the panel members (Okoli & Pawlowski, 2004). For this study, the panel was created as a representative sample of DODEA teachers. They were not vetted as expert teachers but rather the researcher decided to use four criteria to try to create a diverse panel of educators that would be representative of DODEA elementary school teachers around the world. These included teachers of varying levels of experience, educational background, grade levels, and specialties.

For the selection of panel experts, four variables were used to ensure a wide selection of educators. The criteria created teacher participants to represent varied positions held in a typical elementary school. The four criteria for the panel selection included: grade level taught, specialist of a certain subject area, experience as an educator, and level of education. In most elementary schools, there are teachers that range in their expertise. Delphi researchers argue that the experts should be chosen based on knowledge and experience in that particular field (Powell, 2003).

For this study, teacher representatives for each of the following grade level bands were identified and included: Sure Start (preschool) through kindergarten, first and second, third and fourth, and fifth and sixth grade teachers, bringing their own expertise to the conversation.

The next category of participant section included specialists. In DODEA schools, specialists work with students in a particular subject area or for a very specific purpose. Large group specialists work with whole classes in areas such as art, music, physical education, host nation (host country culture), education technology (computer lab), information science (library), and foreign language elementary school (FLES). These types of educators meet with all the classes within a school on a weekly to bi-weekly basis and instruct to meet their specialized content area standards. The criteria of specialists also included a section for small group instructors. These educators work with either individual students or small groups of students to accommodate individual needs. DODEA educators in this field include special education, gifted education, speech pathologists, counselors, psychologists, English language specialists, reading and math specialists. Some would argue that the objective of these teaching positions are naturally differentiated, because they lead Student Study Team (SST) meetings to discuss struggling pupils or are on the Case Study Committee CSC panel discussing the goals and aims for a child with an Individualized Education Plan (IEP) or a

504 Accommodation Plan. These specialists spend most of their day differentiating at the individual level to meet the demands of the special population of students enrolled in DODEA schools. This is one of the main reasons why this group of professionals needed to be represented in this study. Even though they may not differentiate for a classroom full of students, they do need to meet the special demands of their own caseload of students with special needs, gifted learners, and English language learners. Within the description of their job they also assist general education teachers in modifying instruction to meet the needs of their population in a mainstream environment.

The panel size for this study was nineteen participants, all of whom are primary school educators in Department of Defense Education Activity Schools (DODEA). This meets the basis for what is required in the consensus grouping. The "representativeness" of the sample is evaluated by the quality of the expert panel not necessarily by the size of the sampling. (Powell, 2003) For this study, there were a total of 29 educators that were approach by e-mail asking if they would participate in this research study. Of these 29 participants approached, 19 completed the survey, giving this study a 65% response rate. The breakdown of the teachers that declined to participate in this study one kindergarten teacher, one second-grade teacher, five third and fourth grade teachers, one fifth-grade teacher, and two specialists. Of these ten educators, all but three of them made personal contact with the researcher either by e-mail or in person explaining for personal reasons that this was an inopportune time for them to participate in this study.

Demographic background of the 19 participants included three pre-K and kindergarten teachers, six first and second grade teachers, one third and fourth grade teacher, three fifth and sixth grade teachers, and six specialists. For this study, there was a higher volume of Pre-K through second grade teachers since the researcher works at an elementary school that starts at Pre-K to second grade making these grade levels easily accessible. The low number

of third and fourth graders did not go unaddressed. The researcher attempted to ask multiple teachers at these grade levels to participate gaining even verbal confirmation from two participants whom later never completed the survey and apologized for their non-participation.

The specialist subsection represented both large and small group specialists. In this study, the panel had two large group specialists which included a math coach and a Science Technology Engineering Math (STEM) teacher. There were two small group specialists that included a reading specialist and a special education coordinator, and a counselor that works with students in both a small group and a large group setting. The final specialist was a district Instructional Support Specialist that works with teachers in grades fourth through sixth as a curriculum coach to help them implement English Language Arts. This gives the final total of 6 specialists that participated in this study: **see Figure 3.1.**

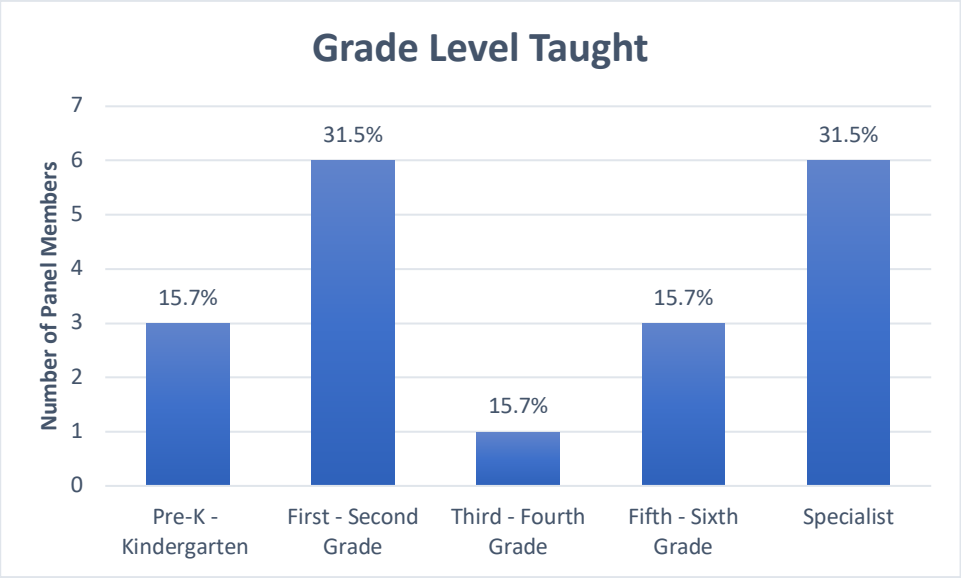


Figure 3.1 Panel Demographic Graph – Grade Level Taught

The third criteria for the selection of educators was the level of experience. Within any elementary school it is easy to find teachers with varying levels of experience. To account for

these differing perspectives, participants were asked to participate based on the following categories of teaching experience in years: 0-5, 6-10, 10-15, and 16 plus. Including this criteria, allowed the panel of experts to represent a continuum of teaching experiences. For the first category of 0 to 5 years of experience 3 of the 19 participants fell in this category or 15.7%. The second category of 6 to 10 years of experience offered 2 participants or 10.5% of the panel. The third category of 11 to 15 years of experience included 6 participants or 31.5%. The final category was the largest including 8 participants or 42.1% of the panel population: **see Figure 3.2.**

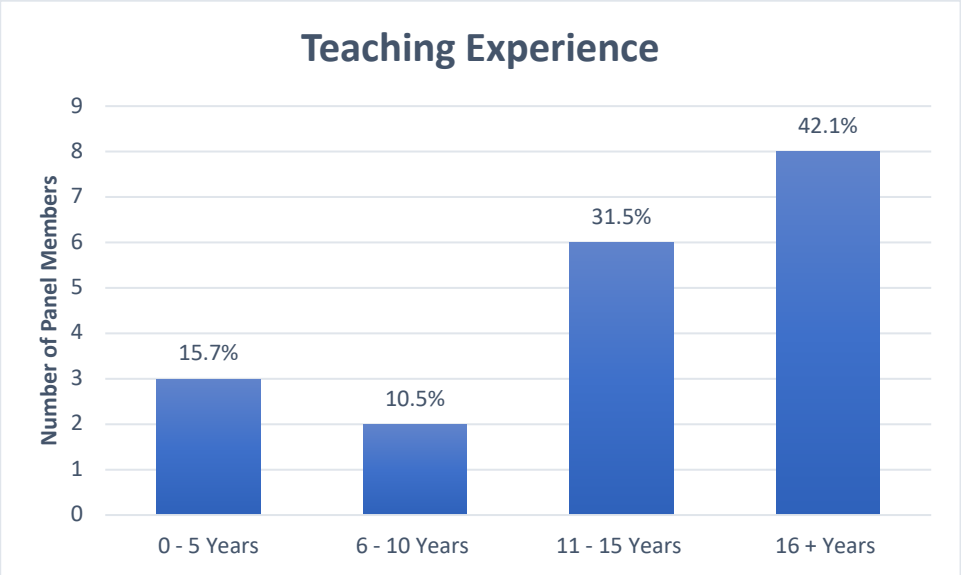


Figure 3.2 Panel Demographic Graph – Teaching Experience

The level of experience and educational background of DODEA teachers tend to be significantly higher than the counterparts in the States (Richmond, 2015). Approximately two thirds of DODEA teachers hold higher degrees, and the salary for DODEA teachers is correlated with the largest urban areas in United States, making the turnover rate very low (Richmond, 2015). The researcher found that this panel had a larger percentage of teachers with more experience, which was indicative overall of what is found in DODEA schools, but further overall general research of the demographic make-up of all DODEA teachers could

not be done because it is prohibited by the collection of Personal Identifiable Information (PII) or the Privacy Act (http://www.dodea.edu/privacy.cfm).

The last category documented the level of education of each participant, and the categories chosen mirror the criteria used by DODEA's salary scale. This scale categories are bachelors, bachelors plus 15 units, bachelors plus 30 units, master's degree, master's plus 15, master's plus 30 units, and doctorate. For this study, there were two categories that were not represented in the panel. Those categories were bachelors plus 15 units and participants with a doctorate degree. One of the teachers that turned down the participation due to personal reasons would have met the requirement of holding a doctorate degree.

For the first category of bachelor's degree, there were 2 participants or 10.5%. The second category bachelors plus 30 contained 2 participants or 10.5% of the panel and the category of master's degree included 15.7% or 3 participants. For the category of master's plus 15 units, 3 participants or 15.7% of the panel demographics, and finally, the last category of masters plus 30 included the largest selection of panel participants of 47.3% or 9 subjects: **see Figure 3.3.**

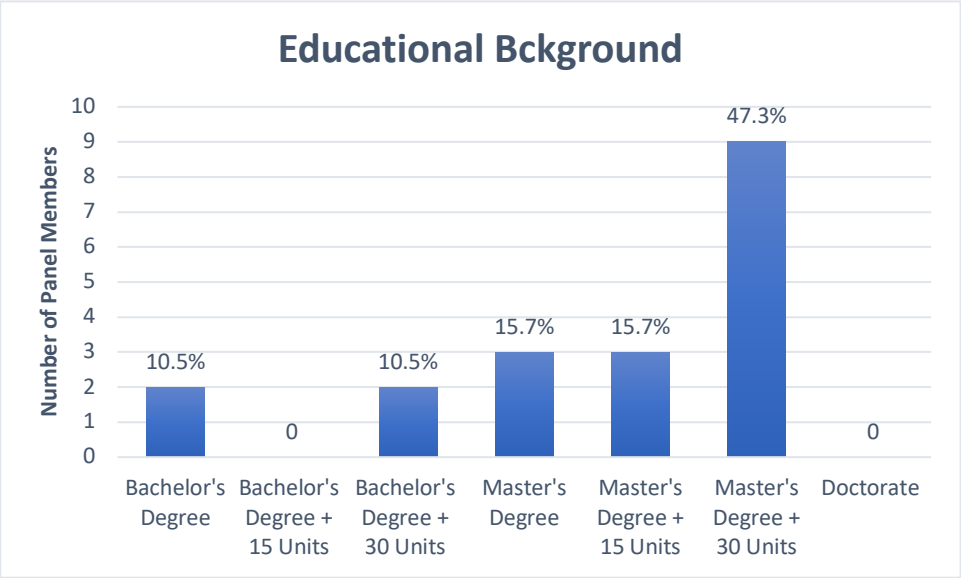


Figure 3.3 Panel Demographic Graph – Educational Background

3.6 Data Analysis

The Delphi model uses a mixed methodological approach to build a shared consensus among practitioners. Each round encompassed a certain type of data analysis to meet the needs of that particular survey and ultimately answer the research questions guiding this study.

Round one used an open-ended response survey where data was collected from each panel member. This data was entered and themes were coded for their likeness and then used to formulate the second round survey. For the first round, the researcher used NVIVO as the coding software, to identify nodes of commonality that ran across survey samples. These themes were then used to create the terms and definitions of the teaching and assessment strategies of differentiation of round two. This was the first step to developing a shared definition among these educators, going from individual responses of Round One to creating a cohesive group definition of each teaching and assessment strategies in round two.

For Round Two of this Delphi model, the participants were asked to use a five point Likert Scale to rate each term and definition as a teaching or assessment strategy that supports differentiation. These results were calculated looking for a consensus benchmark of 80% or higher. For any term and definition that did not meet this benchmark, it was identified as needing further discussion. Therefore, following the ideas of controlled feedback, it was given back to the panel in round three. For those terms that reached the consensus benchmark of 80% or higher it was considered a shared definition among these professional educators. By using the Likert scale in this round, it allowed for a quantitative value to dictate when a consensus was met.

Round three of this study asked the participants to follow a semi-structured response. This round asked each panel member to take a particular stance on each remaining term and

definition that did not meet the consensus benchmark from round two. For each term and definition, the participant needed to write at least one sentence in either support, disagreement, or undecided remarks about whether or not it supports differentiation. The responses from Round Three were then collected and reorganized using those same categories: agree, disagree, or undecided. This reorganized data was given back to the participants in Round Four, so they could review and compare ideas from other panel members: **see Appendix E.**

The Round Four survey comprised feedback from all previous rounds. This included the statistical outcomes of Round Two and the semi-structured responses reorganized from Round Three leaving the final decision to be made using that same five-point Likert Scale. The goal was to present all ideas that were collect from the previous Delphi surveys and then allow the panel members to re-evaluate each term and definition to build that final piece for consensus. Round Four used the same five-point Likert scale from round two. For data analysis of Round Four the same benchmark of 80% was used to identify consensus.

In the results and discussion section of this study further details will be communicated about the outcomes of this shared definition that was created and the terms and definitions that were still left not meeting the consensus mark.

3.7 Validity & Reliability

When discussing validity and reliability of a study, it is important to examine critiques of the design and discuss ways these concerns were addressed. The Delphi model is a research design that has been around for decades and used in multiple fields of study, but regardless of its sustainability, it is still flawed. Subjectivity seems to be a common critique of the Delphi and can be linked to the way Delphi is implemented and its methodological design.

There are some critiques of the Delphi model that do raise questions about this type of methodology. One of the largest criticisms is the fact that there are multiple ways to implement a Delphi study. The adaptive and flexible nature of Delphi can be positive, but it falls upon the researcher to ensure validity and reliability is not sacrificed (Skulmoski et al., 2007). It has also been argued that there is no step-by-step guide in how to develop and implement this design. That raises some questions on the reliability of this methodology. The core piece of reliability is the internal consistency that occurs in a study and its ability to be repeated to similar results (Golafshani, 2003). There are safeguards to help prevent this in a Delphi design. One of those prevention methods is the idea of multiple iterations. All interpretations done by the researcher is sent back to the panel to ensure the results are a true representation of their thoughts and not skewed by researcher bias.

Another concern with the Delphi design arises from the lack of a designated number of rounds needed to reach consensus. There is no definitive rule on the number of rounds for this methodology, so it is in the hands of the researcher to make important decisions along the way, working towards consensus but stopping before diminishing returns sets in (Hasson et al., 2000). The strength and weakness of the Delphi can be the multi-iteration process. The issue with the multiple iterations is the impact on the response rate. Multiple iteration feedback process is an imperative part of the Delphi which lends itself to the potential of lower response rate after each round (Hsu & Sandford, 2007). The Delphi process is also very time-consuming, which can lead to an increased dropout rate or lower response rate by the participants. Participants may drop out of the study at different stages of the research because it takes a large block of time to be completed because of the sequential and iterative methodology approach of the Delphi (Hsu & Sandford, 2007; Hasson et al., 2000). Time is necessary in between each round of the Delphi model to ensure that analysis is done correctly. The iteration process of the Delphi model validates the accuracy of results but

increases the workload of the researcher and the time that is needed to complete the collection process (Cunliffe, 2002).

> "Delphi investigators need to be cognizant, exercise caution, and implement the proper safeguards in dealing with issues of molding opinions." (Hsu &Sandford, 2007, p. 5)

Even with safeguards, it can still be difficult to evaluate accuracy and reliability (Woudenberg, 1991). It falls on the shoulders of the researcher to keep reliability and validity at the forefront of one's mind.

Subjectivity is also a concern when discussing panel selection. Some argue the importance of panel selection and lay out very specific details in what establishes an expert. Judd (1972) deflected criticism about panel selection by theorists like Dr. Welty by saying the description of what constitutes an expert is upon the researcher to define. Judd (1972) also defended the idea that when pertaining to education, it would not be hard to find experts in the field, especially in higher education. For the purpose of this study, Judd's stance on educators is important, because he argues that in this field everyone can be considered a professional. Hattie (2003) did extensive research on teacher experts and found that it is not directly linked to the years' experience but rather of several attributes that separated teachers as experienced versus experts. It was impossible to match Hattie's criteria for expertise with panel selection because guidelines by DODEA research committee did not permit classroom or teacher observations. So instead, the goal was a criterion-based representative sample of elementary educators as experts for this study. Teachers in this panel ranged in educational background, experience, grade level and specialization taught.

With the Delphi, external validity is questioned because it uses a small group of panel members. External validity is the idea of how universal or how much generalizability can be

made based of the findings of a study (Golafshani, 2003; Hasson et al., 2000). Even with a representative sample, the validity of the findings and the ability to generalize findings can be questionable (Skulmoski et al., 2007).

The Delphi method is an evolving design that has changed over time from when it was first created, changing from a forecasting quantitative approach to a more qualitative one, opening itself to more subjectivity and therefore less rigor (Hasson et al., 2000). This critique of rigor is nothing new, as Sackman (1975) noted it for its lack of methodological rigor. This paper used a criterion approach for panel selection to help create a representative sample of elementary teachers for many reasons. It was important to create this shared definition with all elementary school teachers and not just those labeled as "experts" (Hattie, 2003). The sample size was on the larger size for a Delphi model consisting of 19 panel members, and to help with the generalizability of this study, it was important to have all voices to be heard in the discussions of differentiation.

For this study the researcher took the subjectivity of the Delphi design as a serious problem and put forth safeguards to ensure the reliability and validity of this study's design. The design of this study used four rounds to find that balance of making sure the ideas of the panel members were carefully represented and giving enough time for opinions to be shared when consensus was not met. By using multiple rounds, it allowed for the interpretations of the researcher and results of the previous rounds to be viewed by the panel helping to ensure reliability and validity. Also, using four rounds allowed the study to evolve with each round incorporating a new level of interpretation needed by the panel members without making the time between surveys too long or length of the survey too intimidating. This balance is critical when discussing response rate. If the surveys became too daunting or confusing it would have a dramatic effect on the response rate in the later rounds of this study. It is important to note that in Round One there was a total of 19 participants in the study and in

the final round there was a total of 16 participants still active in the study. There was a total of 84% of the original panel still participating in the fourth round and seeing the study through to conclusion.

3.8 Ethical Considerations

Ethical considerations need to be made in all conducted studies. Bryman and Bell (2007) made a list of ten principles of ethical considerations that should to be reflected on in any study in the social sciences.

1. Participants should not be harmed.
2. Respect and dignity of the participants is a priority.
3. Privacy of the participants must be ensured
4. Full consent is necessary
5. Confidentiality of the data should be ensured
6. Anonymity of the individuals must be ensured
7. Deceptions in the objective or goals of the research must be avoided.
8. Any conflict of interests need to note
9. Communication must be done clearly and with transparency
10. In representing the data, bias must be avoided.

With these principles in mind, full consent of participants was invited in a letter to participate. This letter assured the participants that this study had been approved by the ethical board of Durham University and was also in compliance with the approval and guidelines of the DODEA Research Approval Board: **see Appendix F**.

This letter also explained the goals and aims of the study to create a transparency in purpose. All contact was done individually, so confidentiality would be ensured, or when surveys were delivered through their e-mail. Precautions were made so no participant names or e-mails were ever shared. Information was always kept anonymous and confidential to all except for the researcher. The design model of the Delphi allowed for the data to be collected, analyzed,

and then sent back in the next round for the approval of the panel members, allowing for anonymity through the whole study. This design also created a check and balance for researcher bias. All of these precautions were made to help avoid bias on the researcher parts and also made sure that the data presented to the panel was clear and not skewed in any way.

Chapter 4 - Results

4.1 Introduction

This study used the Delphi model to build a consensus with a panel of educators on the definitions of the teaching and assessment strategies of differentiation. There was a total of four rounds of surveys with data collected from each panel member and each subsequent round moving closer to building a consensus of commonality. This chapter will report the results of each round and provide insight on the data gathered to lay the groundwork for further discussions on the results and findings of this study.

4.2 Round One Results

Round One of this study used an open-ended questionnaire to gather data from each individual in the panel. The survey was comprised of three sections. The first asked each panel member demographic questions. The second asked the participants to identify and define teaching strategies they associate with differentiation, and the third asked them to identify and define assessment strategies they associate with differentiation: **see Appendix A.**

There was a total of 19 surveys collected at the end of Round One. All surveys were imported into the qualitative data analysis software NVivo. The researcher coded the opened-ended responses looking for similar terms and themes that could be derived from the panel members. The results of the coding process produced a systematic way of evaluating the qualitative data collected in Round One. The goal was to interpret the information collected and represent it back to the panel in a precise way for their evaluation as discussed in the Methodology section (see Chapter 3).

The first section of the survey asked four demographic questions where data was collected on each panel member. This included grade level, area of teaching, experience in education, and level of education: **see Figure 4.1.** The goal of collecting this type of demographic

information was to create a broadly representative sample of what might be found in a similar elementary school. Not all categories were represented equally but this data did indicate that there was a spread of educators with varied level of experience, education, and grade levels/specialty backgrounds participated in this study. Further breakdown of the demographic information from the first section of the Round One survey was discussed in more detail in the methodology section of this paper.

Panel Member ID	Grade Level	Specialist	Years' Experience	Education B = Bachelors' Degree M = Masters' Degree
A1	First		20	B + 30
B2	Fifth		24	M + 30
C3	Fifth		8	M + 30
D4	Second		9	M
E5	First		13	M + 15
F6		Special Education Coordinator	38	M + 30
G7	Fourth		12	M +15
H8	Kindergarten		1	B
I9	Second		11	M +30
J10	Sure Start Pre-K		22	M + 30
K11	First		13	M + 30
L12	Kindergarten		3	M
M13	Fifth		22	M + 30
N14		Science Technology Engineering Mathematics	10	M
O15		Reading Support	40	M + 30
P16		Counselor	19	M + 30

Q17		District ELA Teacher Trainer	15	M + 15
R18		Math Coach	22	B + 30
S19	First		2	B

Figure 4.1 Panel Member Demographics

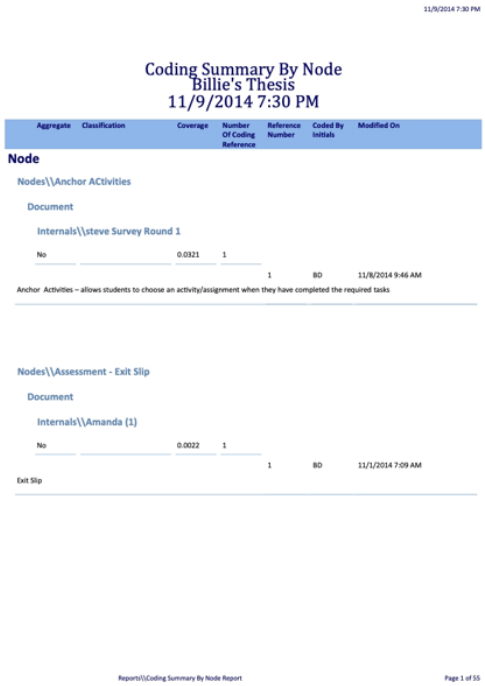
For the second section of the Round One survey, the panel members identified and defined a total of one hundred teaching strategies collectively with an individual low of one and high of seven. For section three, the panel members were asked to identify and define assessment strategies associated with differentiation for a total of 69 terms and definitions collected in this section of the Round One survey with an individual low of zero and high of seven. These strategies provided by the individual panel members varied in terms, concepts, and definitions: **see Figure 4.2.**

Panel Member	Number of Teaching Strategies	Number of Assessment Strategies
A1	4	3
B2	7	7
C3	6	6
D4	7	4
E5	6	5
F6	3	3
G7	5	4
H8	7	6
I9	6	3
J10	1	1
K11	7	3

L12	4	4
M13	7	0
N14	5	4
O15	4	3
P16	5	1
Q17	6	3
R18	5	7
S19	5	2
Total Number Strategies Collected	100 Teaching Strategies	69 Assessment Strategies

Figure 4.2 Terms and Definitions Provided by Each Panel Member – Round One

The second and third section of the survey collected a total of 100 teaching strategies and 69 assessment strategies associated with differentiation. Both the teaching and assessment strategies provided by the panel members included several redundant terms and definitions. These responses were coded in NVivo creating a total of 58 thematic nodes. For a sample of the NVivo coding: **see Figure 4.3 and Appendix B.**



11/9/2014 7:30 PM

Coding Summary By Node
Billie's Thesis
11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Node						
Nodes\\Anchor ACtivities						
Document						
Internals\\steve Survey Round 1						
No		0.0321	1			
				1	BD	11/8/2014 9:46 AM
Anchor Activities – allows students to choose an activity/assignment when they have completed the required tasks						
Nodes\\Assessment - Exit Slip						
Document						
Internals\\Amanda (1)						
No		0.0022	1			
				1	BD	11/1/2014 7:09 AM
Exit Slip						

Reports\\Coding Summary By Node Report Page 1 of 55

The themes that were identified from Round One data were used as the foundation to create the second-round survey: **see Appendix C.**

These redundancies or similar lines of thinking show that teachers did hold some similar terminology and concepts regarding differentiation. For example, the term guided reading was mentioned by eight of the panel members. Panel member H8 listed "guided reading as students placed in groups based on reading level. I am able to differentiate their guided reading lessons and independent work based on the groups." While panel member B2 defined it as "small reading groups where students are put together based on their Lexile level (assessment level), topic of interest, or their need for reinforcement in regard to a particular skills." Participant D4 noted that "through the use of guided reading groups one can differentiated mini- lessons to work on a particular skill in smaller groups." All three of these definitions provided by panel members allowed some insight into the understanding that are held by this group of teachers. There was some shared understanding that guided reading was held in smaller groups and put together by some purpose, whether it was reading level, interests, or needed skill. Although, eight panel members may have identified guide reading

as a teaching strategy for differentiation, it is also important to note that means eleven panel members did not. So there was no complete saturation. This same term therefore could be used as an example of how shared ideas where held by some but not consistent throughout the panel until further discussion in future rounds.

It important to note that each definition provided by a panel member may have been coded under a few different thematic nodes because of the complex definition provided. For example, the same definition was coded for guided reading and also flexible grouping because of the way it was defined by the participant. Panel member E5 defined guided reading as "children grouped by ability – read small texts together- focus on strategies that will meet a child's need-progress and move through other groups as ability changes/progresses." Although the labeling term guided reading was used within the definition, the idea that as a child's needs progress they may be moved to other groups met similar ideas provided by other panel members for flexible grouping. Therefore, this definition was coded for both guided reading and flexible grouping because it showed that participant believed in regrouping children rather than remaining within that identified group.

4.3 Round Two Results – Teaching Strategies

This second survey consisted of two sections for the panel members to evaluate. The first section focused on the teaching strategies that support differentiation. This section consisted of 38 questions that provided the terms and definitions collected and analyzed in Round One. The second section contained 20 assessment strategies and definitions teachers associated with differentiation: **see Appendix C**.

The Likert Scale was chosen for its ability to measure the level agreement by a panel group. It allowed the researcher to statically evaluate the data to determine if the consensus threshold of 80% was met by the panel members or if further discussions were necessary in future Delphi rounds. Percentages represent mean scores from all respondents completing each question. All portions of the Round Two survey used the same five-point Likert Scale to evaluate each term and definition using these choices:

Strongly Disagree

Disagree

Undecided

Agree

Strongly Agree

In the first section of the Round Two survey a total of 38 teaching strategies were presented, and of these, 30 reached the consensus threshold of 80% or higher: **see Figure 4.4.**

Teaching Strategy	**Definition**	**Consensus Percentage (n=19)**	**Likert Scale Result**
Authentic Assessment	An authentic assessment is important to differentiation because it gives a teacher evidence of the student's thinking process to include the strategies and problem solving skills that will be used to drive instruction.	100	Agreed & Strongly Agreed
Conferencing	Conferencing with a student(s) allows for a conversation to take place on a particular skill or topic where a teacher can identify the strengths and weaknesses. The teacher can use this time to reteach a simple skill, expand an idea, and collect formative data on a child or small group.	100	Agreed & Strongly Agreed
Flexible Grouping	Flexible grouping involves grouping students by instructional level, ability, interests, intervention focus, and/or friendships with	100	Agreed & Strongly Agreed

	the ability to alter grouping when necessary to meet the needs of all students.		
Learning Styles	Using the different learning styles of students to modify instruction or the delivery of assignments to best meet their unique learning needs.	100	Agreed & Strongly Agreed
Assessment for learning	An ongoing/formative assessment that drives the instruction of a teacher. This type of assessment identifies where the students are on a continuum of learning by identifying strengths, weaknesses, and misconceptions that will guide the next steps of instruction.	95	Agreed & Strongly Agreed
Performance Assessment	Demonstrates the mastery of a subject/topic through various means other than traditional testing formats. Example: Presentations, Pictorial Artwork, Oral Presentations, Technology-Based Products.	95	Agreed & Strongly Agreed
Alternative Assessment	Alter the manner or assessment format in which a student can demonstrate their understanding of a given concept. This can include but is not limited to changing the testing format to include variations of question design (essay, multiple choice, short answer), showcasing knowledge by the creation of a product/presentation (written, pictorial, oral technology-based), observation and document findings through anecdotal notes, and/or the use of a student portfolio.	95	Agreed & Strongly Agreed
Technology	Using different forms of software or websites that allows a teacher to differentiate the level of skill or task for each student.	95	Agreed & Strongly Agreed
Choice	Giving students the choice on a writing topic, what to do next in the classroom, or on what type of product they choose to represent their learning choice. This allows them to take part in the decision- making process, gives them the opportunity to demonstrate their mastery in a preferred method of learning, and also empowers them for success.	95	Agreed & Strongly Agreed
Guided Reading	A small group of students, grouped with a purpose in mind, using a similar text, working on a specific focus, skill, or strategy.	95	Agreed & Strongly Agreed
Individual or Small Group Pacing	Evaluating and promoting individual or small groups of students to a higher level when they show mastery of a skill set like sight words, math facts, spelling tests, and independent reading.	95	Agreed & Strongly Agreed
Learning Environment	Incorporates student cultures, interests, and differences to welcome organization, collaboration, flexible grouping, and intervention of different strategies.	95	Agreed & Strongly Agreed

Tiering	Adjusting or scaffolding the learning experiences according to a student's readiness, interest, or learning modality.	95	Agreed & Strongly Agreed
Project Based Learning	A product-based project that can be assigned or the opportunity for topic choice given to an individual or a group of students that can showcase their knowledge and understanding.	90	Agreed & Strongly Agreed
Observation	As a formative assessment tool, observe and collect anecdotal notes as an indicator of a student's knowledge of a specific topic or skill.	90	Agreed & Strongly Agreed
Cooperative Learning Groups	Students are designated to a specific group based on interest, same ability (homogeneous), mixed ability (heterogeneous), to work on problem solving, projects, research, or even individual work. Many times these group activities focus on not just a certain academic skill, but also encompass social skills necessary to work in a team atmosphere.	89	Agreed & Strongly Agreed
Guided Math	A small group of students, grouped with a mathematical purpose in mind, working on a specific focus, skill, or strategy.	89	Agreed & Strongly Agreed
Multiple Intelligences	Recognizing Garner's Multiple Intelligence and altering instruction to meet the different needs of the students and their learning preferences. (musical/logical/linguistic/spatial/visual/body kinesthetic/interpersonal/intrapersonal)	89	Agreed & Strongly Agreed
Modified Assignments	Changing the assignment to work on the same skill or standard but altering it to meet needs. For example, giving fewer problems or asking for a simpler response by the student to illustrate their understanding.	89	Agreed & Strongly Agreed
Adult Intervention	Using other teachers, assistants, and volunteers to help differentiate. For example, extended practice of a specific skill or extension for the advance students.	89	Agreed & Strongly Agreed
Portfolio	A collection of student work through artifact collection digitally or through a paper file that shows a child's depth of understanding for a specific skill or content area.	84.2	Agreed & Strongly Agreed
Rubrics	Rubrics are a differentiated grading tool for group projects, individual projects, writing assignments across all curricular areas. The rubric may be individualized to meet the diverse needs of the students	84	Agreed & Strongly Agreed
Assessment-Check for Understanding	A verbal or non-verbal form of communication like thumbs up or down to	84	Agreed & Strongly Agreed

	see how students understand and relate to a new concept.		
Goals	Having the students track their progress and set goals based off their pre/post test results.	83	Agreed & Strongly Agreed
Centers	Using Bloom's Taxonomy to set up different learning centers or activities with varying levels and then directing students to a particular task or center that matches their ability.	83	Agreed & Strongly Agreed
Feedback	Language to teach, prompt, and/or reinforce based on a student's initiations or performance. The language used by the teacher is clear and specific versus the vague "Good Job!"	83	Agreed & Strongly Agreed
Peer Mentoring	Students working collaboratively with classmates or students from another grade level to accomplish a task. This gives a platform of instruction to take place between peers.	83	Agreed & Strongly Agreed
Seating	Arranging seats to incorporate the best learning environment for each child to include access to the teacher, behavior modification, and peer mentoring.	83	Agreed & Strongly Agreed
Differentiated Spelling	Using or creating a curriculum that allows students to work on spelling in an individual or small group format, thereby, focusing on spelling patterns that the child needs specifically.	83	Agreed & Strongly Agreed
Writer's Workshop	A framework that allows student choice of writing topics and the practice of going through the writing process at an individual pace. This allows conferencing with peers and the teacher.	83	Agreed & Strongly Agreed

Figure 4.4 Teaching Strategies Consensus Met – Round Two

This left a total of eight teaching strategies that needed further investigation in future Delphi rounds: **see Figure 4.5.**

Teaching Strategy	Definition	Consensus Percentage	Likert Scale Result
Self-Evaluation	Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.	79	Agree/Strongly Agree

Assessment Computerized	A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of question formats (multiple choice, true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper-pencil response.	79	Agree/Strongly Agree
Assessment Graphic Organizer	Using graphic organizers like KWL (know, wonder, learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of a child or class.	79	Agree/Strongly Agree
Clustering	A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.	78	Agree/Strongly Agree
Compacting	An intervention made for students with advanced readiness by adding more rigor, depth, or complexity to ensure mastery of the required curriculum.	78	Agree/Strongly Agree
Inquiry	Following the steps of the scientific method and allowing for student-driven questions and research to generate the direction of learning. This process may include a WebQuest, for example.	78	Agree/Strongly Agree
Choral Reading	Reading textbooks as a class to help scaffold the text for students who are not on grade level.	67	Agree/Strongly Agree
Whole Group	Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.	61	Agree/Strongly Agree

Figure 4.5 Teaching Strategies Consensus Not Met – Round Two

Before discussing the results further, it is important to note that there were two incomplete surveys out of the 19 received from the panel. The researcher evaluated the data two ways using the 17 completed surveys and then evaluating the consensus benchmarks using all 19 surveys to examine how it would affect the results. Of the 58 teaching and assessment strategies, it impacted only one term and definition. This particular term was Assessment – Graphic Organizers. Using all 19 surveys, the consensus result was 78.9%, short of the benchmark and therefore it was forwarded into future rounds for further discussions. By filtering the results using only the 17 completed surveys the consensuses results would have

been 82.3%. This would meet or pass the 80% threshold and therefore not need further discussion. It was the decision of the researcher to use all 19 surveys to gather as much input from as many panel members as possible. This would mean all 19 participants in Round Two were also invited back to participate in future rounds of the study to gather their input. This did make the researcher take certain safeguards in future surveys to minimize similar issues arising again. It also meant that the term Assessment Graphic Organizer was treated as not meeting the threshold and would be carried through future surveys for further discussions.

4.4 Round Two Results – Assessment Strategies

In second section of the Round Two survey there was a total of 20 assessment strategies provided to the panel for their evaluation. Of these, 15 of the assessment strategies reached the consensus threshold of 80% or higher: **see Figure 4.6.**

Assessment Strategy	Definition	Consensus Percentage	Likert Scale Result
Manipulatives	Allowing for manipulatives to be used	100	Agreed & Strongly Agreed
Question Formatting	Altering assessment questions to meet communication abilities	100	Agreed & Strongly Agreed
Time Allotment	Giving extended time	100	Agreed & Strongly Agreed
Technology Assistance	Using technology to read the test to students	94	Agreed & Strongly Agreed
Modifications	Making modifications of testing based on IEP (Individualized Education Plan) Protocol	94	Agreed & Strongly Agreed
Highlighting	Highlighting the important parts of directions	94	Agreed & Strongly Agreed
Direction Alterations	Reading the directions to the student(s)	94	Agreed & Strongly Agreed
Testing Format	Altering assessment administration alteration from large group to small group format	94	Agreed & Strongly Agreed
Individualized Testing	Assessment administration at the individual level	94	Agreed & Strongly Agreed
Split Tasks	Breaking up an assessment into smaller portions	93	Agreed & Strongly Agreed
Modified Testing	Reading a test aloud	93	Agreed & Strongly Agreed
Visual Support	Using pictures on assessment to help struggling readers or ESL students (English Language Learners)	88	Agreed & Strongly Agreed

Response Format	Change a written assessment to an oral response	87	Agreed & Strongly Agreed
Response Assistance	Having an adult scribe or record verbal responses	82	Agreed & Strongly Agreed
Recording Responses	Using computer software to record verbal responses	82	Agreed & Strongly Agreed

Figure 4.6 Assessment Strategies Consensus Met – Round Two

Five assessment strategies did not meet the consensus benchmark and needed further discussion in future survey rounds: **see Figure 4.7.**

Assessment Strategy	**Definition**	**Consensus Percentage**	**Likert Scale Result**
Process Feedback	Giving an example	76	Agreed & Strongly Agreed
Adapted Tiered Assessment	Shorten the number of items on a test	76	Agreed & Strongly Agreed
Question Design	Altering question design to highlight big concepts versus specific details	65	Agreed & Strongly Agreed
Modifying Questions	Changing certain problems or numbers on a math assessment	59	Agreed & Strongly Agreed
Group Based Assessment	Allowing students to work in a team or group for an assessment	59	Agreed & Strongly Agreed

Figure 4.7 Assessment Strategies Consensus Not Met – Round Two

4.5 Round Three Results

Using the results of Round Two, the terms that did not meet consensus were carried over to Round Three so further discussions could take place. There was a total of 13 questions that made up Round Three. In this round, the participants were asked to explain their thinking about each strategy through writing their opinion in a semi-structured response format. Each participant was asked to write a sentence or more explaining why or why not this strategy supported differentiated instruction. For those panel members that were undecided, they wrote why they were unsure about a particular strategy. The qualitative responses were collected and then re-organized under three categories agree, disagree, and undecided. An example of organized responses is provided below: **see Figure 4.8.**

Teaching Strategy	Definition
Self-Evaluation	Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.
Agree – Self Evaluation is Differentiation	
I could argue that Self-Evaluation is a form of differentiation because, it allows individual children to gain their own insight into a process of task, assignment, or project. The most vital aspect to make sure the learning takes place for these self- reflections is to make sure the rubric is understandable and maybe even created together as a group, therefore making the expectations explicit to each child. Self-evaluation is a form of differentiation. Self-evaluation allow students to reflect upon their work within their parameters of understanding. A low performing first grader may be able to look at their writing and see if they are doing a good job on capitalizing and making complete sentences but may not have gained the knowledge or maturity to analyze their work for content. If it's one type of many evaluations that will be used then I think it would be considered differentiated. I think this is a great idea for older students. It will work in kindergarten if pictures are involved but I think it is a great tool. This way students will not have questions about what is expected of him or her and can explain their thinking when challenging a grade. I think self-evaluation could be a good tool for all so I would agree that it is a good differentiation tool. By using self-evaluation, students can gain insight into their own learning. It easily leads	

into discussions about where a student is currently is and where they want to go.

Self-Evaluation is a form of differentiation because students have the opportunity to demonstrate their understanding and skill concerning specific areas. It also provides the student the opportunity to check their own work. The teacher is able to assess the students' progress and create adjustments to each students assignments because the teacher will have a better understanding of what the student knows from the self-evaluation.

Using a rubric to grade themselves or classmates is a good tool for a student to show how well he or she feel they know the information presented. Students also tend to focus more on what they are doing (what the lesson is providing) when they are assessing themselves or others. If the teacher uses the information gathered from these self-evaluations to differentiate instruction, then I agree that self-evaluation can be a form of differentiation. Yes, it could help the teacher see what the student thinks he/she could have done better. That information would help with future instruction.

It allows students to evaluate themselves and understand the process of evaluation. Having rubrics is also helpful in understanding expectations. Self-evaluation is a K-2 classroom however is very general and basic. Students are learning what it means to evaluate according

I believe it is....starting at a certain age, maturity, or grade level. I can differentiate students and put them into differentiated groups according on how they self-evaluate themselves.

Disagree- Self-Evaluation is NOT Differentiation

I think what you find out in Self-Evaluation in differentiation is more emotional than academic. Many students are not mature enough to objectively evaluate their strengths and weaknesses in the elementary grade. Since research suggests they should not be introduced to competition until the age of 11, I am not sure self-evaluation is a valid differentiation tool.

This all depends on how the evaluative feedback is used. Self-evaluation is powerful, but in and of itself, it does not meet the definition of differentiation in action. Rather it is one of the means in which data is compiled to determine the scope and focus of subsequent differentiation.

This is a tool for students to self-evaluate their learning of a given concept. This is not a form of differentiation. Strongly disagree

Self-evaluation may be a tool to allow the teacher to differentiate instruction, but it isn't "differentiation." The teacher must use the information in order to differentiate.

Undecided Comments

Undecided. Is the grading rubric done before or after the assignment? If kids don't struggle with end game, then no. However, if there is subjectivity then, yes.

Figure 4.7 Teaching Strategies Comment Reorganization – Round Three

An overview of collected comments from Round Three can be found in **Appendix G.**

The percentage of the opinions were calculated for the categories agree, disagree and undecided for each term and definition. There was a total of 16 completed surveys at the end of Round Three. The graph of percentage averages of Round Three was to create at a glance a summary of the thinking of the panel members. The researcher did not evaluate this round to see if a consensus benchmark was met because the goal of this round was to collect individual opinions from the panel. This information was then given back to the panel in Round Four to review for a final evaluation using a Likert scale. **see Figures 4.9 and 4.10.**

Teaching Strategy	Definition	Number & Percentage of Comments supporting disagreement:	Number & Percentage of Comments supporting undecided:	Number & Percentage of Comments supporting agreement:
Compacting	An intervention made for students with advanced readiness by adding more rigor, depth, or complexity to ensure mastery of the required curriculum.	0	0	16 100%
Graphic Organizers	Using graphic organizers like KWL (know, wonder, learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of a child or class.	3 18%	1 6%	12 75%
Inquiry	Following the steps of the scientific method and allowing for student-driven questions and research to generate the direction of learning. This process may include a WebQuest, for example.	1 6%	3 18%	12 75%
Assessment Computerized	A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of question formats (multiple choice, true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper- pencil response.	5 31%	0	11 68%

Self-Evaluation	Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.	4 25%	1 6%	11 68%
Clustering	A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.	6 37%	0	10 62%
Choral Reading	Reading textbooks as a class to help scaffold the text for students who are not on grade level.	10 62%	1 6%	5 31%
Whole Group	Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.	12 75%	1 6%	3 18%

Figure 4.9 Teaching Strategies Comment Percentages – Round Three

Assessment Strategy	Definition	Comments supporting disagreement:	Comments supporting undecided:	Comments supporting agreement:
Modifying Questions	Changing certain problems or numbers on a math assessment	2 12%	2 12%	12 75%
Adapted Tiered Assessment	Shorten the number of items on a test	5 31%	1 6%	11 68%
Group Based Assessment	Allowing students to work in a team or group for an assessment	3 18%	2 12%	11 68%
Question Design	Altering question design to highlight big concepts versus specific details	2 12%	7 43%	7 43%
Process Feedback	Giving an example to show proper response format	9 56%	0	7 43%

Figure 4.10 Assessment Strategies Comment Percentages – Round Three

4.6 Round Four Results – Teaching Strategies

The collected responses from Round Three were organized and given back to the panel for final evaluation. Round Four was comprised of thirteen questions including eight which focused on the teaching strategies and five on the assessments strategies that support differentiation. In this round, the panel members received information from the previous rounds including a statistical Likert scale summary of Round Two and a re-organization of the opinions collected in Round Three: **see Appendix E.**

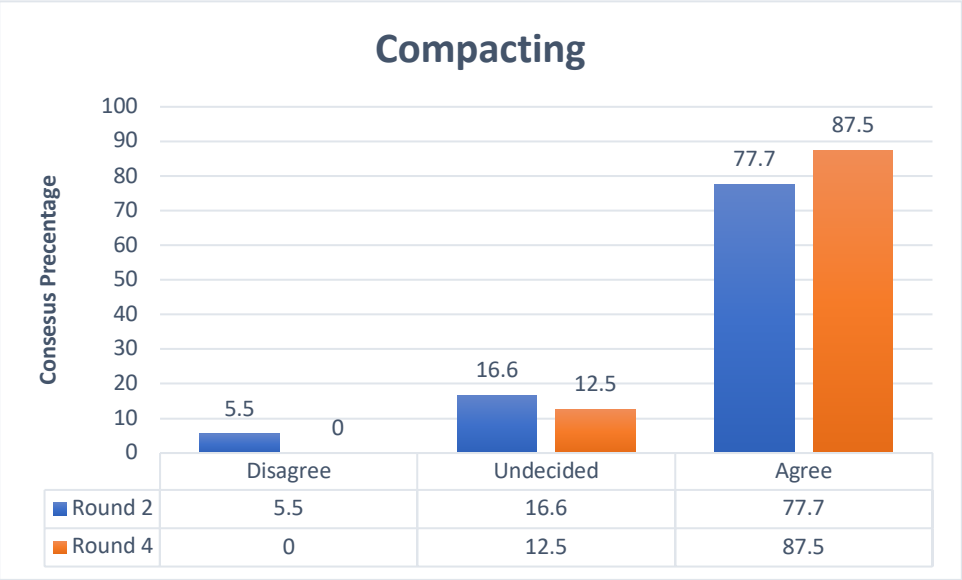
In this final round, the panel members used the same five-point Likert scale from Round Two to evaluate the remaining thirteen terms. After having them self-reflect on their own thinking in Round Three, the goal of this final round was to have the panel members review the opinions of others and then re-evaluate these terms one last time.

In Round Four, there were a total of eight teaching strategies of differentiation evaluated by the panel. In the final review, two strategies, Compacting and Inquiry, reached the consensus benchmark of 80% or higher. Although there were only two strategies reaching consensus in this final round, some significant data was gathered showing a change in the thinking of the panel members: **see Figure 4.11**

Teaching Strategy	Definition	Round Two Consensus Percentage	Round Four Consensus Percentage
Compacting	An intervention made for students with advanced readiness by adding more rigor, depth, or complexity to ensure mastery of the required curriculum.	78% Agree/Strongly Agree	87% Agree/Strongly Agree
Inquiry	Following the steps of the scientific method and allowing for student-driven questions and research to generate the direction of learning. This process may include a WebQuest, for example.	78% Agree/Strongly Agree	81% Agree/Strongly Agree
Whole Group	Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.	61% Agree/Strongly Agree	18% Agree/Strongly Agree
Assessment Graphic Organizer	Using graphic organizers like KWL (know, wonder, learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of a child or class.	78% Agree/Strongly Agree	75% Agree/Strongly Agree
Choral Reading	Reading textbooks as a class to help scaffold the text for students who are not on grade level.	66% Agree/Strongly Agree	31% Agree/Strongly Agree
Clustering	A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.	78% Agree/Strongly Agree	62% Agree/Strongly Agree
Self-Evaluation	Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.	78% Agree/Strongly Agree	50% Agree/Strongly Agree
Assessment Computerized	A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of question formats (multiple choice, true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper- pencil response.	78% Agree/Strongly Agree	43% Agree/Strongly Agree

Figure 4.11 Teaching Strategies Percentages – Round Two and Four

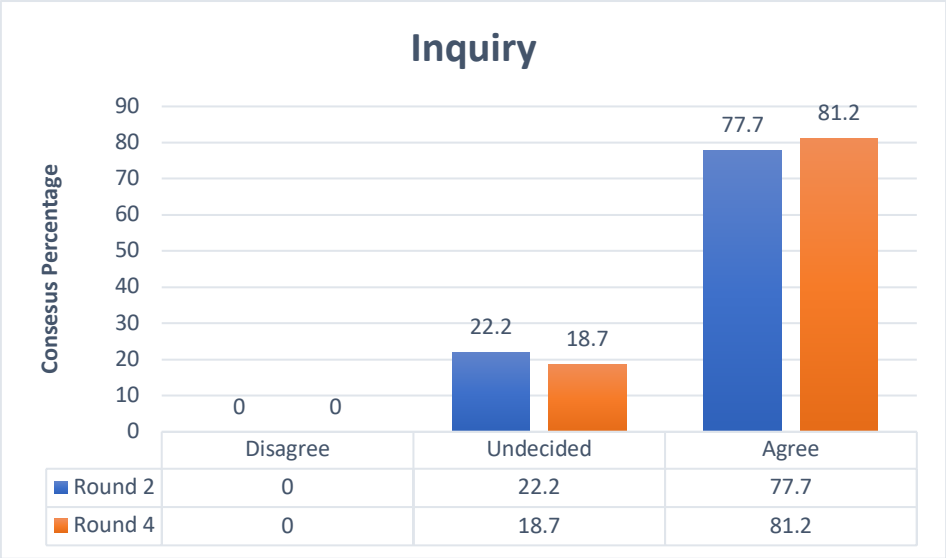
Of the eight terms presented in the first section of the Round Four survey, two terms reached final benchmark of 80% or higher. In Round Two, Compacting was at 78%, and after Round Four, the panel reached a consensus of 87.5%: **see Figure 4.12.**



Teaching Strategy	Delhi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Compacting	Round 2	5.5	17	78
	Round 4	0.0	12.5	87.5

Figure 4.12 Teaching Strategy - Compacting Percentages

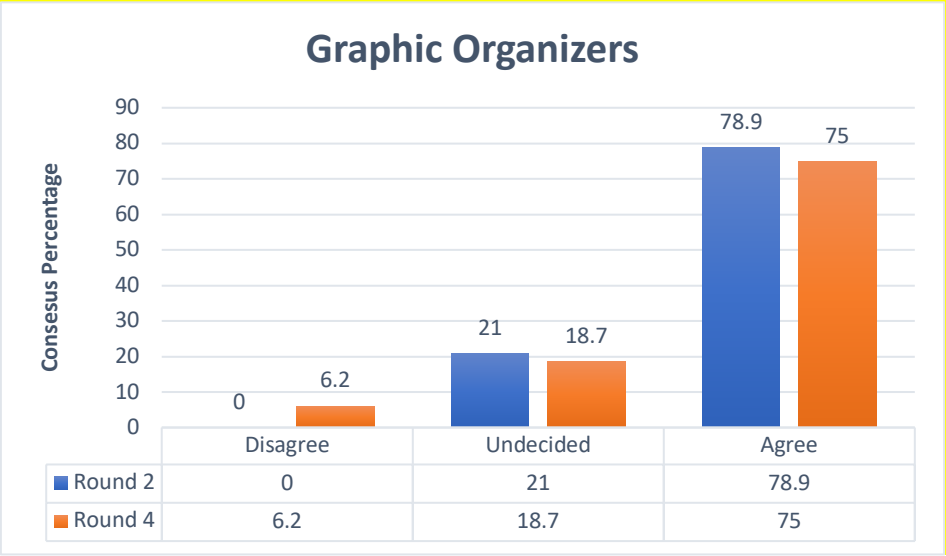
For the term Inquiry in Round Two, there was 78% agreement, and in Round Four, the panel reached benchmark of 81%: **see Figure 4.13.**



Teaching Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Inquiry	Round 2	0.0	22	78
	Round 4	0.0	19	81

Figure 4.13 Teaching Strategy - Inquiry Percentages

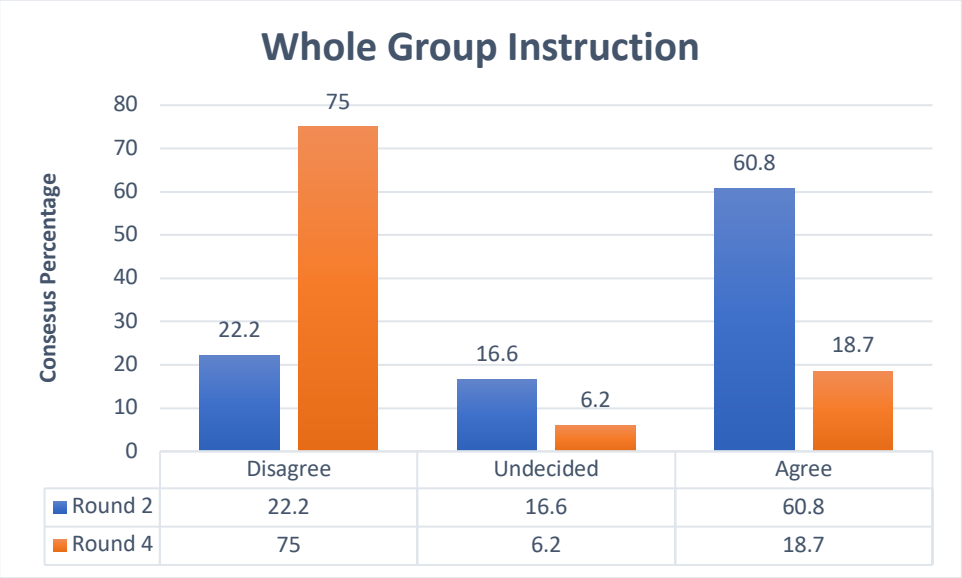
There were some other substantial findings in this final round survey. Of the six remaining strategies, Graphic Organizers partially met the consensus benchmark at 75% in Round Four. **see Figure 4.14.**



Teaching Strategy	Delphi Survey Round	Percentage Disagree	Percentage Undecided	Percentage Agree
Graphic Organizers	Round 2	0.0	21	79
	Round 4	6	19	75

Figure 4.14 Teaching Strategy - Graphic Organizers Percentages

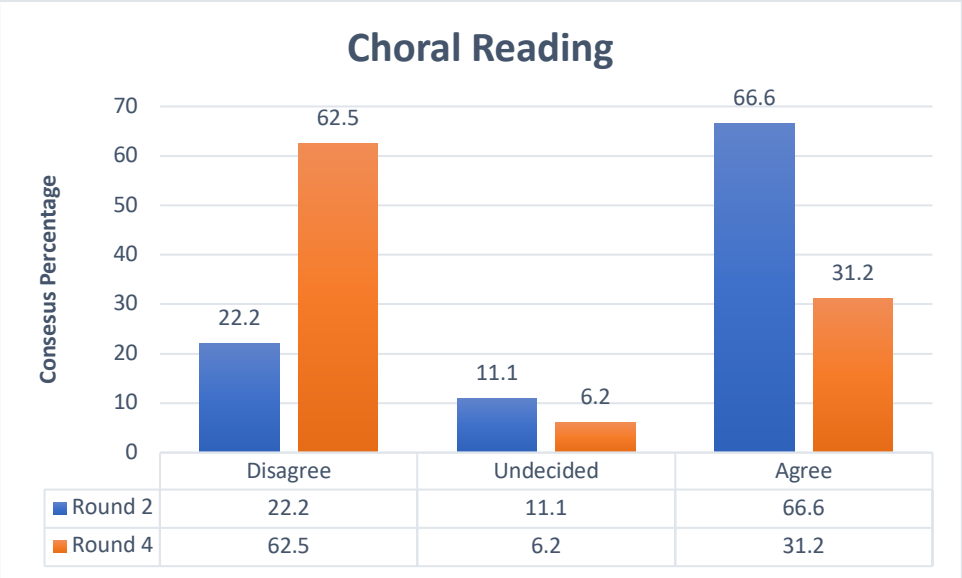
The most significant change took place with the teaching strategy Whole Group Instruction which in Round Two had 60.8% of the panel agreeing that this was a form of differentiation and then in Round Four only 18.7% agreed with this, indicating a dramatic change in the thinking of the panel as a whole: **see Figure 4.15.**



Teaching Strategy	Delphi Survey Round	Percentage Disagree	Percentage Undecided	Percentage Agree
Whole Group Instruction	Round 2	22.2	16.6	60.8
	Round 4	75.0	6.2	18.7

Figure 4.15 Teaching Strategy - Whole Group Percentages

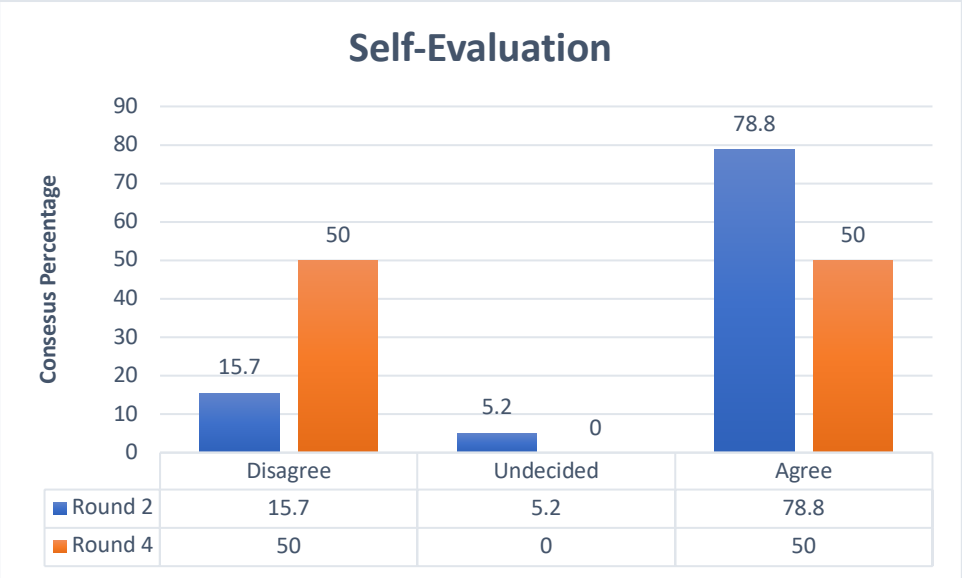
Although another strategy, Choral Reading, did not meet the consensus benchmark, it offered a dramatic shift in the thinking of the panel members. In Round Two the panel agreed that it was a teaching strategy of differentiation by 66.6%, and in Round Four, a near complete reversal was evident as 62.5% of the members either disagreed or strongly disagreed that this is not a form of differentiation. In the discussion section of this study a closer examination of what may have caused such a dynamic change in the opinions of the panel: **see Figure 4.16.**



Teaching Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Choral Reading	Round 2	22.2	11.1	66.6
	Round 4	62.5	6.2	31.2

Figure 4.16 Teaching Strategy - Choral Reading Percentages

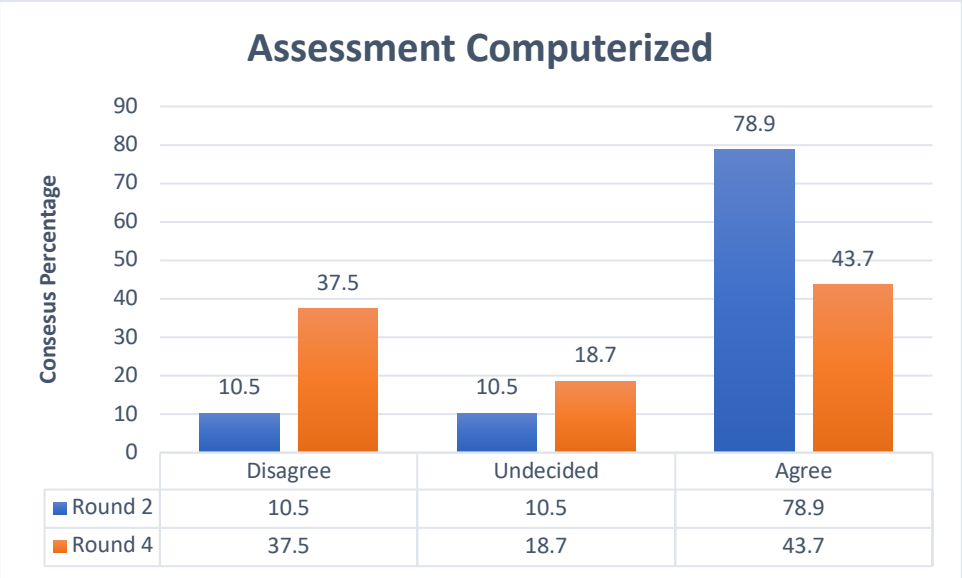
The two remaining strategies also went through changes during the Delphi process. Self-Evaluation in the second round had 78.9% of the panel agreed that it was a form of differentiation, and yet in Round Four, the participants presented a split decision, showing 50% disagreed while the other 50% agreed that it is a form of differentiation: **see Figure 4.17**.



Teaching Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Self-Evaluation	Round 2	15.7	5.2	78.8
	Round 4	50.0	0.0	50.0

Figure 4.17 Teaching Strategy - Self-Evaluation Percentages

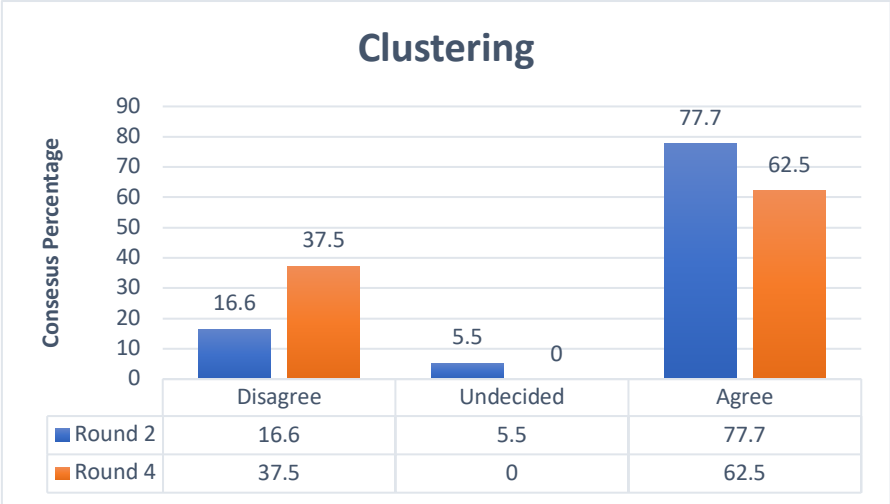
Assessment Computerized also showed a split decision from the second round 78.9% agreed it supported differentiation and in Round Four that decreased to 43.7% in agreement making 37% in disagreement. There was also an increased amount of undecided opinions in Round Four: **see Figure 4.18**.



Teaching Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Assessment Computerized	Round 2	10.5	10.5	78.9
	Round 4	37.5	18.7	43.7

Figure 4.18 Teaching Strategy - Assessment Computerized Percentages

This demonstrated that panel members showed an alteration in their thinking based on the reading of fellow panel members making approximately 18% unsure about this strategy who previously had an opinion. Clustering had a similar pattern. There was a shift in the thinking of the panel from the second round of 77.7% to Round Four where there was only 62.5% agreement: **see Figure 4.19.**



Teaching Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Clustering	Round 2	16.6	5.5	77.7
	Round 4	37.5	0.0	62.5

Figure 4.19 Teaching Strategy - Clustering Percentages

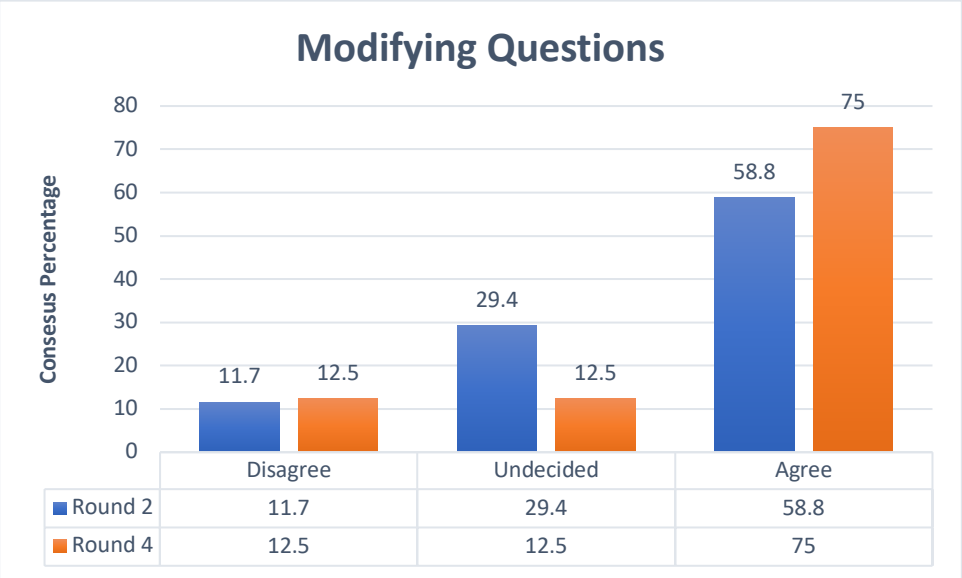
4.7 Round Four Results – Assessment Strategies

The second section of Round Four focused on the assessment strategies of differentiation with a total of five questions. There were no new terms that reached consensus for this portion of the survey: **see Figure 4.20.**

Assessment Strategy	**Definition**	**Round 2 Consensus Percentage**	**Round 4 Consensus Percentage**
Modifying Questions	Changing certain problems or numbers on a math assessment	59% Agree/Strongly Agree	75% Agree/Strongly Agree
Question Design	Altering question design to highlight big concepts versus specific details	65% Agree/Strongly Agree	75% Agree/Strongly Agree
Group Based Assessment	Allowing students to work in a team or group for an assessment	59% Agree/Strongly Agree	69% Agree/Strongly Agree
Adapted Tiered Assessment	Shorten the number of items on a test	76% Agree/Strongly Agree	56% Agree/Strongly Agree
Process Feedback	Giving an example to show proper response format	76% Agree/Strongly Agree	37.5% Agree/Strongly Agree

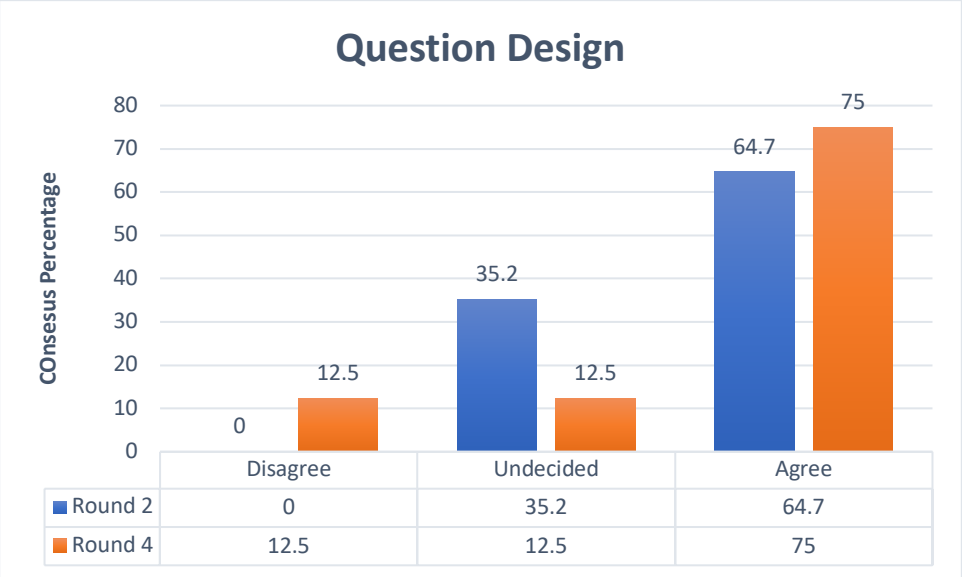
Figure 4. 20 Assessment Strategies Percentages – Round Two and Four

There were only two assessment strategies Modifying Questions and Question Design that partially met consensus at approximately 75%: **see Figure 4.21 and 4.22.**



Assessment Strategy	Delhi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Modifying Questions	Round 2	11.7	29.4	58.8
	Round 4	12.5	12.5	75.0

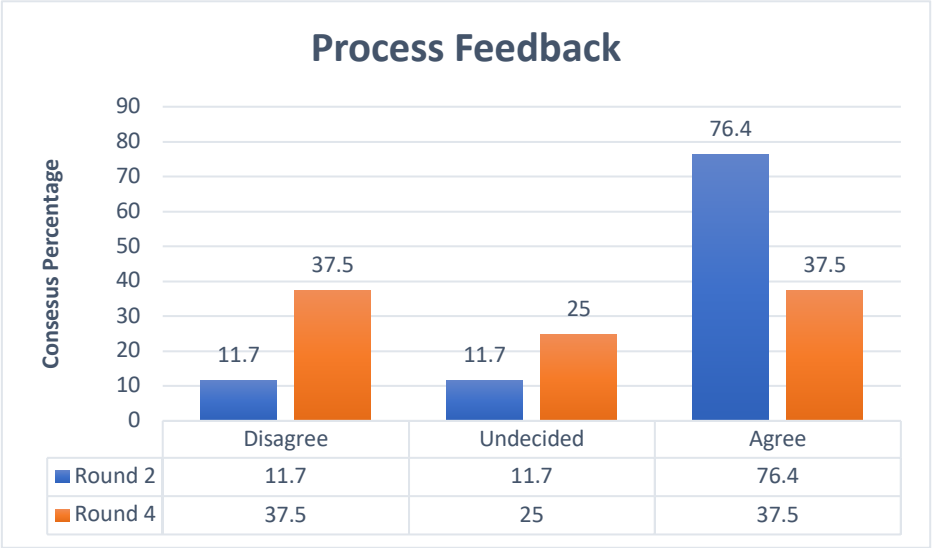
Figure 4.21 Assessment Strategy - Modifying Questions Percentages



Assessment Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Question Design	Round 2	0.0	35.2	64.7
	Round 4	12.5	12.5	75.0

Figure 4.22 Assessment Strategy - Question Design Percentages

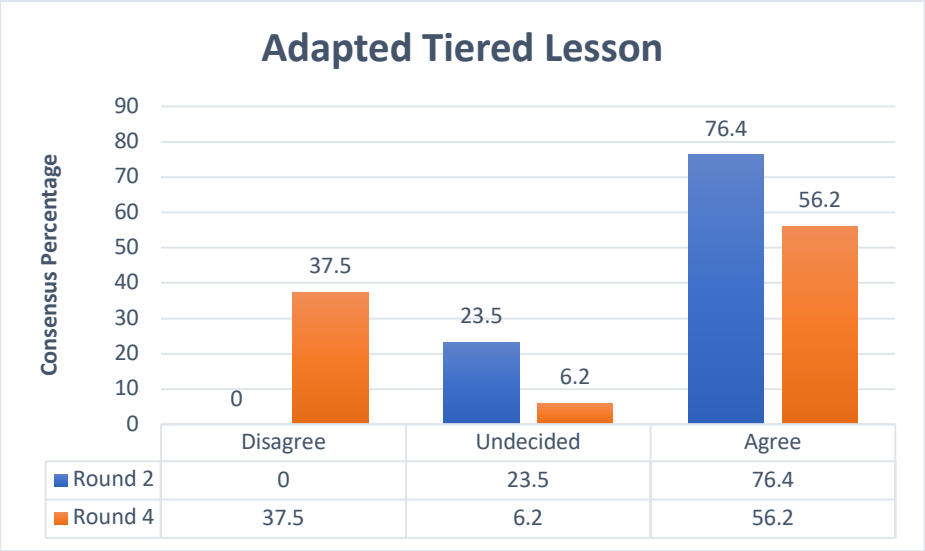
The remaining three strategies provided points for further discussion. Process Feedback had many changes through the rounds of each survey. In round two, the panel showed 76% agreement that it was an intervention that supports in differentiation. In round four, it became evident that the panel had become split on their stance with this intervention showing 25% undecided and 37% agreed while another 37% disagreed: **see Figure 4.23.**



Assessment Strategy	Delhi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Process Feedback	Round 2	11.7	11.7	76.4
	Round 4	37.5	25.0	37.5

Figure 4.23 Assessment Strategy - Process Feedback Percentages

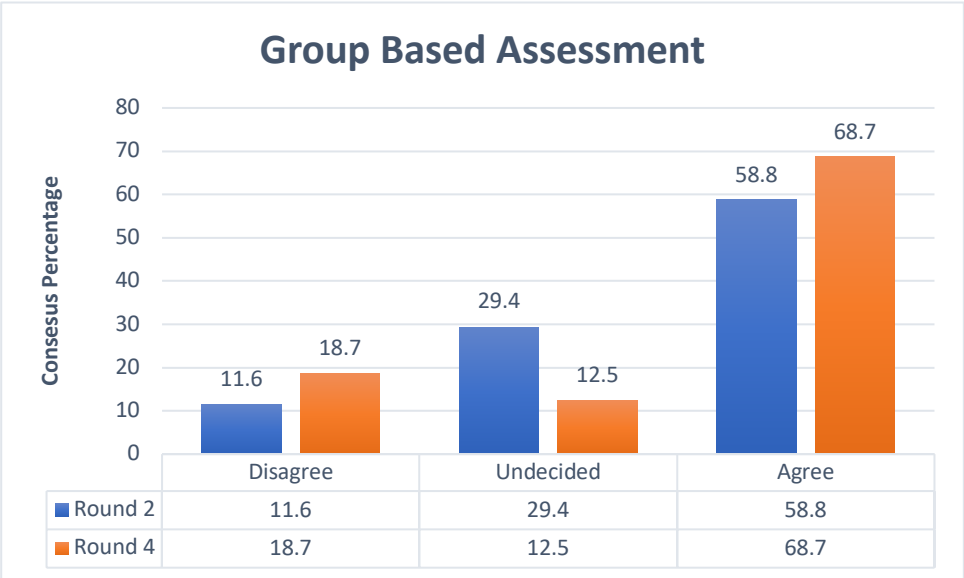
The assessment strategy, Adapted Tiered Assessment, continually lost consensus through each round. Round Two had 76% in agreement but this fell to 56% in Round Four: **see Figure 4.24.**



Assessment Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Adapted Tiered Assessment	Round 2	0.0	23.5	76.4
	Round 4	37.5	6.2	56.2

Figure 4.24 Assessment Strategy - Adapted Tiered Lesson Percentages

The last strategy, Group Based Assessment gained agreement from Round Two at 58% and finally in Round Four at 68% again: **see Figure 4.25.** Although a consensus was not met, a gradual change in the opinions of the panel was evident as they worked towards a consensus.



Assessment Strategy	Delphi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Group Based Assessment	Round 2	12	29	59
	Round 4	19	12.5	69

Figure 4.25 Assessment Strategy - Group Based Assessment Percentages

4.8 Summary

In conclusion, the data collected in each round produced a total of 38 teaching and 20 assessment strategies of differentiation. The final result led to 32 teaching strategies and 15 assessment strategies reaching consensus. This left a total of six teaching and five assessment strategies that did not reach consensus. Of these six teaching strategies two partially met consensus at 75% or higher. Of the five assessment strategies presented in the final round, two partially met consensus. Some of the remaining strategies went through shifts during the Delphi process, showing at times a small to a dramatic shift in the thinking by the panel. This information will be critically analyzed in the discussion section of this study offering some insight to the shifts in thinking from a group to individual perspective while also reflecting on the research questions based on the data collected through this study.

Chapter Five –Analysis

5.1 Overview

The objectives of this research were to examine the viewpoint of differentiation at a practitioner level by drawing input from a range of teachers. This input was then re-presented to participants through a Delphi Model structure to develop consensus on the strategies and assessments for differentiation, which would aid the development of a common technical language and thereby ontology. This also allowed for an examination on how perception influences individual views of differentiation and the process that is undertaken for a diverse group of educators to share, develop, and identify a consensus on differentiation. Such an examination provided a great deal of insight on the consensus-building process as well as the practitioner viewpoint of differentiation. In doing so, this research aims to make the argument that to understand differentiation, we must move beyond general understandings and examine specifics to support communal professional learning, which can help support implementation in the teaching and learning environment.

The process itself used the Delphi model which allowed the researcher to conduct multiple rounds of data gathering, each with a unique purpose. Early rounds gathered opinions from the participants separate from one another and in an anonymous manner. These opinions were coded and compiled before being presented to the entirety of the group for consensus. A Likert scale and set threshold of agreement was determined. Those strategies listed that did not meet consensus moved on to the next round of the Delphi where participants could state their opinion on whether they agreed, disagreed or were undecided on the strategy or assessment. These were compiled and presented for the final round where participants again used a Likert scale to determine their level of agreement.

The value of using the Delphi model was to provide comfort in anonymity to speak openly about classroom practices and individual perspectives on differentiation. The Delphi model

also allowed for participants to develop their own ideas, view others, and then comment on their agreement, in some senses developing a shared language through the consensus building process.

The Delphi methodology allowed a group of peers to witness opinions of fellow colleagues and identify if there is any effect on their existing pedagogical viewpoints on the teaching and assessment strategies of differentiated instruction. It also let the participants argue their opinions on undecided strategies and assessments. The findings at each level built to develop understanding among the participant group of educators, defined as much by the levels of agreement as their disagreements and sudden shifts in agreement. Never was this more apparent than during the latter rounds.

Ultimately, analysis of the findings indicated some main points of discussion relating to the study's objectives, as well as unanticipated results. Primary to the findings was a general sense of agreement by practitioners as to the base practices of differentiation, but such agreement was not without drastic shifts in understanding and opinion by the participants, another notable finding. Likewise, the root process of Delphi model consensus-building demonstrated great ability to build consensus among a diverse range of educators. Finally, unique findings within each of the areas provide not only unanticipated but also, in some cases, contradictory findings. Each will be discussed in the following sections of this chapter, working together to build a broader understanding at the classroom or school level on teacher perception of differentiation.

5.2 General Agreement

In reviewing the gathered data from the early Delphi rounds, high levels of agreement were noted among the participants in many of the areas. This level of agreement was visible at two levels in the early stages. Initial agreement was noted within Round One when the participants were asked to list and define various forms of differentiation strategies for

instruction and assessment. Likewise, when this data was coded and presented to the group as a whole for anonymous consensus, a base level of agreement was again noted within Round Two. This was seen in the compiled individual responses of Round One and the calculated Likert percentages in Round Two. With such base levels of agreement visible early on within the Delphi process, it suggests that perhaps a basic understanding for differentiation might exist within this participant panel.

With Round One, the focus of gathering individual views on differentiation strategies for instruction and assessment provided a total of one hundred responses among the respondents for instructional differentiation and sixty-nine for assessment differentiation: **see Figure 5.1.**

Figure 5.1 Coded Teaching Strategies

Assessment Strategy	**Definition**
Manipulatives	Allowing for manipulatives to be used
Question Formatting	Altering assessment questions to meet communication abilities
Time Allotment	Giving extended time
Technology Assistance	Using technology to read the test to students
Modifications	Making modifications of testing based on IEP (Individualized Education Plan) Protocol
Highlighting	Highlighting the important parts of directions
Direction Alterations	Reading the directions to the student(s)
Testing Format	Altering assessment administration alteration from large group to small group format
Individualized Testing	Assessment administration at the individual level
Split Tasks	Breaking up an assessment into smaller portions
Modified Testing	Reading a test aloud
Visual Support	Using pictures on assessment to help struggling readers or ESL students (English Language Learners)

Response Format	Change a written assessment to an oral response
Response Assistance	Having an adult scribe or record verbal responses
Recording Responses	Using computer software to record verbal responses
Process Feedback	Giving an example
Adapted Tiered Assessment	Shorten the number of items on a test
Question Design	Altering question design to highlight big concepts versus specific details
Modifying Questions	Changing certain problems or numbers on a math assessment
Group Based Assessment	Allowing students to work in a team or group for an assessment

Figure 5.2 Coded Assessment Strategies

At the individual level there was a range of identified teaching and assessment strategies for differentiation as some participants were more prolific and others less so. In gathering data from so many varied levels and specialties of teaching, variation would be expected and indeed was noted. However, during the coding process when the researcher reviewed each individual response and sought to categorize them based on similarity, levels of agreement were visible as well. This was seen in how one hundred responses were categorized based on similarity into 38 common instructional differentiation strategies. This categorization was more deeply explained within the methodology section (see Chapter 3), but the primary purpose was to identify specific attributes of the provided responses and organize them based on commonality. To shift from 100 responses into 38 suggests that agreement does exist, as it did with strategies for assessment differentiation which shifted from sixty-nine individual responses into twenty distinct categories.

Within Round Two, these compiled results were then presented to the entirety of the group for review and consensus. As discussed in the methodology section, the use of a Likert scale was intended to provide a platform for developing agreement among the selected panel. The research chose a high level of threshold agreement of eighty percent based on previous Delphi model research and to ensure that the differentiation strategy was common among the group. With this in mind, 30 of the 38 instructional differentiation strategies met the high threshold within Round Two and 15 of 20 in assessment differentiation strategies. This shows that over 75% of the presented strategies were accepted by the group as being examples of differentiation within the first presentation of the group's ideas, a significant amount of early consensus and agreement. Likewise, some strategies that did not meet consensus were borderline to that 80% threshold for consensus.

The implications of this must not be ignored as they suggest that perhaps a certain level of understanding and agreement does exist among the selected panel of practitioners. This was not unexpected by the research since the expectation was to find common ground but then utilize the Delphi Model protocol to examine sources of disagreement. However, while a number of panel members may have agreed, it does not mean all agreed. For example, eight panel members may have identified guide reading as a teaching strategy for differentiation, that means eleven panel members did not, meaning there was not complete saturation. This shows how shared ideas were held by some but not consistently viewed the same by the rest of the panel.

This agreement suggests numerous possibilities for consideration as to why there was such a high level of agreement including familiarity with traditional practices for differentiation and exposure to similar professional learning trainings as a result of working within the same school system.

Differentiation is hardly a new area of educational research or practice, and given its stature and importance within educational research and training of new teachers, it perhaps should be expected that a certain level of understanding would exist in relation to the practices. As a core component of teacher preparatory programs, differentiation has gained widespread recognition as a best practice, even if it is not fully understood (Tomlinson et al., 2003). Common to this are the four areas traditionally viewed as pivotal to differentiated practices in the classroom: content, product, process, and learning environment (Tomlinson et al., 2003). This would then suggest that similar answers for common practices, such as grouping students by ability or development of alternative products, should be expected from most of the respondents and that others would likely agree with these common answers. So the idea that there are certain, basic understandings of differentiation practices should be considered when reviewing the high level of agreement in the early rounds of the Delphi model.

However, while it was beyond the scope of this research project, the question remains whether these strategies are indeed in practice. While the respondents may be familiar with or even know what the school system expects of them, subsequent research could be used to examine how often or if these strategies are actually used by the teacher. This would especially be evident if the shared school system focused on specific elements of differentiation.

All of which leads us to the notion that a shared or common system may help to explain the high level of agreement within the first two rounds of the Delphi Model. A shared school system would suggest that common professional learning opportunities or trainings are provided to the respondents. This exposure would be universal through the system as school districts often utilize common objectives for teaching and learning. DoDEA does provide a common framework for professional development and shared system objectives or goals as discussed within the methodology section (see Chapter 3). This could also account for the

high level of agreement among participants given common expectations, trainings, and practices. This then makes the indications of disagreement interesting given the common environment for the respondents, and speaks perhaps to a lack of a shared understanding.

Furthermore, in reviewing the levels of agreement and consensus threshold, thought should be given as to how this threshold was reached. For example, perhaps some respondents reviewed the compiled differentiation strategies from Round One and were reminded of these practices but unable to list them on their own. Likewise, what role did a need to fit in play in Round Two where respondents may have agreed with listed examples assuming the other respondents were correct in defining differentiation strategies? This is interesting because it speaks to the role peer pressure may have in gathering group consensus. The initial round allowed respondents to list their ideas and the subsequent round re-presented them for consideration. A participant may see these new listings and assume them accurate, especially if they do not consider themselves an "expert" in differentiation. The role of the Delphi Model is to overcome this type of group consensus gathering concerns by providing anonymity, which would limit peer pressure and allow for more honest answers. Yet, the possibility exists and should not be discounted.

Although there was a total of 100 teaching strategies collected as a panel, there was only an individual average of five teaching strategies that were identified and defined by each panel members in Round One. Of the 69 assessment strategies that were collected by the panel the average individual response for this section was three strategies that were identified and defined by each panel member. All of this supports the idea that a consistent shared understanding was not held by individual panel members.

There was overlap and commonalities in terms and definitions that did emerge but there were also gaps in understanding at an individual level. This individually gathered data when put together as a group created 38 teaching strategies and of these 30 within the second round

met consensus establishing it supports differentiation. This highlights to the research an important discrepancy between the average individual teacher's knowledge and that of a group. From an average of five strategies individually to a collective 30 strategies. This same pattern appeared in the assessment strategies at an individual level an average of three strategies were listed and as a group 20 were identified 15 of which met consensus or agreement by the end of round two.

So even though agreement was high when presented with the compiled results of the group, a discrepancy exists between the total versus individual contributions. This speaks in some ways to the power of group think where the ideas of others help bring reminders to others, something the Delphi model allows to take place through its rounds of consensus-building. These stages of discussion are especially important in helping to develop a shared ontology for differentiation. Ontology states that there is an explicit specification of a conceptualization which creates a common understanding within a group of professionals (Gruber, 1993). This helps to build common understanding and perhaps shared commitment to an ideal. This commitment can then impact how an idea is implemented (Grossman & McDonald 2008).

Such an understanding is missing in education as evidenced by Lortie (1975) and Grossman and McDonald's (2008) work demonstrated. To be more specific they recognized that if a shared understanding or ontological commitment does not exist, it makes collegial discussions difficult because of a lack of shared understanding.

The question the is whether the early results of agreement defined a shared ontology or whether these were the result of the factors described in the receding paragraphs. Regardless, the high level of agreement does suggest that a shared definition of differentiation might exist, even at the most basic level. However, the drastic shifts in thinking during latter

Delphi stages must also be examined because they clearly show areas of disagreement among the panel.

5.3 Shifts in Agreement

A notable finding within the collected data was the shift, sometimes drastically so, in group thinking over the course of the Delphi Model rounds. As a consensus-building model, the Delphi uses the early rounds to gather information before presenting it back to the participants for agreement. Subsequent rounds are designed for those items not yet in agreement where they might be fleshed out through examination at the individual and group levels. Using a semi-structured format, this panel was presented the carry over items not reaching consensus and asked to detail their views, which were then gathered, organized, and re-presented to the group as whole for consensus. These later rounds are intended to help develop and share the reasoning of participants. This is also an opportunity for participants to defend their rationale in an anonymous fashion. The power in this round is clearly evident because it moves beyond simple statements or definitions of practices to actual explanations of why these particular strategies are differentiation practices. The respondents can then review what their colleagues have stated including contrasting viewpoints to their own.

Round Four in this study clearly presented this influential power as drastic shifts were noted in several areas. Initial review of this round's results show that only two of the eight represented items for instructional differentiation met the consensus threshold and none of the five represented assessment differentiation strategies met consensus. This would indicate that levels of disagreement still existed, which could then be pushed into future rounds of the Delphi Model. However, the most notable findings were the drastic shifts in group thinking in several areas: **see Figure 5.3**

Teaching Strategy	Definition	Round Two Consensus Percentage	Round Four Consensus Percentage
Compacting	An intervention made for students with advanced readiness by adding more rigor, depth, or complexity to ensure mastery of the required curriculum.	78% Agree/Strongly Agree	87.5% Agree/Strongly Agree
Inquiry	Following the steps of the scientific method and allowing for student-driven questions and research to generate the direction of learning. This process may include a WebQuest, for example.	78% Agree/Strongly Agree	81% Agree/Strongly Agree
Whole Group	Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.	61% Agree/Strongly Agree	19% Agree/Strongly Agree
Assessment Graphic Organizer	Using graphic organizers like KWL (know, wonder, learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of a child or class.	79% Agree/Strongly Agree	75% Agree/Strongly Agree
Choral Reading	Reading textbooks as a class to help scaffold the text for students who are not on grade level.	67% Agree/Strongly Agree	31% Agree/Strongly Agree
Clustering	A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.	77.7% Agree/Strongly Agree	62.5% Agree/Strongly Agree
Self-Evaluation	Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.	79% Agree/Strongly Agree	50% Agree/Strongly Agree
Assessment Computerized	A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of question formats (multiple choice, true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper- pencil response.	79% Agree/Strongly Agree	44% Agree/Strongly Agree

Figure 5.3 Teaching Strategies Percentages – Round Two and Four

For example, in "computerized assessment" a negative 35 point shift in agreement was noted.

RoundOne1 results presented a 79% level of agreement, just short of the threshold.

However, Round Four results showed only 43.7% agreement. This massive shift was

mirrored in the strategy of "Self-Evaluation", which presented a -29 percentage point shift from 78.9% to 50%. Also, "Whole Group" as a differentiation strategy had a massive shift from nearly 61% agreement to 18.7% of respondents agreeing with it as a differentiation practice. "Choral reading" likewise saw significant jumps with 67% support in Round One to 31% in Round Four. The same was evident within assessment differentiation strategies where "process feedback" presented a forty percent drop in agreement from Round Two to Round Four: **see the results section in Chapter 4.**

These results are an interesting notion to consider as they focus less on the final product of agreement and more on the shifts in thinking that followed the presentation of rationale and defense put forth by the panel. This is the power of consensus-building where participants may drastically change their views based on collegial feedback.

This represents the development of a shared vocabulary defined by the panel of practitioners and sharpened through discussion and shared understandings. Recall that ontologies are basically a body of knowledge based on formal conceptualizations that create a common view of the world for that profession (Gruber, 1993). As opinions shifted within the latter Delphi stages, this was a result of fellow practitioners sharing their understanding, sharpening the understanding of others and the group as a whole as they came to consensus. From the viewpoint of the researcher this was ontological development round by round.

Sharing comments or rationale allow insight into the thinking of the participants, and a better, fuller explanation of views from early rounds. This also allows them to present positive and negatives of the presented strategy and allows each participant to consider alternative viewpoints. The notion is to move beyond the echo chamber phenomenon and instead provide all sides of an argument. It is important to note that the participants were allowed to present their views on the carried over items even if these were not included on their individual responses in Round One. All of which allows for opposing viewpoints to weigh in.

This mirrors the typical discussion format seeking agreement, but the Delphi helps to strip away peer pressure and allow participants to clearly state their feelings regardless of the source. This was gathered in Round Three and an example of the provided comments is seen below: **see Figure 5.4**

Agree - Choral Reading is Differentiation
It is a form of differentiation as it makes the information accessible to students who read below grade level. Agree. It's a way for students to read in an unthreatening setting. Usually for low readers. High readers serve as role models for low readers. Choral reading helps build students' fluency, self-confidence, and motivation. Because students are reading aloud together, students who may ordinarily feel self-conscious or nervous about reading aloud have built-in support. Students that know they are good readers thrive off of knowing that they are helping the not so versatile readers. Yes, because it is helping meet the needs of low students by having it read aloud as they follow along. Students can hear and see what other students are thinking and discussing during Choral reading.
Disagree - Choral Reading is NOT Differentiation
No, because it helps few. Some get embarrassed, skip ahead, and point out weakness. This is NOT differentiation. Not even in the slightest. Explain to me how a group of kids reciting the same passage is in any way individualized. How does this meet a specific student's need, along with the unique needs of other kids in class? If a student cannot read, they will just chant along with everyone else if they speak aloud at all, which might help a little. Very little. This doesn't even really scaffold for others at all. There are so many other more powerful tools that can be used to address reading issues. Truthfully, it's a dated method which may have its place in classes (mostly of yesteryear) but should be utilized sparingly by a classroom teacher. This is not differentiation. Just as the questions states, choral reading can be seen as a scaffold to support students, not as giving students access at their individual levels. Choral reading is not a form of differentiation in that it really only improves the comprehension, decoding ability or fluency of the struggling reader. It might support some fluency for the advanced reader but more than likely the text is too simplistic for that student. No, choral reading is not differentiated. There should be different ways to present the material. I think choral reading is difficult especially if you have students that need extra help.

Choral reading can be confusing and out of control. Some students would hear what was read, try to repeat it, and then not hear the next part. I think it would be very frustrating. Choral reading is a tool for gaining fluency that is more valuable to some students than to others. I disagree because some students may struggle; especially if they are at a BR level with an intermediate text. I believe that with any kind of reading that students are able to make connection between what they know and new information. I am not certain that reading as a class (Choral Reading) is way to differentiate because it is difficult to distinguish reading levels from student to student. While choral reading is helpful because of practice through repetition and hearing others read, I wouldn't necessarily consider it differentiation.
Undecided Comments
I'm not quite sure that choral reading is a form of differentiation unless it is used in a small group setting where read aloud material is chosen on a different level for like-leveled students. Traditionally, choral reading provides children with the practice needed to build fluency and self-confidence. It helps them learn how to decode words, develop effective and fluent read aloud skills, improves sight vocabulary, and helps them learn how to pronounce words by hearing their peers read them, and helps them understand rhythm. Therefore, I am undecided as to whether choral reading is a form of differentiation or not.

Figure 5.4 – Example of Compiled Comments

It should also be noted that even though these comments are entirely anonymous and stripped of identifying marks, the need to fit in with the group should be at least considered. In Round Three, arguments were collected for the represented items and then categorized by the research into categories of agreement. When given back to the panel in Round Four, the amount of comments in each may have actually influenced some to change their opinions to match that of the group. For example, if a significant amount of unsupportive comments were collected for a strategy and very little in support, a respondent may be influenced to change their opinion not based on the merit of the argument but by the seemingly larger amounts in either one of the categories. Thus, they want to fit in with the overall group, perhaps doubting their argument to side with the many. Follow-up interviews could be a powerful tool in reviewing this, but it was beyond the scope of this research project.

However, to argue this point, it should be noted that some of the largest shifts in thinking such as with “choral reading” and “whole group” were ones that began with a large majority, just below consensus, but then significantly reversed their levels of agreement. These are not examples of one or two respondents siding with the many but instead evidence of powerful, cogent arguments swaying opinion. Likewise, by providing anonymity, this allowed the panel to feel free to switch their argument without judgement or shame. They could respond to the views of others by considering it without external pressures for fear of losing face when confronted by disagreement from colleagues. Additionally, the question as to whether participants would actually read the opposing views presented in Round Four instead of just those in agreement should be considered. However, the fact that such large shifts in thinking occurred suggests they did review their colleagues’ views. These changes speak to the ability of the Delphi protocol to change opinions, another key finding from this research.

5.4 Delphi Changes opinions

The power of the Delphi method is to provide a platform and structure to come to a consensus, not necessarily 100 percent agreement but an overall understanding among a group of people. The high thresholds set by the research and the use of anonymity allows the panel to feel free to share ideas and ensures that a significant majority supports an idea. The role of the researcher is not to sway opinion but to gather the opinions, code responses, and reintroduce them for overall consideration. The latter steps include representation of materials and gathering rationale for consideration by all. Such steps help sway opinion as noted in the previous section results and the extensive research on Delphi. However the question is whether such shifts in thinking or levels of agreement would have been reached without the use of such a protocol.

Delphi forces people to state, reflect upon, defend, and reflect again upon their opinion and that of others. It does so without outside pressure and seeks to limit potential biases that are typical of discussions or agreement-making processes. Anonymity proves valuable in this because it allows for freedom of expression without perceived penalty but also for the opportunity to change their opinions without losing face, so to speak. They can hold their ground or cede but do so with the comfort of knowing they will not be identified or ostracized.

All areas within the latter rounds saw a shift of some type whether it was to reach consensus or drastic shifts in thinking from agreement to disagreement. These could be positive or negative changes in agreement levels, but they were clearly visible within the gathered data. This shift in thinking is something that must be considered when analyzing the data given the approach of this study was to identify and develop an ontology among a cohort of workers.

Teaching Strategy	**Definition**	**Consensus Percentage**	**Likert Scale Result**
Authentic Assessment	An authentic assessment is important to differentiation because it gives a teacher evidence of the student's thinking process to include the strategies and problem solving skills that will be used to drive instruction.	100	Agreed & Strongly Agreed
Conferencing	Conferencing with a student(s) allows for a conversation to take place on a particular skill or topic where a teacher can identify the strengths and weaknesses. The teacher can use this time to reteach a simple skill, expand an idea, and collect formative data on a child or small group.	100	Agreed & Strongly Agreed
Flexible Grouping	Flexible grouping involves grouping students by instructional level, ability, interests, intervention focus, and/or friendships with the ability to alter grouping when necessary to meet the needs of all students.	100	Agreed & Strongly Agreed
Learning Styles	Using the different learning styles of students to modify instruction or the delivery of assignments to best meet their unique learning needs.	100	Agreed & Strongly Agreed

Assessment for learning	An ongoing/formative assessment that drives the instruction of a teacher. This type of assessment identifies where the students are on a continuum of learning by identifying strengths, weaknesses, and misconceptions that will guide the next steps of instruction.	95	Agreed & Strongly Agreed
Performance Assessment	Demonstrates the mastery of a subject/topic through various means other than traditional testing formats. Example: Presentations, Pictorial Artwork, Oral Presentations, Technology-Based Products.	95	Agreed & Strongly Agreed
Alternative Assessment	Alter the manner or assessment format in which a student can demonstrate their understanding of a given concept. This can include but is not limited to changing the testing format to include variations of question design (essay, multiple choice, short answer), showcasing knowledge by the creation of a product/presentation (written, pictorial, oral technology-based), observation and document findings through anecdotal notes, and/or the use of a student portfolio.	95	Agreed & Strongly Agreed
Technology	Using different forms of software or websites that allows a teacher to differentiate the level of skill or task for each student.	95	Agreed & Strongly Agreed
Choice	Giving students the choice on a writing topic, what to do next in the classroom, or on what type of product they choose to represent their learning choice. This allows them to take part in the decision- making process, gives them the opportunity to demonstrate their mastery in a preferred method of learning, and also empowers them for success.	95	Agreed & Strongly Agreed
Guided Reading	A small group of students, grouped with a purpose in mind, using a similar text, working on a specific focus, skill, or strategy.	94	Agreed & Strongly Agreed
Individual or Small Group Pacing	Evaluating and promoting individual or small groups of students to a higher level when they show mastery of a skill set like sight words, math facts, spelling tests, and independent reading.	94	Agreed & Strongly Agreed
Learning Environment	Incorporates student cultures, interests, and differences to welcome organization, collaboration, flexible grouping, and intervention of different strategies.	94	Agreed & Strongly Agreed
Tiering	Adjusting or scaffolding the learning experiences according to a student's readiness, interest, or learning modality.	94	Agreed & Strongly Agreed
Project Based Learning	A product-based project that can be assigned or the opportunity for topic choice given to an individual or a group of students that can	89	Agreed & Strongly Agreed

	showcase their knowledge and understanding.		
Observation	As a formative assessment tool, observe and collect anecdotal notes as an indicator of a student's knowledge of a specific topic or skill.	89	Agreed & Strongly Agreed
Cooperative Learning Groups	Students are designated to a specific group based on interest, same ability (homogeneous), mixed ability (heterogeneous), to work on problem solving, projects, research, or even individual work. Many times these group activities focus on not just a certain academic skill, but also encompass social skills necessary to work in a team atmosphere.	88	Agreed & Strongly Agreed
Guided Math	A small group of students, grouped with a mathematical purpose in mind, working on a specific focus, skill, or strategy.	88	Agreed & Strongly Agreed
Multiple Intelligences	Recognizing Garner's Multiple Intelligence and altering instruction to meet the different needs of the students and their learning preferences. (musical/logical/linguistic/spatial/visual/body kinesthetic/interpersonal/intrapersonal)	88	Agreed & Strongly Agreed
Modified Assignments	Changing the assignment to work on the same skill or standard but altering it to meet needs. For example, giving fewer problems or asking for a simpler response by the student to illustrate their understanding.	88	Agreed & Strongly Agreed
Adult Intervention	Using other teachers, assistants, and volunteers to help differentiate. For example, extended practice of a specific skill or extension for the advance students.	88	Agreed & Strongly Agreed
Portfolio	A collection of student work through artifact collection digitally or through a paper file that shows a child's depth of understanding for a specific skill or content area.	84	Agreed & Strongly Agreed
Rubrics	Rubrics are a differentiated grading tool for group projects, individual projects, writing assignments across all curricular areas. The rubric may be individualized to meet the diverse needs of the students	84	Agreed & Strongly Agreed
Assessment-Check for Understanding	A verbal or non-verbal form of communication like thumbs up or down to see how students understand and relate to a new concept.	84	Agreed & Strongly Agreed
Goals	Having the students track their progress and set goals based off their pre/post test results.	83	Agreed & Strongly Agreed

Centers	Using Bloom's Taxonomy to set up different learning centers or activities with varying levels and then directing students to a particular task or center that matches their ability.	83	Agreed & Strongly Agreed
Feedback	Language to teach, prompt, and/or reinforce based on a student's initiations or performance. The language used by the teacher is clear and specific versus the vague "Good Job!"	83	Agreed & Strongly Agreed
Peer Mentoring	Students working collaboratively with classmates or students from another grade level to accomplish a task. This gives a platform of instruction to take place between peers.	83	Agreed & Strongly Agreed
Seating	Arranging seats to incorporate the best learning environment for each child to include access to the teacher, behavior modification, and peer mentoring.	83	Agreed & Strongly Agreed
Differentiated Spelling	Using or creating a curriculum that allows students to work on spelling in an individual or small group format, thereby, focusing on spelling patterns that the child needs specifically.	83	Agreed & Strongly Agreed
Writer's Workshop	A framework that allows student choice of writing topics and the practice of going through the writing process at an individual pace. This allows conferencing with peers and the teacher.	83	Agreed & Strongly Agreed

Figure 5.5 Teaching Strategies Consensus Met – Round Two

While each round built upon one another and aided in the overall discussion, it was clearly Round Three where the most noticeable differences in opinion became apparent. This round in particular seemed to be a determining factor for these changes whether they were dramatic or subtle. The reasoning may be due to the protocol's nature and design where Round Three provided the participants the opportunity to explain, and perhaps more importantly, defend their ideas. Here they were able to articulate their reasons for identifying specific strategies for differentiation, or in many cases, argue against the compiled strategies. Some of the comments were also very telling in the passion displayed in regard to their perceived beliefs on the stated strategy.

This was especially telling with more questionable differentiation strategies such as “Whole Group” and “Choral Reading”. For example, comments such as those listed below can help explain perhaps the significant shift from Round Two to Round Four. In reviewing these comments, it became apparent that some of the participants clearly did not identify the strategy of whole group instruction as a strategy for differentiation. This was evidenced not just in the content of their words but also the nature in which they professed disapproval of this as a potential: **see Figure 5.6**

“Seriously, how can this even be differentiation? I am actually shocked at this point. Don’t get me wrong, whole group is a valued tool and an important part of the classroom experience. However, differentiation is an individualized approach to student instruction based on unique student needs. It can even be driven by choice and interest on the student level. How is whole group teaching even in this discussion? You meet individual student needs by teaching to the whole group a set lesson? Is that lesson focused on Johnny’s need that day? What about the other 18 kids in class and their needs? Is tomorrow Tommy’s lesson and after that Susie’s? I’m sorry, but this absolutely criminal. Not that teachers use whole group instruction because they should, but because they actually consider it differentiation. That’s the same as saying photocopying the same worksheet for every kid is differentiating.”

Disagree. Whole Group instruction only meets the needs of some of the students. This does not meet the needs of the High or Low students to understand or extend their knowledge of the concepts being taught.

I don't think whole group is a form of differentiated instruction at all... yes it has its

benefits, i.e. lower slower students learning from their peers role modeling correctly... unless you have a whole group at a close level as in clustering.

Figure 5.6 – Strongly Worded Round Three Comments

Interestingly enough, it should also be note that already a shift was taking place within the group understanding and ontology development prior to Round Four, which exposed these arguments to the light of day, so to speak, and allowed the other participants to review and make a fresh determination of their value. In compiling the Round Three comments based on approval for the strategy, some areas such as Whole Group were already showing the shift in group consensus from one close to meeting the consensus threshold to firmly entrenched against. Only three of the participant comments were judged as supportive of the strategy while twelve were seemingly firmly against. s**ee Figure 5.7**

Teaching Strategy	Definition
Whole Group	Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.
Agrees - Whole Group is Differentiation	
Agree. There are times in life where information needs to be given and evaluated after instruction. It gives a starting point, refresher, shows weakness, and quick. I often use the analogy of a toilet flushing for students to hold onto information. Sometimes we flush things that we don't think are that important. For this reason, and	

others, whole group instruction can be beneficial to all, especially to help meet learning gaps. If whole group instruction is based on the needs of a class as a whole, then I agree it can be a form of differentiation.

I think it is a form of differentiation since it impacts all students and they can understand what others are thinking and what different views they may give to the discussion.

Disagrees - Whole Group is Not Differentiation

However, differentiation is an individualized approach to student instruction based on unique student needs. It can even be driven by choice and interest on the student level. How is whole group teaching even in this discussion?

I really do not see it as differentiation as not all students have learning gaps.

Disagree. Whole Group instruction only meets the needs of some of the students. This does not meet the needs of the High or Low students to understand or extend their knowledge of the concepts being taught.

I don't think whole group is a form of differentiated instruction at all... yes it has its benefits, i.e. lower slower students learning from their peers role modeling correctly... unless you have a whole group at a close level as in clustering.

Whole group is not differentiation unless the teacher offers the space for various students to share out their way of thinking on different lessons. If there is a math questions taught

whole group and then the teacher chooses different levels of kids to fill in the learning gap by showing their different techniques of understanding the topic.

Whole group discussion normally does not differentiate but teaches to the mean level of the group.

A responsive teacher can scaffold learning within the whole group, but such scaffolding is likely to be haphazard.

Whole group instruction is important but I would prefer more small group intervention type instruction. Having the whole group do all of the same things at the same time would not be differentiation. Maybe if it is taught whole group but the work is differentiated would be a form of differentiation.

It depends on the make-up of the class. Whole group instruction may not reach all levels of learners.

Whole group instruction is not necessarily going to provide differentiation because every student is not on the same knowledge level. It is important when maybe introducing a subject area or curriculum, but in order to differentiate, it is important to have a better understanding where each student is individually.

No because, it is not adapting teaching based on what the students need.

I don't consider whole-group instruction as a type of differentiation as a type of

differentiation because it is usually one way of teaching for all. Whether or not the students' learning style is addresses or not.
Undecided Comments:
Depends on the instruction and the teacher. I think it's necessary to some degree.

Figure 5.7 – Whole Group Compiled Comments

The question should then be noted that at what point did the group consensus begin to shift following Round Two where Whole Group instruction was at 60.8% support? Was it a result of the participants being asked to reflect on the strategy, which opened up internal such that they began to more closely examine their understanding, reasoning and beliefs of differentiation? Or was it a case of them realizing that the strategies failure to pass consensus meant it was not likely differentiation? Did the fact that not everyone agreed with it give the participants a second pause, one where they more closely examined their thoughts?

Either way, the Delphi succeeded in providing that platform for rigorous discussion and consensus-building. The Delphi model pulls out assumptions and challenges them in a group dynamic, and the anonymity provides for free, unrestrained thinking, which was a reason it was the chosen method for this study. While it should also be noted that the sample size of this panel of educators was relatively small the shifts in percentiles may only be the result of only a few participants or perhaps even just one. However, the Delphi Model is not necessarily predicated upon the size of the group and can be used with varying sample sizes. Instead, its role is to present a forum for the safe sharing of ideas with the notion of seeking agreement. With this particular group, while small, it was still telling that large shifts were found within the latter rounds. This would suggest then that a common understanding and

shared language for what constitutes differentiation strategies in education was developing among the panel.

5.5 Unique Findings

In reviewing the data, it is natural that some unique findings would be noted for future consideration, as well as future questions to be reviewed or considered. These findings speak not just to the data but also the interpretation by the researcher since I was the lens used to examine the findings.

Arguably the most interesting question is whether additional rounds of the Delphi model were required for this grouping of educators, especially since so many of the differentiation strategies were very close to consensus. The way the Delphi model is structured is such that it has no set number or limit to the number of rounds. There is no definitive rule on the number of rounds for this methodology, so it is in the hands of the researcher to make important decisions along the way, working towards consensus but stopping before diminishing returns sets in (Hasson et al., 2000). It is truly designed to be used as a means for developing consensus among a group, so context is important in determining the needed rounds.

The objectives of this research was not solely to find a consensus regarding differentiation but also to examine the prevailing beliefs from a sample of practitioners as to the commonality among their views and shared understanding of differentiation. Essentially whether an ontology existed or whether it could be developed. In that sense, the amount of rounds selected was adequate for this study, and any future rounds would require a cost-benefit analysis, especially considering the expectations and demand on the participants. At what point would the amount of time and work exceed the benefit of consensus-building, and at what point would it become such that participants would agree just to end the discussion?

Likewise, the concern of too many Delphi rounds is that respondents might become further entrenched in their position or that the exchanges would become overly biased and viewed as such.

Overall, the findings showed movement in opinion and the role Delphi plays in helping to judge our understandings, which met the needs of this study. Furthermore, to continue the process may not be fair to the voluntary participants and the potential benefits minimized given the seemingly ambiguous nature of differentiation. Thus, it was determined by the research not to extend the model to additional rounds.

Arguably the most difficult experience for the researcher in reviewing the findings from each stage was that some of the suggested strategies were not traditionally seen in the literature as best practices for differentiation. In fact, some seemed to defy the very nature of differentiation. Even more surprising were the levels of agreement by other panel members. This was especially true in reviewing "choral reading" and "whole group" instruction. Was this a result of others simply seeing them listed and assuming the other panel members knew something they did not? Only when presented with feedback in later rounds did this self-correct. Was it because of the feedback presented by others or did the panel members reflect more on the nature of differentiation as they provided their own thoughts to each of the re-presented strategies?

This speaks to the role of the Delphi model stages where feedback is gathered either for or against and then returned for consideration by the group. In doing just this, a significant shift was detected in many of the borderline cases. In this case, the Delphi model accomplished its goal.

In fact, in reviewing difficult or ambiguous examples such as differentiation, the general agreement of traditional iterations should be expected, but it is the borderline cases where it is not easily evident that truly allow the respondents to consider the very essence of

differentiation. In these cases, they must examine the root rationale and purpose and then apply it to this ambiguous case. In doing so, the respondent will gain a better appreciation for their understanding of differentiation. The Delphi model enhances this reflection by sharing other viewpoints as the means to begin identifying a common shared language for differentiation. In that sense, an ontology was formed over these rounds.

That being said, it is still cause for concern by the researcher to see a select few maintain their belief in arguably erroneous views on differentiation strategies. These views maintained despite shifts in thinking by others and the presentation of rationale contradicting their views. While unnerving, it does speak to one of the research goals which was to identify and highlight any confusion in understanding of differentiation by practitioners.

Overall, the findings indicate that while there was already a high level of agreement among the panel in regard to differentiation, the Delphi model protocol aided in the consensus-building process as witnessed in the shifts in thinking[4]. Such a protocol can be very useful in dealing with potentially ambiguous topics such as differentiation, which often presents varying understandings and representations. More importantly, it can aid in the development of an ontology. This is important because, while in many other professions an ontology exists, education has struggled with such a shared language and understanding. As Gruber (1993) noted, ontologies create a common view of the world in that profession, and in doing so allows for a systematic way that pedagogy can be defined and discussed.

[4] Supervisor's comment: as discussed in Chapter 3, there have been a number of critiques of the Delphi model. Whilst the process does appear to lead to an increase in the proportion of respondents in relation to their agreement with particular statements, what is not clear is to what extent the responses reflect actual shifts in the teachers' thinking, and even less to what extent this reflects the development of a shared professional understanding. There are also some likely to be some differences in the participants' understanding of what was involved in each of the types of activities used to illustrate differentiation in the proforma, which may have increased the level of agreement, without interrogating aspects of differentiation in practice.

Chapter 6 – Discussion

6.1 Research Objectives

This study sought to examine differentiation at the practitioner level by moving beyond a generalized definition to a more strategy-centric focus. Subjects were asked to identify the teaching and assessment strategies they found best expressed differentiation. Through the use of the Delphi Model, a series of discussions were enacted that provided anonymity to responders while also opening up the identified strategies to review by the group with feedback provided for each round. Through this process, the hope was to gain a better approximation of the practitioner view of differentiation in action rather than a static definition from teaching coursework.

In doing so, this research aims to make a clear argument that to understand such pedagogy, it is imperative to move beyond the general and examine the specific degrees of the teaching practices to support communal professional learning, which in turn may help support implementation in the teaching and learning environment.

A primary question was noted, as well as potential secondary questions for analysis, each hopefully providing insight into the overall objectives of better understanding how teachers in classrooms view differentiation.

PRIMARY QUESTION: What definitions can be generated in regard to the teaching and assessment strategies associated with differentiation among a group of teachers working in a similar environment?

SECONDARY QUESTION: To what extent is there a shared definition among elementary school teachers?

SECONDARY QUESTION: What types of discussions, concessions, or conflicts will originate among these elementary teachers as they generate a definition of teaching and assessment strategies of differentiation?

SECONDARY QUESTION: To what extent do teachers adjust their definitions of the teaching strategies and assessment strategies as they communicate their understandings with fellow colleagues?

6.2 Generalized Themes

In reviewing the totality of responses throughout each of the four rounds of the Delphi Model framework, some generalized themes become prevalent. These themes included generalized agreement among base differentiation strategies as well dramatic shifts in agreement in the latter stages of the Delphi protocol, which proved as a powerful platform to inspire collegial discussion and reflection.

Initial agreement levels were high as the initially-gathered individual views on differentiation strategies found commonalties such as that 100 teaching strategies were coded based on similarities into 38 nodes. The 69 assessment strategies were likewise coded into 20 nodes and offered back to the panel. Of the 38 teaching strategies, 30 reached the consensus threshold of 80% with several reaching 100% agreement. Likewise, fifteen of the twenty assessment strategies for differentiation reached consensus. Later rounds of the Delphi saw two more teaching strategies for differentiation reach consensus.

Such agreement does speak to a potential shared understanding of differentiation among the panel or that ontology that the researcher was seeking out. This could be the result of a shared ontology or even reflective of the shared practices, professional learning, and common work environment of the participants. However, the nuances of differentiation were missing, and to fully share an understanding of such a complex pedagogy as differentiation, it is

imperative to move beyond the generic to the more specific. This was clearly seen in the latter stages of the Delphi where group discussion on those coded strategies that did not meet consensus were reflected upon by the group.

Such reflection led to several dramatic shifts in thinking by the respondents including sizable shifts in agreement with the more questionable differentiation strategy candidates of choral reading and whole group (see Chapter 4). However, these shifts in thinking are the exact reason why the Delphi protocol was selected for this study because it enabled the respondents to present their ideas with support and then reflect upon the thinking of their colleagues in a risk-free, anonymous platform. The Delphi model also allowed misinformation to come to light, exposing either misconceptions or mistaken beliefs by re-presenting the compiled data without the trappings of traditional discussions. Participants instead engaged with one another in a manner that allowed them to feel open to changing their opinions without the fear of losing face in front of others and without the potential conflict and confrontations that may come during a face to face discussion. More importantly, the Delphi model allowed for the discussion of the nuances of differentiation, which is where a trued shared language and understanding can be fully developed and understood among the panel.

6.3 Findings relating to Research Objectives

PRIMARY QUESTION: What definitions can be generated in regard to the teaching and assessment strategies associated with differentiation among a group of teachers working in a similar environment?

The final results of the Delphi model showed a significant amount of differentiation strategies for teaching and assessing. At the individual level, one hundred teaching strategies and sixty-nine assessment strategies for differentiation were identified. These were then compiled into 58 common nodes, twenty for assessment and thirty-eight for teaching and

learning. When presented to the teachers, there was high level of agreement with a total of thirty teaching strategies and fifteen assessment strategies reaching consensus. Additionally, two more teaching strategies for differentiation met consensus within Round four. Those reaching consensus are listed below: **see Figures 6.1 and 6.2.**

Teaching Strategy	Definition
Authentic Assessment	An authentic assessment is important to differentiation because it gives a teacher evidence of the student's thinking process to include the strategies and problem solving skills that will be used to drive instruction.
Conferencing	Conferencing with a student(s) allows for a conversation to take place on a particular skill or topic where a teacher can identify the strengths and weaknesses. The teacher can use this time to reteach a simple skill, expand an idea, and collect formative data on a child or small group.
Flexible Grouping	Flexible grouping involves grouping students by instructional level, ability, interests, intervention focus, and/or friendships with the ability to alter grouping when necessary to meet the needs of all students.
Learning Styles	Using the different learning styles of students to modify instruction or the delivery of assignments to best meet their unique learning needs.
Assessment for learning	An ongoing/formative assessment that drives the instruction of a teacher. This type of assessment identifies where the students are on a continuum of learning by identifying strengths, weaknesses, and misconceptions that will guide the next steps of instruction.
Performance Assessment	Demonstrates the mastery of a subject/topic through various means other than traditional testing formats. Example: Presentations, Pictorial Artwork, Oral Presentations, Technology-Based Products.
Alternative Assessment	Alter the manner or assessment format in which a student can demonstrate their understanding of a given concept. This can include but is not limited to changing the testing format to include variations of question design (essay, multiple choice, short answer), showcasing knowledge by the creation of a product/presentation (written, pictorial, oral technology-based), observation and document findings through anecdotal notes, and/or the use of a student portfolio.
Technology	Using different forms of software or websites that allows a teacher to differentiate the level of skill or task for each student.
Choice	Giving students the choice on a writing topic, what to do next in the classroom, or on what type of product they choose to represent their learning choice. This allows them to take part in the decision- making process, gives them the opportunity to demonstrate their mastery in a preferred method of learning, and also empowers them for success.
Guided Reading	A small group of students, grouped with a purpose in mind, using a similar text, working on a specific focus, skill, or strategy.
Individual or Small Group Pacing	Evaluating and promoting individual or small groups of students to a higher level when they show mastery of a skill set like sight words, math facts, spelling tests, and independent reading.
Learning Environment	Incorporates student cultures, interests, and differences to welcome organization, collaboration, flexible grouping, and intervention of different strategies.

Tiering	Adjusting or scaffolding the learning experiences according to a student's readiness, interest, or learning modality.
Project Based Learning	A product-based project that can be assigned or the opportunity for topic choice given to an individual or a group of students that can showcase their knowledge and understanding.
Observation	As a formative assessment tool, observe and collect anecdotal notes as an indicator of a student's knowledge of a specific topic or skill.
Cooperative Learning Groups	Students are designated to a specific group based on interest, same ability (homogeneous), mixed ability (heterogeneous), to work on problem solving, projects, research, or even individual work. Many times these group activities focus on not just a certain academic skill, but also encompass social skills necessary to work in a team atmosphere.
Guided Math	A small group of students, grouped with a mathematical purpose in mind, working on a specific focus, skill, or strategy.
Multiple Intelligences	Recognizing Garner's Multiple Intelligence and altering instruction to meet the different needs of the students and their learning preferences. (musical/logical/linguistic/spatial/visual/body kinesthetic/interpersonal/intrapersonal)
Modified Assignments	Changing the assignment to work on the same skill or standard but altering it to meet needs. For example, giving fewer problems or asking for a simpler response by the student to illustrate their understanding.
Adult Intervention	Using other teachers, assistants, and volunteers to help differentiate. For example, extended practice of a specific skill or extension for the advance students.
Portfolio	A collection of student work through artifact collection digitally or through a paper file that shows a child's depth of understanding for a specific skill or content area.
Rubrics	Rubrics are a differentiated grading tool for group projects, individual projects, writing assignments across all curricular areas. The rubric may be individualized to meet the diverse needs of the students
Assessment- Check for Understanding	A verbal or non-verbal form of communication like thumbs up or down to see how students understand and relate to a new concept.
Goals	Having the students track their progress and set goals based off their pre/post test results.
Centers	Using Bloom's Taxonomy to set up different learning centers or activities with varying levels and then directing students to a particular task or center that matches their ability.
Feedback	Language to teach, prompt, and/or reinforce based on a student's initiations or performance. The language used by the teacher is clear and specific versus the vague "Good Job!"
Peer Mentoring	Students working collaboratively with classmates or students from another grade level to accomplish a task. This gives a platform of instruction to take place between peers.
Seating	Arranging seats to incorporate the best learning environment for each child to include access to the teacher, behavior modification, and peer mentoring.
Differentiated Spelling	Using or creating a curriculum that allows students to work on spelling in an individual or small group format, thereby, focusing on spelling patterns that the child needs specifically.
Writer's Workshop	A framework that allows student choice of writing topics and the practice of going through the writing process at an individual pace. This allows conferencing with peers and the teacher.

Figure 6.1 Coded Teaching Strategies

Assessment Strategy	Definition
Manipulatives	Allowing for manipulatives to be used
Question Formatting	Altering assessment questions to meet communication abilities
Time Allotment	Giving extended time
Technology Assistance	Using technology to read the test to students
Modifications	Making modifications of testing based on IEP (Individualized Education Plan) Protocol
Highlighting	Highlighting the important parts of directions
Direction Alterations	Reading the directions to the student(s)
Testing Format	Altering assessment administration alteration from large group to small group format
Individualized Testing	Assessment administration at the individual level
Split Tasks	Breaking up an assessment into smaller portions
Modified Testing	Reading a test aloud
Visual Support	Using pictures on assessment to help struggling readers or ESL students (English Language Learners)
Response Format	Change a written assessment to an oral response
Response Assistance	Having an adult scribe or record verbal responses
Group Based Assessment	Allowing students to work in a team or group for an assessment

Figure 6.2 Coded Assessment Strategies

SECONDARY QUESTION: To what extent is there a shared definition among elementary school teachers?

The sense of a shared definition of differentiation by practitioners has been difficult to find within existing research, especially one that goes beyond a generic understanding to include practical, applicable elements. This research sought to better understand the shared understanding of differentiation among a small panel of educators within a unique context. Using the Delphi model, the group brainstormed, reflected upon, shared and ultimately determined which strategies were consistent with the differentiation pedagogy. As noted within the preceding chapters and sections, a total of 47 teaching and assessment strategies were identified by the group and met the requisite 80% threshold for consensus. This indicates that there was a significant level of agreement as a group. In this sense, there was agreement based on common language and the subsequent Likert results within each of the Delphi rounds.

Likewise, the themes that were identified and high frequency of certain terms and definitions showed that there were some commonality among these educators but there were differences in terms that had to be accounted for when coding and compiling results from one round to the next. For example, phrases such as 'responding to student needs' or 'using a responsive approach' may be used, but the prevailing label for this pedagogy will be differentiated instruction. Within this pedagogical label of differentiation, an analysis of existing general definitions of this type of instruction is necessary. Likewise, a discussion should be noted for the differences between individual and the group. Although there was a total of one hundred teaching strategies collected in Round One, there was an individual average of five teaching strategies that were identified and defined by each panel member in round one. Of the sixty-nine assessment strategies collected, the individual average was only three.

This supports the idea that a consistent shared understanding was not held by individual panel members. There was overlap and commonalities in terms and definitions that emerged

but there were also gaps in understanding at an individual level. This individually gathered data when put together as a group created 38 teaching strategies and of these 30 within the second round met consensus establishing it supports differentiation. This highlights to the research an important discrepancy between the average individual teacher's knowledge and that of a group. From an average of five strategies individually to a collective total of 30 strategies.

SECONDARY QUESTION: What types of discussions, concessions, or conflicts will originate among these elementary teachers as they generate a definition of teaching and assessment strategies of differentiation?

As noted throughout the preceding analysis chapter, a level of agreement was noted within the results of the Delphi model consensus-building model. The use of Likert scales and coding of individual responses following Round One were used to determine this level of agreement. This agreement suggests that a basic understanding of the elements of differentiation are shared among the participants in this panel.

However, the discussions that originated in the later stages of the Delphi protocol are of particular interest as well. These were found primarily in Rounds Three and Four where respondents were expected to comment on and/or defend the strategies put forth for further discussion. Likewise, here is where the details of differentiation were further put to reflection by the panel. Within these rounds, the comments gathered from individuals were then presented back to the whole group and a second round of Likert style agreement data was gathered. Many of the comments were in contrast to one another, directly contradicting one another. This conflict differed from traditional discussions engaged in face to face because the Delphi model provides the anonymity to take a risk and present your unbiased opinion. Such a luxury allowed for not only strongly worded comments that might alter one's

opinion on a given strategy but also the freedom to change your opinion without losing face. Below are some examples of strongly worded comments that may have helped shape the shifts in thinking found within Rounds Three and Four : **see Figure 6.3**

"Seriously, how can this even be differentiation? I am actually shocked at this point. Don't get me wrong, whole group is a valued tool and an important part of the classroom experience. However, differentiation is an individualized approach to student instruction based on unique student needs. It can even be driven by choice and interest on the student level. How is whole group teaching even in this discussion? You meet individual student needs by teaching to the whole group a set lesson? Is that lesson focused on Johnny's need that day? What about the other 18 kids in class and their needs? Is tomorrow Tommy's lesson and after that Susie's? I'm sorry, but this absolutely criminal. Not that teachers use whole group instruction because they should, but because they actually consider it differentiation. That's the same as saying photocopying the same worksheet for every kid is differentiating."

"I don't think whole group is a form of differentiated instruction at all... yes it has its benefits, i.e. lower slower students learning from their peers role modeling correctly... unless you have a whole group at a close level as in clustering."

"No because, it is not adapting teaching based on what the students need."

"This is NOT differentiation. Not even in the slightest. Explain to me how a group of kids reciting the same passage is in any way individualized. How does this meet a specific student's need, along with the unique needs of other kids in class? If a student cannot read, they will just chant along with everyone else if they speak aloud at all, which might help a little. Very little. This doesn't even really scaffold for others at all. There are so many other more powerful tools that can be used to address reading issues. Truthfully, it's a dated method which may have its place in classes (mostly of yesteryear) but should be utilized sparingly by a classroom teacher."

"This is not differentiation. Just as the questions states, choral reading can be seen as a scaffold to support students, not as giving students access at their individual levels."

"No, choral reading is not differentiated. There should be different ways to present the material."

"While choral reading is helpful because of practice through repetition and hearing others read, I wouldn't necessarily consider it differentiation."

"I'm not quite sure that choral reading is a form of differentiation unless it is used in a small group setting where read aloud material is chosen on a different level for like-leveled students. Traditionally, choral reading provides children with the practice needed to build fluency and self-confidence. It helps them learn how to decode words, develop effective and fluent read aloud skills, improves sight vocabulary, and helps them learn how to pronounce words by hearing their peers read them, and helps them understand

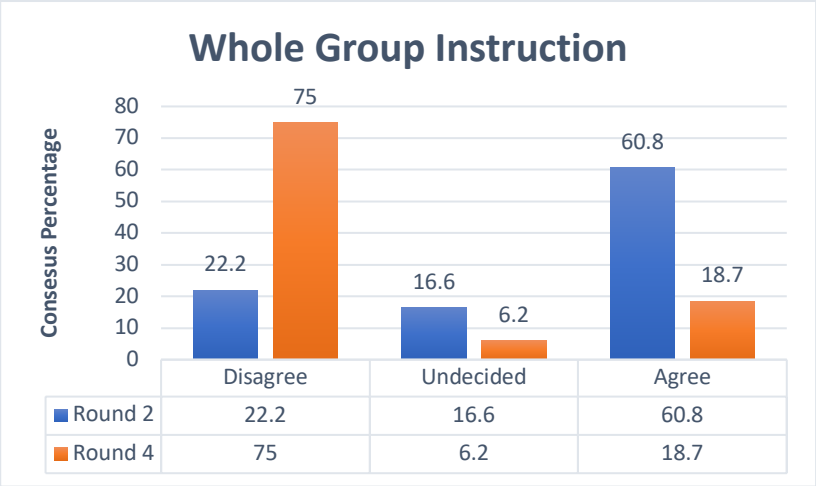
rhythm. Therefore, I am undecided as to whether choral reading is a form of differentiation or not."

Figure 6.3 - Strongly Worded Comments from Round Three

Some of the comments come across as antagonistic, which may have resulted in more conflict if not managed within the Delphi model. This protocol generates a safe place to state such opinions without fear of direct consequences, but it also allows those who would not publicly state such opinions the belief that they can do so anonymously. The goal was not to encourage antagonistic comments but to encourage discussion that is safe and risk free. Such allowances may have aided the large swings in agreement and altered the opinions of panel members. So it seems the initial stages were marked by agreement and the latter stages where discussion and interactions were shared, were marked by changes in opinion, demonstrating perhaps that the Delphi model met its intended objective in terms of supporting consensus.

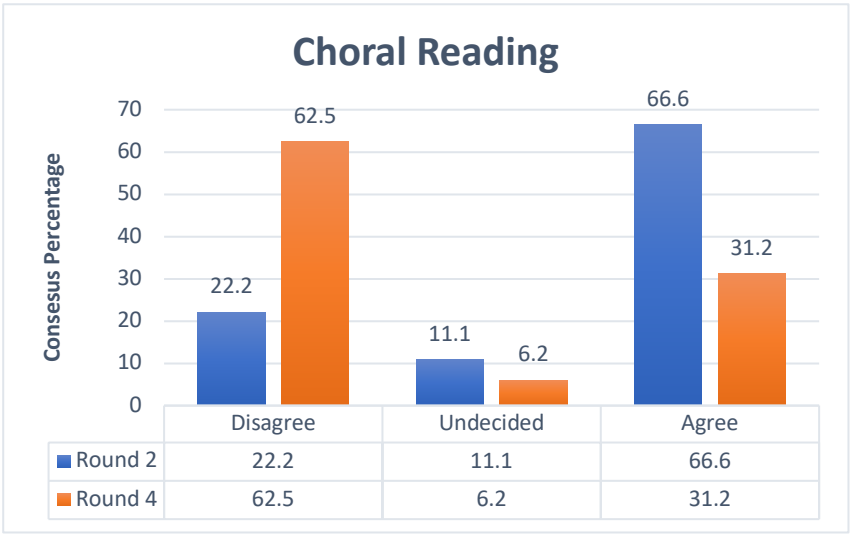
SECONDARY QUESTION: To what extent do teachers adjust their definitions of the teaching strategies and assessment strategies as they communicate their understandings with fellow colleagues?

At first glance it would seem very little changed in building a consensus between round two and round four being that there were only two new terms that reached consensus. But that is only at a surface level glance. As you dig a little deeper you see a dramatic shift in the thinking of the groups, notably in those discussed in the analysis section of this paper. Whole Group instruction and Choral Reading demonstrated these significant shifts in thinking: **see Figures 6.4 and 6.5.**



Teaching Strategy	Delhi Survey Round	Percentage Disagree	Percentage Undecided	Percentage Agree
Whole Group Instruction	Round 2	22.2	16.6	60.8
	Round 4	75.0	6.2	18.7

Figure 6.4 Teaching Strategy - Whole Group Percentages



Teaching Strategy	Delhi Survey Round	Consensus Percentage Disagree	Consensus Percentage Undecided	Consensus Percentage Agree
Choral Reading	Round 2	22.2	11.1	66.6
	Round 4	62.5	6.2	31.2

Figure 6.5 Teaching Strategy - Choral Reading Percentages

The changes in this round demonstrate how the Delphi model can be an effective means for consensus-building as it allows for the capacity to defend and value opinions in an anonymous manner. The argument has been made through this paper and through research on the Delphi model on how allowing anonymity and multiple iterations enables for more

effective group consensus building. In this case, the Delphi protocol allowed for the respondents to consider areas that might not have traditionally been identified as differentiation strategies. Through the multiple rounds the consensus shifted in dramatic ways, lining up with a shared group understanding.

6.4 Contributions and Implications

In contemporary research, it is important to examine the nuances across the range of practitioners. For education that means shifting our focus into the classroom and examining student success and teacher pedagogy in action. Studies like Moon (1995) show that teachers are not implementing the teaching and assessment strategies of differentiation, and in fact, even when seeing an openly diverse population of students, they do very little to address their different academic needs which leads to a plateau learning period for educators (Moon et al., 1995). This should be of greater and greater concern for teachers as we continually see a range of abilities and diversity in our twenty-first century classrooms, and given that differentiation is seen by some as a potential tool to bridge such gaps, it is paramount we examine how teachers in the field actually see differentiation beyond the base definition given in teacher preparatory classrooms.

This study gives a unique look at the professional vocabulary that is currently lacking at the field level. If the goal is implementation, then it starts with talking about differentiation and recognizing the importance of building a shared definition. Research shows how in the field of education there is a lack of technical language, especially when comparing it to other professions (McDonald & Grossman, 2008). Once this technical language is developed, an ontology can be built between the existing community that brings a level of shared understanding among the participants. Quite frankly, how can we communicate and share differentiation as a teaching tool if each of us has a different interpretation, and occasionally even exceedingly different views.

This study took steps to build this ontology. Through four rounds of the Delphi Model, this study encouraged professional teachers to share their ideas in the comfortable environment of anonymity with their peers, leading to discussions centered on teaching practices only. It allowed teachers to organize their ideas and express their views on the practical application of differentiation. Although this study allowed educators to come to a shared understanding of thirty-two teaching strategies and fifteen assessment strategies, it also showed that concepts caused conflict between members.

This is a crucial finding because it belabors what previous research has found that perhaps teacher level understanding of differentiation may not be as strong and its practical application may reveal significant differences or deficits with their colleagues. This matters because teaching is a hands-on field, one that continually progresses to meet the evolving challenges of the modern-day classroom. If teachers are not able to provide a differentiated curriculum to children, to individualize their instruction to meet the child at their level, we will continue to face plateaus in teaching and learning. Likewise, the use of collegial reflection and peer professional learning is pivotal in the education profession and a lack of a shared understanding may inhibit this process.

Yet this study also found that through the Delphi Model discussion, views began to change and helped to shape a new level of understanding. A great deal of strategies were presented, and through the process of analysis and sharing of their viewpoints, the participants demonstrated sometimes large-scale shifts as misconceptions were identified, discussed, and ultimately discarded. This was never more apparent than when discussing choral reading, which would not traditionally be seen as a form of differentiation but was identified as such. Through discussions, an understanding was gained that it did not meet the guidelines of differentiation. Likewise, by building this level of shared understanding, it creates an ontology and with it comes a certain level of commitment to the way it should be

implemented. This study showed that teachers can have meaningful discussions with differing opinions and walk away with a new understanding. More importantly it demonstrates the need for further research at the teacher level.

The overall contribution of this study sheds light on a new way to build understanding of a complex issue. It is not always best to have a handed-down, predetermined set of understandings, or perhaps this is simply not enough. If we want teachers to be able to talk and reflect about their teaching, maybe an approach of building a common vocabulary and understanding is critical for effective implementation of teaching practices. Creating this shared understanding builds a community of learners and ontological commitment to the ideas that are discussed.

This contribution likewise goes deeper for me to a more personal level. This study allowed me as a researcher to answer a question that had long plagued me as a literacy coach in schools. Why is it that when I ran a professional development session and then stepped into classrooms, I saw such a difference in the way the practices were implemented. Some stayed true to the model presented and others completely altered the approach and entirely missed the meaning of the framework or strategy. I thought for many years it was just teachers putting a personal touch or applying their own teaching style but this study has revealed a genuine need to develop a shared understanding. As a literacy coach, I assumed a certain level of understanding by my peers and the differences I viewed may have resulted from a lack of shared understanding between the teachers trying to implement a framework. There was no oncological commitment or shared understanding of the strategy to begin with. Instead teachers had their own individual understanding and were implementing it in their own way, even if they did not match differentiated expectations.

This all goes back to the idea that without a shared language or understanding, we fail to see effective implementation. It is what Lortie (1975) described as a lack of common technical language that still plagues this field and limits the analytical tools to study and improve teaching (Grossman & McDonald, 2008). This missing technical language in the teaching profession is impeding a higher level of understanding, creates disconnects in professional discussions, and could even limit teacher self-reflections on their own pedagogical style. In fact, Hatton and Smith argue that it is problematic to define and research reflective concepts because of the variety these terms can hold (Hatton & Smith 1994). There are many teaching practices, frameworks, and strategies that are complex and without seemingly common understanding of them. This can make it difficult to not just research them, but in the field, if teachers don't have this technical language then reflection on the teaching process or discussion about differentiation will be impeded. In fact, teachers may be able to describe basic differentiation in interviews or during professional learning opportunities but when it came to implementation in the classroom the lack of understanding was apparent. Worse yet, without shared language with colleagues, such implementation would continue without change because we would not have the language in which to discuss and reinforce teaching practices.

How can we expect as educators to improve our craft if we are not even certain of the base elements of our craft? This is arguably one of the largest contributions of this study since it provides evidence of the missing clarity in our shared understanding, and it also provided a platform for adjusting teacher understanding.

6.5 Recommendations for Current and Future Practice

For research and teacher education to progress, it is important to reconnect to the field to address the difficulty of practice and preparing teachers (Grossman & McDonald, 2008). Essentially, if we want to understand a complex ideal, maybe a new approach is needed, and

for change to start taking place at the classroom level, perhaps it is time to start to build this technical language among our teachers. We need educators to have a level of common understanding as professionals so that meaningful conversations may take place beyond training sessions or continuing education classrooms. This study instigated discussion among teachers and forced them to defend their thinking while also noting the opinions of others. Through this process we analyzed how it affected their understanding and communal willingness to come to a shared understanding.

It is no longer enough to have handed-down definitions because this study clearly shows that individual teachers have differing views and understandings of teaching ideals. Thus, research must be sought at the teacher level to evaluate individual teacher understanding and encourage discussion. Research should seek to start building a higher level of critical analyzing teacher understanding, all of which helps to begin the process of creating an oncological understanding in this profession to help enact change. Shared and common understanding needs to be fleshed out so when teachers are discussing pedagogy there is a certain level of commonality in their understanding. While teachers are trained in similar environments, we occasionally see that implementation is flawed or nonexistent when it comes to practices that they do not fully understand (see. Chapter 2). However, this study demonstrated that even if they did not fully understand an idea, they were able to come to a consensus through managed discussions and feedback from their colleagues. While the Delphi model encourages anonymity, which provides security to share and even alter your opinion, it also shows that such dialogue may significantly shift opinions and align understanding.

The implications of such an approach and findings will have a large-scale impact on the professional development of teachers. This study suggests that the handed-down approach of current professional development models may not be enough to encourage change or

understanding because a shared definition is needed, especially with complex ideals such as differentiation. So, if we want teachers to walk away with similar understandings and be able to implement new strategies, then building a common vocabulary may be necessary. This shared definition creates a level of understanding to a point where teachers can then discuss the nuances of the ideals of their pedagogy. But if our current approach continues to just assume that teachers all know what to do or what an ideal truly represents, we will continue to see ineffective and wildly divergent teaching practices. There is no argument concepts like differentiation are complex, intricate, and at times, just plain frustrating, but until we build a common language among professionals, conversations in how it improve it will continue to be difficult.

6.6 Limitations

Through the various stages of this work, my understanding of the research process grew and with it came a deeper realization of the limitations found within this study. While recognizing that such understanding is a key part of the doctoral training process and is supposed to help future research opportunities by learning to identify and correct such limitations, it is also pretty humbling when you realize the issues you did not consider when designing your framework or rolling out your research. So while all forms of research have some form of limitations, this study is no different. Some of these limitations can be directly traced to the choices made by the researcher but others were beyond my control and a result of the environment in which I work and conducted my research. Either way, it is important to detail these to better understand and correct in future research opportunities.

Primary of these limitations was the location and system in which the study was conducted. Department of Defense schools are part of a larger United States Governmental framework and subject to the regulations governing privacy and restricted access. As a result, the researcher was limited in how many participants to contact through the DoDEA research

advisory panel and also limited in my ability to conduct observations of classroom instruction. Without the ability to observe, this limited the researcher's effort to validate that the strategies listed by participants were indeed classroom practices. This also limited my opportunity to view differentiation in practice within the school. These environmental constraints could not be bypassed and do offer a visible limitation to the study and potential follow-up.

This study also had noticeable limitations because of the design model chosen and its subjective nature. The Delphi has no specific manner in which it can be implemented. In fact, the manner in which it is implemented, including the length between stages or even the number of rounds, is up the discretion of the researcher. As Skulmoski et al. (2007) noted, this requires the researcher to be mindful of the validity and reliability of the findings. This is a tall task and must be accounted for when discussing limitations such as the chosen framework, panel selection and redistribution of the compiled findings for each round.

Given the fact that the Delphi model does not have a prescribed number of rounds but only a generalized framework in which to seek consensus, the researcher made a determination to conduct four rounds based upon factors such as the findings from each round, depth of discussion or conflict in the findings, and the amount of time asked of participants to take part in the study. It was important not to take too long between rounds or to inundate the participants with too much so the choice was made for four. Even with this in mind, the sample set did drop from nineteen to fifteen participants so this does provide a noticeable limitation as there were still potential areas to explore.

Likewise, the manner in which and the number of participants selected is open to debate and provides a limitation. This includes the definition made for what constitutes an expert since the Delphi model provides a framework for discourse and consensus-building between

experts in a given field. The definition for an expert in this research project was described in the methodology section and at the discretion of the researcher who tried to account for variables such as experience, schooling, and area of teaching. The total selected also provides a limitation to overall generalizability of findings and some areas provided less participants than others. It is also important to note a potential bias in that the participants were picked out by the researcher based on location and familiarity and were given a choice to participate or not. This means that only those willing to share their practices took part and those that were not willing elected not to take part.

A significant issue to consider is that the gathered information from participants was self-reported without a manner to check that they indeed used the differentiation strategies for teaching and assessing. Due to limitations put in place by the DoDEA Research advisory panel, follow-up observations could not be conducted, which might have provided an opportunity to validate the self-reported strategies in use. Although grateful for the approval of research for this population there were some limiting constraints set by the DODEA approval board to collect data and limited access for observations to take place in classroom settings. As a research design it would have been valuable to complete observations in the classrooms to note the usage of the teaching and assessment strategies of differentiation and then doing a follow up observation after the shared definition was completed to see if there was a direct effect on the level or kinds of implementation that took place. Since the participants were reporting differentiation strategies they used without validating they were actually used, there arises the potential issue of self-reporting activities that are not consistently seen in action. This is often a concern with self-reported data and this must be considered in evaluating the findings.

Likewise, the Delphi model requires the researcher to compile and share the feedback gathered for each stage which means there the possibility of bias in how or what is returned

back to the participants. Such limitations and the actions undertaken to limit this were discussed in the methodology chapter. However, one of the strengths of the Delphi model is that it has multiple steps and rounds in which the material is brought back before the participants. By presenting the information back it helps to ensure that words or ideas are not misconstrued and also provides an opportunity for dialogue between participants. The steps taken also to compile the strategies and shared definitions also relies upon returning them for agreement from the participant panel.

The Delphi approach offered insight into the research questions but the design itself does raise such questions like subjectivity of the design and the inherent problem with the time it takes between iterations[5]. This study tried to address some of these concerns by having a failsafe in place to mitigate this. The subjectivity of the design means that it falls upon the researcher to decide when to continue to strive for consensus and when it is necessary to stop due to diminishing returns. As the researcher, I chose four rounds, modeling each round a little differently to address the needs of the research questions but never trying to force a consensus. Instead the design allowed participants to share their opinions along the way and for changes to be made if the researcher analysis did not reflect the understanding of the population.

Generalizability of the findings must also be discussed given the small size of the panel and its restriction to a specific subset of teachers in a particular school system. Lack of external validity questions the ability to generalize the findings to a larger audience. This must be

[5] Supervisor's comment: a further challenge to explore is the inherent tensions involved in identifying an agreed definition, reaching a shared consensus and developing a shared professional understanding as a basis for developing teaching skills and expertise. These can perhaps be seen as a continuum from the creation of a precise definition through to creating a space for developing shared professional practice. The Delphi technique may elide some of these differences in the way it elicits agreement and disagreement. In terms of participant validation, the successive rounds offer opportunities for participants to engage with the process and with shifts in perspective expressed by other participants, but this does not necessarily allow engagement in more fundamental differences in understanding which may underlie aspects of the process.

considered when examining the results given such a small panel of educators was used with even smaller subsets in given areas such as grade level or specialty. However, it is important to note that this study does not seek to infer the findings are true of all schools, rather it is a microcosm of potential issues residing within teaching in a specific context, namely a gap between shared understanding among educators, even in a restricted setting. This study sought to show that within a group of colleagues, even those that work in the same school district or even same hallway, there can be a lack of shared understanding regarding a teaching ideal. Rather than state these findings from the Delphi model consensus building should be generalized everywhere, the generalized findings instead speak to the need for developing a shared language and understanding for differentiation in teaching.

6.7 Future Study Opportunities

This study opens new avenues for research opportunities to better understand differentiated instruction and the process of ensuring these high-quality teaching practices can be adopted in classrooms today. While much has been done in the field of differentiation, the truth is that the lack of focus on communal, shared professional understanding of what constitutes differentiation practices in the classroom is a glaring omission. Such a lack of investigation and the development of consensus offers opportunities for future projects at different levels of the education system.

This study foregrounded the importance of creating a shared definition. The ability to give teachers the technical vocabulary to be able to discuss, evaluate, and learn from one another because this is a foundation for a shared understanding. This proves critical in many other professional fields so it is important that, as educators, we start to create this foundation of shared understanding for the critical features of our profession. This study is only a first step in what needs to be a continuous process to create real change and understanding of pedagogy, which is so complex that some people criticize it as something that is only a

"losing proposition" that can never be truly reached (Delisle, 2015). While the findings of this study shows how intricate, difficult, and time-consuming it can be to create shared definitions, it also shows that there are more fundamental differences in understanding by teachers. Perhaps then it might be time to start to include this approach within our professional development of teachers? Maybe it is time to stop talking at teachers and instead seek to create commonalities by discussing with them to understand views.

Chief to these future study opportunities is a need to examine teacher understanding at the practice level through their identification and implementation of differentiation strategies. This includes models such as the Delphi model but could adopt further iterations or other techniques so long as they focus on seeking out what the individual teacher views or believes. Rather than a simple questionnaire, which can only capture a portion of the whole, the use of a consensus building model allows for multiple rounds of discussion. That is the core need, to help teachers develop a shared understanding and language to aid the adoption and use of different teaching practices. A second need would be to follow up with observations to view the actual implementation or enactment of differentiation. This will help move our understanding beyond words or definitions to actions within the learning environments. A logical follow-up to this would then be to examine the impact on student learning, another area of differentiation that is lacking in research.

On a personal note and given my background as a deliverer and facilitator of professional development at the school level, it would be fascinating to have a study undertaken with two separate groups. The first would use a typical approach to professional learning where teachers are taught about differentiation and then asked to implement the strategies. The second group instead would follow a series of consensus-building rounds regarding the language and definition of differentiation strategies. Upon arriving at a shared definition, follow-up professional discussions would center on this new ontology with follow-up

implementation in the classroom. Research could then examine the impact on usage and student learning via observations of the two methods and compare them for effectiveness.

Since there is such a discrepancy in the amount of information available on differentiation and the level of implementation, it is time to look at ways to create change in pedagogy. Basically, we need to relook at the professional development of our professional educators and allow them to gain knowledge, feel supported, and stir implementation. Future research needs to address ways to change the level of implementation of this pedagogy.

6.8 Conclusion

Across the world, education faces a rapidly changing landscape of needs and wants, driven by the increasing diversity of our student population and by external pressure for education to achieve particular ends. Such needs provide a daunting challenge to the educational system as a whole and especially the individual practitioner. With so much pressure to meet these varying needs and demands, differentiation offers a potentially responsive and valuable method for generating success within classrooms. However, while differentiation remains a widely poplar and well-known teaching approach, the lack of effective implementation suggests uncertainty and concern, supporting the idea that differentiation is hard and difficult (Tomlinson, 2015). Research also shows that teachers have varying perspectives about differentiation, and this creates a low implementation rate (Tomlinson, 1998; Moon et al., 1995) Thus, what is needed is a shared understanding and shared commitment to adoption and implementation among teachers.

As this study sought to demonstrate that perhaps a key to a better understanding of these concerns among educators may be through the process of creating a shared definition by the practitioners and not relying upon terms and definitions handed-down in training. By

engaging teachers with an opportunity to jointly create, discuss, and reflect upon the meaning and strategies of complex pedagogy like differentiation through active consensus-building such as the Delphi Protocol, schools and professional development leaders can root out misconceptions early and develop and reinforce a shared understanding and common vocabulary that enables collegial support to be timely, effective, and more importantly, understandable for the educator. While such consensus-building efforts as this research project are time-intensive, they are also valuable because it allows teachers to engage in professional discourse that is meaningful for the teacher and perhaps best suited to support ongoing professional development efforts for increased implementation. This implementation of a best practices pedagogy like differentiation would, in turn, help improve student learning, which is ultimately the end goal of any educational endeavor.

References

Archambault Jr, F. X. (1993). Regular Classroom Practices with Gifted Students: Results of a National Survey of Classroom Teachers. Research Monograph 93102. (ED379845) Storrs, CT: NRC/GT, The University of Connecticut.

Berbaum, K. A. (2009). *Initiating Differentiated Instruction in General Education Classrooms with Inclusion Learning Support Students: A Multiple Case Study*. Ed.D. Dissertation, Walden University (ED526746).

Bickart, T. S., Jablon, J. R., & Dodge, D. T. (1999). *Building the Primary Classroom: A Complete Guide to Teaching and Learning.* Washington, DC: Teaching Strategies, Inc.

Black, P. & Wiliam, D. (October 1998), "Inside the black box raising standards through classroom assessment", *Phi Delta Kappan*, 139-148.

Black, P. & Wiliam, D. (1998b), "Assessment and classroom learning", *Assessment in Education*, 5, 1: 7-61.

Blozowich, D. G. (2001). *Differentiated instruction in heterogeneously grouped sixth grade classrooms* Unpublished doctoral dissertation. Immaculata College, Pennsylvania.

Bourgeois, Jared (2006)."The Delphi Method: A qualitative means to a better future." *URL: http://www. free quality. org/documents/knowledge/Delphimethod. pdf (Citirano 2. 11. 2011)*

Brimijoin, K. (2002), "Expertise in differentiation: A preservice and in-service teacher make their way", *Unpublished Doctoral Dissertation, University of Virginia, Charlottesville*.

Bryman, A. and Bell, E. (2007). *Business Research Methods*. Oxford University Press, USA.

Burns, B. (Ed.). (2006). *How to teach balanced reading and writing*. New York: Corwin Press.

Bush, G, (2002), No Child Left Behind Act, . Available from: United States , http://www.cew.wisc.edu/ewl/resource/nochildleftbehind.pdf [Accessed: Feb 12, 2011].

Cunliffe, S. (2002). Forecasting risks in the tourism industry using the Delphi technique. *Tourism*, 50 (1), 31-41.

Cusumano, C., & Mueller, J. (2007). How Differentiated Instruction Helps Struggling Students. *Leadership*, 36(4), 8-10.

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. Management science, 9(3), 458-467.

Dalkey, N. C. (1972). *Studies In The Quality Of Life; Delphi And Decision-Making*. Lanham LD: Lexington Books

DeBaryshe, B. D., Gorecki, D. M., & Mishima-Young, L. N. (2009). *Differentiated instruction to support high-risk preschool learners.* NHSA DIALOG, 12(3), 227-244.

DeBray-Pelot, E., & McGuinn, P. (2009). The new politics of education: Analyzing the federal education policy landscape in the post-NCLB era. *Educational Policy*, 23(1), 15-42.

Earl, T. S. (2005). *Classroom and curriculum differentiation*. MA Dissertation Pacific Lutheran University, Tacoma, Washington (ProQuest 1430047).

Ferrier, A. M. (2007). *The effects of differentiated instruction on academic achievement in a second-grade science classroom* Doctoral dissertation, Walden University, Minneapolis, Minnesota.

Freeman, D., & Johnson, K. E. (1998). Reconceptualizing the knowledge-base of language teacher education. *TESOL Quarterly*, 32(3), 397-417.

Fountas, I. Pinnell, G. , 1st Initial, (2012), *Prompting Guide for Oral Reading and Early Writing*, Edition of book, Heinemann, Portsmouth .

Gibbs, G, (2001), *Tribes: A New Way of Learning and Being Together* , 2nd ed, Centersource Systems LLC, Cloverdale.

Golafshani, N. (2003) Understanding Reliability and Validity in Qualitative Research *The Qualitative Report*, 8(4):597-607.

Gordon, T.J. (1994) "The Delphi method." *Futures research methodology* (1994): 1-33.

Grossman, P., & McDonald, M. (2008). Back to the future: Directions for research in teaching and teacher education. *American Educational Research Journal* 45, No. 1: 184 – 205.

Gruber, T. R. (1993). A translation approach to portable ontology specifications. *Knowledge acquisition*, 5(2), 199-220.

Guarino, N. (Ed.). (1998). Formal ontology in information systems: *Proceedings of the first international conference* (FOIS'98), June 6-8, Trento, Italy (Vol. 46). IOS press.

Haig, B. (1996), "Grounded theory as scientific method", *Philosophy of Education*. 28(1):1-11

Hallowell, M. R. & Gambatese, J.A. (2009) "Qualitative research: application of the Delphi method to CEM research." *Journal of construction engineering and management* 136.1: 99-107.

Hamre, Bridget K., and Pianta, Robert C. (2005) "Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure?." *Child development* 76.5 (2005): 949-967.

Harris , K. Graham, & S. Mason, L, (2006), "Improving the writing, knowledge, and motivation of struggling young writers: effects of self-regulated strategy development with and without peer support", *American Educational Research Journal* , 43. 2:295-340.

Hasson, F., & Keeney, S. (2011). Enhancing rigour in the Delphi technique research. Technological Forecasting and Social Change, 78(9), 1695-1704.

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, *32*(4), 1008-1015.

Hattie, J.A.C. (2003, October). *Teachers make a difference: What is the research evidence?* Paper presented at the Building Teacher Quality: What does the research tell us ACER Research Conference, Melbourne, Australia. Retrieved from http://research.acer.edu.au/research_conference_2003/4/

Heacox, D. (2002). *Differentiating instruction in the regular classroom: How to reach and teach all learners, Grades 3-12*. Minneapolis: Free Spirit Publishing.

Health, H. & Cowley, S. (2002), "Developing a grounded theory approach: A comparison of Glaser and Strauss", *International Journal of Nursing Studies*, 41: 141-150.

Heiko, A. (2012). Consensus measurement in Delphi studies: review and implications for future quality assurance. *Technological Forecasting and Social Change*, 79(8), 1525-1536.

Hertberg-Davis, H. L., & Brighton, C. M. (2006). Support and sabotage principals' influence on middle school teachers' responses to differentiation. *Journal of Secondary Gifted Education*, 17(2), 90-102.

Hetton, N., Smith, D., (1994) *Facilitating Reflection: Issues and Research.* Paper presented at the Conference of the Australian Teacher Education Association (24th, Brisbane, Queensland, Australia, July 3-6, 1994).

Holloway, J. (September 2000), "Preparing teachers for differentiated instruction", *Educational Leadership*: 82-83.

Hsu, C. C., & Sandford, B. A. (2007). The Delphi technique: making sense of consensus. *Practical Assessment, Research, and Evaluation*, 12(1), 10.

John-Steiner, V., & Mahn, H. (1996). Sociocultural approaches to learning and development: A Vygotskian framework. *Educational Psychologist*, 31(3-4), 191-206.

Joseph, S. (2013) Differentiating Instruction: Experiences of Pre-Service and In-Service Trained Teachers, *Caribbean Curriculum* 20, 31–51.

Judd, R. (1972), "Use of the Delphi method in higher education", *Technological Forecasting and Social Change*, 4:173-186.

Kagan, S. (1985). Dimensions of cooperative classroom structures. *Learning to cooperate, cooperating to learn* (pp. 67-96). Boston, MA: Springer.

Kiley, D. (2011). *Differentiated instruction in the secondary classroom: Analysis of the level of implementation and factors that influence practice*. Doctoral dissertation Western Michigan University, Kalamazoo MI.

K - 12 Education, . *Available from: United States government s, : http://m.whitehouse.gov/issues/education/k-12 [Accessed: Oct 12, 2014].*

Kerry, T. & Kerry, C. (1997), "Differentiation: Teachers' views of the usefulness of recommended strategies in helping the more able pupils in primary and secondary classrooms", *Educational Studies*, 23, 3: 439-457.

Kobelin, M. (2009). Multi-age made me do it: A teacher tackles differentiation in math instruction. *Schools*, 6(1), 10-22.

Kosanovich, M. (2007). "Differentiated Reading Instruction: Small Group Alternative Lesson Structures for All Students. Guidance Document for Florida" Reading First" Schools." *Florida Center for Reading Research*

Latz, A. O., Speirs Neumeister, K. L., Adams, C. M., & Pierce, R. L. (2008). Peer coaching to improve classroom differentiation: Perspectives from Project CLUE. *Roeper Review*, 31(1), 27-39.

Linstone, H. & Turoff, M.(1975), *The Delphi method: Techniques and applications,* London: Addison-Wesley.

Loughlin, K., Moore, L. (1979) Using Delphi to Achieve Congruent Objectives and Activities in a Pediatrics Department, *Journal of Medical Education*, 54, 2, 101-06.

Lortie, D. C. (1975). *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.

Mathes, P. Torgesen, J. Allor, J, (2001), "The effects of peer-assisted literacy strategies for first-grade readers with and without additional computer-assisted instruction in phonological awareness ", *American Educational Research Journal*, 38. 2:371-410.

McIntosh, R., Vaughn, S., Schumm, J. S., Haager, D., & Lee, O. (1993). Observations of students with learning disabilities in general education classrooms. *Exceptional Children*, 60(3), 249-261.

McTighe, J. Brown, J., (2005), "Differentiated instruction and educational standards: is detente possible?", *Theory into Practice*, 44. 3:234-244.

Miller, B.A. (1990) A review of quantitative research on multi-grade instruction *Journal of Research in Rural Education*, 7.

Mills, M. Monk, S. Keddie, A, (2014), "Differentiated learning: from policy to classroom", *Oxford Review of Education*, (online issue) http://dx.doi.org/10.1080/03054985.2014.911725

Moon, T., Tomlinson, C.A. & Callahan, C.M. (1995), "Academic diversity in the middle school: Results of a national survey of middle school administrators and teachers", *The National Research Center on the Gifted and Talented* , Research Monograph 95124.

Moon, T. Callahan, C. Tomlinson, C, (2003), "Effects of state testing programs on elementary schools with high concentrations of students poverty- good news or bad news", *Current Issues in Education*, 6. 8:1-24

Nist, S. & Kirby, K. (2010), "Teaching comprehension and study strategies through modeling and think aloud", *Reading Research and Instruction*, 25. 4:254-264.

Obama, B. (2010) *A blueprint for reform the reauthorization of the elementary and Secondary Education Act*, . Available from: United States, Department of Education: ED.gov [Accessed: Jan 12, 2011].

Okoli, C. & Pawlowski, S. D. (2004) "The Delphi method as a research tool: an example, design considerations and applications." *Information & Management* 42.1 (2004): 15-29.

Pashler, H., McDaniel M., Rohrer D., Bjork R. (2008) Learning styles: Concepts and evidence. *Psychological Sciences in the Public Interest.* 9(3), 105-119.

Polikoff, M. P. & A. Smithson, J, (2011), "How well aligned are state assessments of student achievement with state content standards", *American Educational Research Journal* , 48. 4:965-995.

Powell, C. (2003), "The Delphi technique: Myths and realities", *Methodological Issues in Nursing Research*, 41, 4: 376-382.

Puzio, K., Newcomer, S. N., & Goff, P. (2015). Supporting literacy differentiation: The principal's role in a community of practice. *Literacy Research and Instruction*, 54(2), 135-162.

Reis , S. McCoach, D. & Little, C, (2011), "The effects of differentiated instruction and enrichment pedagogy on reading achievement in five elementary schools", *American Educational Research Journal* , 48. 2:462-501.

Reeves, D. B. (2006) "Leading to change: Preventing 1,000 failures." *Educational Leadership* 64.3: 88-89.

Richmond, E. (2015). Schools on US military bases are adopting common core-but don't call it that. *The Education Digest*, 81(2), 18.

Robison, E. M. (2004). *Teacher decision-making in utilizing differentiated instruction* (Doctoral dissertation, Marywood University, Scranton, PA).

Rodriguez-Manas, L., Feart, C., Mann, G., Vina, J., Chatterji, S., Chodzko-Zajko, W., (2013). Searching for an operational definition of frailty: A delphi method based consensus statement. the frailty operative definition consensus conference project. *Journals of Gerontology--Series A Biological Sciences and Medical Sciences*, 68(1), 62-67.

Rock, M., Madelein, G., Edwin, E., & Gable, R. (2008) REACH: A framework for differentiating classroom Instruction. *Preventing School Failure*, Winter, 31-47.

Roiha, A, (2012) "Teachers' views on differentiation in content and language integrated learning (CLIL): perceptions, practices and challenges", *Language and Education*, 28. 1:1-18.

Rowe, G., Wright, G. & Bolger, F. (1991) "A reevaluation of research and theory", *Technological Forecasting and Social Change*, 39, pp. 235-251.

Rock, Marcia L. (2008) "REACH: A framework for differentiating classroom instruction." *Preventing School Failure: Alternative Education for Children and Youth* 52.2: 31-47.

Ruhl, K. L., & Berlinghoff, D. H. (1992). Research on improving behaviorally disordered students' academic performance: A review of the literature. *Behavioral Disorders*, 17(3), 178-190.

Rule, Audrey C., & Lord L. H. (2003) "Activities for Differentiated Instruction Addressing All Levels of Bloom's Taxonomy and Eight Multiple Intelligences." Open Educational Resources https://scholarworks.uni.edu/oermaterials/295/

Sackman, H. (1975) *Delphi critique*, Boston, MA: Lexington Books.

Santamaria , L, (2009) "Culturally responsive differentiated instruction: narrowing gaps between best pedagogical practices benefiting all learners", *Teachers College Record* , 111. 1:214-247.

Sato , M. Wei, R. & Darling-Hammond, L, (2008) "Improving teachers' assessment practices through professional development: the case of national board certification", *American Educational Research Journal* , 45. 3:669-700.

Scheibe, M., Skutsch, M. & Schofer, J. (2002). Experiments in Delphi methodology. In: Linstone H. & Turoff M. (eds) *The Delphi method: techniques and applications*, 257-281. New York: Addison-Wesley Educational Publishers Inc https://web.njit.edu/~turoff/pubs/delphibook/delphibook.pdf

Schumm, J. & Vaughn, S. (1995) "Getting ready for inclusion: Is the stage set?", *Learning Disabilities Research & Practice*, 10: 169-179.

Skulmoski, G. J., Hartman, F. T., & Krahn, J. (2007). The Delphi method for graduate research. *Journal of Information Technology Education Research*, 6(1), 1-21.

Smit, R., & Humpert, W. (2012). Differentiated instruction in small schools. *Teaching and Teacher Education,* 28(8), 1152-1162.

Smutny, J. Walker, S. & Meckstroth, E, (1997) *Teaching young gifted children in the regular classroom identifying, nurturing, and challenging ages 4-9*, Minneapolis: Free Spirit Publishing Inc.

Smutny, J. & Fremd, S. , (2004) *Differentiating for the young child teaching strategies across the content areas (K-3)*, Corwin Press, Inc., Thousand Oaks.

Sternberg , R. & Zhang, L. (2005) "Styles of thinking as a basis of differentiated instruction", *Theory Into Practice*, 44. 3:245-253.

Stone, S. J. (1996) *Creating the multi-age classroom,* Glenview, IL: Good Year Books.

Stronge, J. H., Ward, T. J., Tucker, P. D., & Hindman, J. L. (2007). What is the relationship between teacher quality and student achievement? An exploratory study. *Journal of Personnel Evaluation in Education*, 20(3-4), 165-184.

Southall, M, (2007) *Differentiated literacy centers*, 1st ed., Scholastic Teaching Resources, New York.

Subban, P, (2006) "Differentiation instruction: a research basis", *International Education Journal*, 7. 7:935-947.

Tieso, C. L. (2002). *The Effects of Grouping and Curricular Practices on Intermediate Students' Math Achievement.* Storrs: University of Connecticut: National Research Center on the Gifted and Talented.

Tieso, C. (2004). One School's Reflection on Differentiation. *Gifted Child Today*, 27(4), 58-62.

Tomlinson , C. (2000), "Differentiation of instruction in the elementary grades", *Clearinghouse on Elementary and Early Childhood Education*

Tomlinson , C. (2007), "Learning to love assessment", *Educational Leadership* , 65. 4, pp,8-13.

Tomlinson, C, (2005), "Why Bother? ", *Differentiating Instruction*, 9. 1:13-14.

Tomlinson, C. (1999), "Mapping a route toward differentiated instruction", *Educational Leadership*, 57. 41:12-16.

Tomlinson, C. (2008), "The goals of differentiation", *Educational Leadership*:26-30.

Tomlinson, C. A & Edison, C. C. (2003), *Differentiation in practice A resource guide for differentiating curriculum grade K-5,* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A. (1998). For integration and differentiation choose concepts over topics. *Middle School Journal*, 30(2), 3-8.

Tomlinson, C. A. (2003), *Fulfilling the promise of the differentiated classroom Strategies and tools for responsive teaching,* Association for Supervision and Curriculum Development, Alexandria, VA.

Tomlinson, C. A. & Allan, S. D. (2000), *Leadership for differentiating school and classrooms,* Association for Supervision and Curriculum Development, Alexandria, VA.

Tomlinson, C., Moon, T., Callahan, C. (1998) How Well Are We Addressing Academic Diversity in the Middle School? Middle School Journal, 29 n3 p3-11.

Tomlinson, C.A. (2003b), "Quality curriculum and instruction for highly able students ", *Theory into Practice*, 44. 2:160-166.

Tomlinson, C.A. (2005b), *The differentiated classroom: responding to the needs of all learners*, Pearson, New Jersey .

Tomlinson, C.A., Brighton, C., Hertberg, H., Callahan, C., Moon, T., Brimijoin, K., Conover L., Reynolds, T. (2003), "Differentiated instruction in response to student readiness, interest,

and learning profile in academically diverse classrooms: a review of literature", *Journal for the Education of the Gifted*, 27, 2/3: 119-145.

Walker, A. M., & Selfe, J. (1996). The Delphi method: a useful tool for the allied health researcher. *British Journal of Therapy and Rehabilitation*, 3(12), 677-681.

Westberg, K. L., Archambault Jr, F. X., Dobyns, S. M., & Salvin, T. J. (1993). The classroom practices observation study. *Journal for the Education of the Gifted*, 16(2), 120-146.

Woudenberg, F. (1991). An evaluation of Delphi. *Technological forecasting and social change*, 40(2), 131-150.

Yousuf, M.I. (2007), "Using experts' opinion through the Delphi technique", *Practical Assessment, Research & Evaluation*, 12, 4: 1-8.

Appendix A: Differentiation Delphi Survey

Researchers the world over deem differentiated instruction as a vital component of education but this term may be interpreted and implemented many different ways. Recognizing these differences, the purpose of this survey is to build a consensus through a series of questionnaires on the meaning and definitions of daily differentiated instruction undertaken by educators such as yourselves.

Background: (Please fill in the blank)

What grade level, specialty, and/or subject area do you teach? _____
(Please include your grade level or what type of specialist you are)

How long have you been teaching? _____

Educational Background: (please check which category applies to you)

Bachelors ____
Bachelors plus 15 units _____
Bachelors plus 30 units _____
Masters _____
Masters plus 15 units _____
Masters plus 30 units _____
Doctorate _____

Classroom Methodologies:

In today's classroom, an educator is challenged by a diverse population of students. To meet these varied needs, teachers may utilize different instructional strategies which may appear in many different forms.

What methodologies can educators or do you use to differentiate instruction?

Please describe as many methodologies or strategies for differentiation as possible and define them as clearly as you can. You may include strategies you use yourself and also other methods that you associate with differentiation.

Please use one strategy per box.

Differentiated Assessments:

How can an educator differentiate assessments to meet the needs of their students? In this section, please describe the ways assessments can be differentiated to meet the individual needs of students. Please include strategies you use yourself and also other methods that you associate with differentiation.

Please describe one strategy per box.

Thank you for taking your time to participate in this consensus.

Appendix B: Examples of NVivo Coding

11/9/2014 7:30 PM

Coding Summary By Node
Billie's Thesis
11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Node						
Nodes\\Anchor ACtivities						
Document						
Internals\\steve Survey Round 1						
No		0.0321	1			
				1	BD	11/8/2014 9:46 AM

Anchor Activities – allows students to choose an activity/assignment when they have completed the required tasks

Nodes\\Assessment - Exit Slip						
Document						
Internals\\Amanda (1)						
No		0.0022	1			
				1	BD	11/1/2014 7:09 AM

Exit Slip

11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Nodes\\Assessment - Foldable						
Document						
Internals\\Amanda (1)						
No		0.0016	1			
				1	BD	11/1/2014 7:10 AM

Foldable

Nodes\\Assessment - For Learning						
Document						
Internals\\Engels Survey Round 1						
No		0.0782	2			
				1	BD	11/8/2014 8:05 AM

In mathlab, the students spend a month working through at least 8 different math strands and these build upon each other, so an end of the month assessment is valuable to gain insight into whether students understood the concept. From this assessment it is possible to plan the next month's mathlab in both concept and intensity.

				2	BD	11/8/2014 8:06 AM

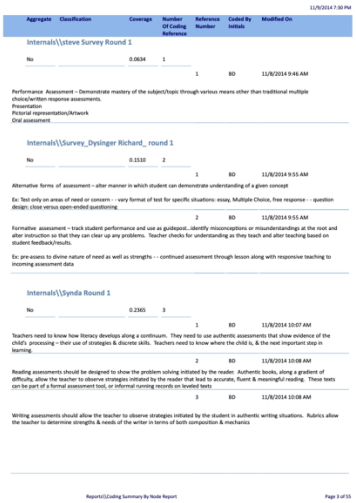
BAS: This reading test is an excellent window into a student's comprehension, process and grasp of reading. This test offers many entry points for working with students on creating differentiated instruction.

Internals\\Kasie Survey Round 1 (2)						
No		0.0685	1			
				1	BD	11/8/2014 9:04 AM

I use assessments, both formally and informally to determine where each student is at in their learning. Based on results some students will move on to the next step, have a more challenging concept, or a review of the concept just taught. Usually this is done in small group instruction.

Internals\\Ruth Survey Round 1 (2)						
No		0.0137	1			
				1	BD	11/8/2014 9:39 AM

Pre/ Post Test to drive instruction



11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Internals\\steve Survey Round 1						
No		0.0634	1			
				1	BD	11/8/2014 9:46 AM

Performance Assessment – Demonstrate mastery of the subject/topic through various means other than traditional multiple choice/written response assessments.
Presentation
Pictorial representation/Artwork
Oral assessment

Internals\\Survey_Dysinger Richard_ round 1						
No		0.1510	2			
				1	BD	11/8/2014 9:55 AM

Alternative forms of assessment – alter manner in which student can demonstrate understanding of a given concept

Ex: Test only on areas of need or concern - - vary format of test for specific situations: essay, Multiple Choice, free response - - question design: close versus open-ended questioning

				2	BD	11/8/2014 9:55 AM

Formative assessment – track student performance and use as guidepost...identify misconceptions or misunderstandings at the root and alter instruction so that they can clear up any problems. Teacher checks for understanding as they teach and alter teaching based on student feedback/results.

Ex: pre-assess to divine nature of need as well as strengths - - continued assessment through lesson along with responsive teaching to incoming assessment data

Internals\\Synda Round 1						
No		0.2365	3			
				1	BD	11/8/2014 10:07 AM

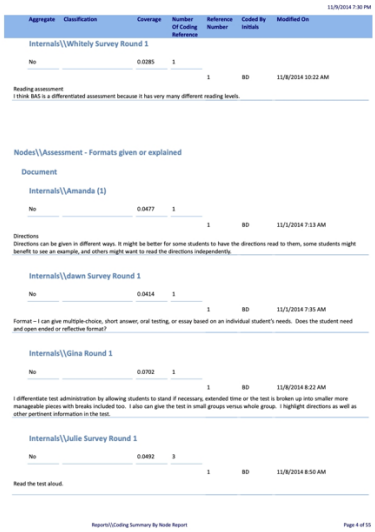
Teachers need to know how literacy develops along a continuum. They need to use authentic assessments that show evidence of the child's processing – their use of strategies & discrete skills. Teachers need to know where the child is, & the next important step in learning.

				2	BD	11/8/2014 10:08 AM

Reading assessments should be designed to show the problem solving initiated by the reader. Authentic books, along a gradient of difficulty, allow the teacher to observe strategies initiated by the reader that lead to accurate, fluent & meaningful reading. These texts can be part of a formal assessment tool, or informal running records on leveled texts

				3	BD	11/8/2014 10:08 AM

Writing assessments should allow the teacher to observe strategies initiated by the student in authentic writing situations. Rubrics allow the teacher to determine strengths & needs of the writer in terms of both composition & mechanics



11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Internals\\Whitely Survey Round 1						
No		0.0285	1			
				1	BD	11/8/2014 10:22 AM

Reading assessment
I think BAS is a differentiated assessment because it has very many different reading levels.

Nodes\\Assessment - Formats given or explained						
Document						
Internals\\Amanda (1)						
No		0.0477	1			
				1	BD	11/1/2014 7:13 AM

Directions
Directions can be given in different ways. It might be better for some students to have the directions read to them, some students might benefit to see an example, and others might want to read the directions independently.

Internals\\dawn Survey Round 1						
No		0.0414	1			
				1	BD	11/1/2014 7:35 AM

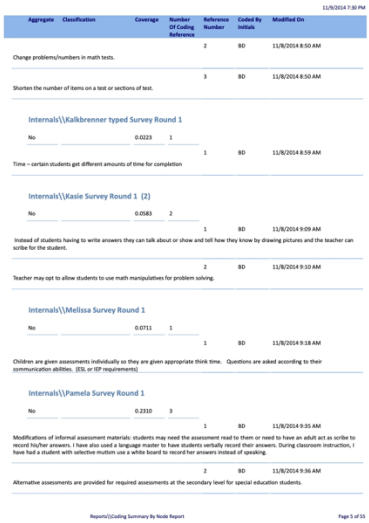
Format – I can give multiple-choice, short answer, oral testing, or essay based on an individual student's needs. Does the student need and open ended or reflective format?

Internals\\Gina Round 1						
No		0.0702	1			
				1	BD	11/8/2014 8:22 AM

I differentiate test administration by allowing students to stand if necessary, extended time or the test is broken up into smaller more manageable pieces with breaks included too. I also can give the test in small groups versus whole group. I highlight directions as well as other pertinent information in the test.

Internals\\Julie Survey Round 1						
No		0.0492	3			
				1	BD	11/8/2014 8:50 AM

Read the test aloud.



11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				2	BD	11/8/2014 8:50 AM

Change problems/numbers in math tests.

				3	BD	11/8/2014 8:50 AM

Shorten the number of items on a test or sections of test.

Internals\\Kalkbrenner typed Survey Round 1						
No		0.0223	1			
				1	BD	11/8/2014 8:59 AM

Time – certain students get different amounts of time for completion

Internals\\Kasie Survey Round 1 (2)						
No		0.0583	2			
				1	BD	11/8/2014 9:09 AM

Instead of students having to write answers they can talk about or show and tell how they know by drawing pictures and the teacher can scribe for the student.

				2	BD	11/8/2014 9:10 AM

Teacher may opt to allow students to use math manipulatives for problem solving.

Internals\\Mellissa Survey Round 1						
No		0.0711	1			
				1	BD	11/8/2014 9:18 AM

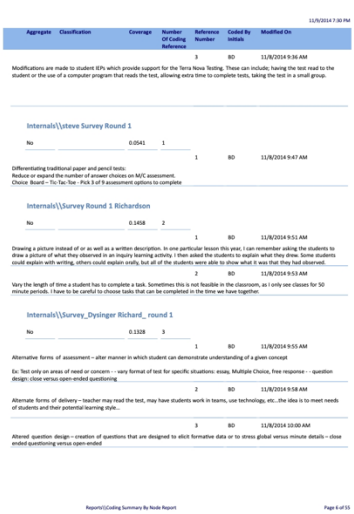
Children are given assessments individually so they are given appropriate think time. Questions are asked according to their communication abilities. (ESL or IEP requirements)

Internals\\Pamela Survey Round 1						
No		0.2310	3			
				1	BD	11/8/2014 9:35 AM

Modifications of informal assessment materials: students may need the assessment read to them or need to have an adult act as scribe to record his/her answers. I have also used a language master to have students verbally record their answers. During classroom instruction, I have had a student with selective mutism use a white board to record her answers instead of speaking.

				2	BD	11/8/2014 9:36 AM

Alternative assessments are provided for required assessments at the secondary level for special education students.



11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
				3	BD	11/8/2014 9:36 AM

Modifications are made to student IEPs which provide support for the Terra Nova Testing. These can include; having the test read to the student or the use of a computer program that reads the test, allowing extra time to complete tests, taking the test in a small group.

Internals\\steve Survey Round 1						
No		0.0541	1			
				1	BD	11/8/2014 9:47 AM

Differentiating traditional paper and pencil tests:
Reduce or expand the number of answer choices on M/C assessment.
Choice Board – Tic Tac Toe - Pick 3 of 9 assessment options to complete

Internals\\Survey Round 1 Richardson						
No		0.1458	2			
				1	BD	11/8/2014 9:51 AM

Drawing a picture instead of or as well as a written description. In one particular lesson this year, I can remember asking the students to draw a picture of what they observed in an inquiry learning activity. I then asked the students to explain what they drew. Some students could explain with writing, others could explain orally, but all of the students were able to show what it was that they had observed.

				2	BD	11/8/2014 9:53 AM

Vary the length of time a student has to complete a task. Sometimes this is not feasible in the classroom, as I only see classes for 50 minute periods. I have to be careful to choose tasks that can be completed in the time we have together.

Internals\\Survey_Dysinger Richard_ round 1						
No		0.1328	3			
				1	BD	11/8/2014 9:55 AM

Alternative forms of assessment – alter manner in which student can demonstrate understanding of a given concept

Ex: Test only on areas of need or concern - - vary format of test for specific situations: essay, Multiple Choice, free response - - question design: close versus open-ended questioning

				2	BD	11/8/2014 9:58 AM

Alternate forms of delivery – teacher may read the test, may have students work in teams, use technology, etc...the idea is to meet needs of students and their potential learning style...

				3	BD	11/8/2014 10:00 AM

Altered question design – creation of questions that are designed to elicit formative data or to stress global versus minute details – close ended questioning versus open-ended

11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Internals\\Veronica Survey Round1 Classrom Methodologies						
No		0.1398	3			
				1	BD	11/8/2014 10:12 AM

Learning Style Survey:
Administer a quick 20 question survey to help me identify each student's best learning style: auditory, visual, or tactile. Then I hand out a sheet which includes tips on how to best study at home, in the classroom, and study for tests depending on their learning style strengths. I take these tips into account when administering tests and sometimes give the following types of tests for each learning style: diagramming, oral response, short definitions, fill-in the blank, multiple choice, essay, or picture map.

				2	BD	11/8/2014 10:13 AM

Pre-recorded Materials:
Sometimes I record the tests into a tape-recorder to include answer choices. Students wear headsets to read along with the test as they start and stop the test at their desired speed. The headsets and pre-recorded reading helps them stay on task. The test is taken along with the entire class.

				3	BD	11/8/2014 10:15 AM

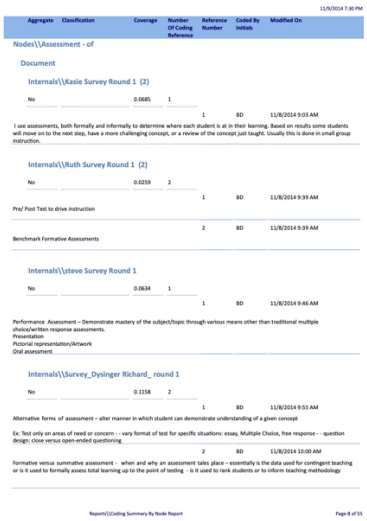
Picture Test:
This sort of test is used when mastery of a model or information is best illustrated with a picture or diagram to include appropriate labeling and brief descriptions.

Nodes\\Assessment - Observation						
Document						
Internals\\Amanda (1)						
No		0.0022	1			
				1	BD	11/1/2014 7:09 AM

Observation

Internals\\Survey Round 1 Richardson						
No		0.0745	1			
				1	BD	11/8/2014 9:48 AM

Observe students to get a sense of their current skill level – sometimes a short conversation with students in the class can help me to get a grasp on what they already know about a topic. I like to identify "experts" in the classroom so that I can refer back to them during the lesson to see if they agree with what we are learning.



11/9/2014 7:30 PM

Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Nodes\\Assessment - of						
Document						
Internals\\Kasie Survey Round 1 (2)						
No		0.0685	1			
				1	BD	11/8/2014 9:03 AM

I use assessments, both formally and informally to determine where each student is at in their learning. Based on results some students will move on to the next step, have a more challenging concept, or a review of the concept just taught. Usually this is done in small group instruction.

Internals\\Ruth Survey Round 1 (2)						
No		0.0259	2			
				1	BD	11/8/2014 9:39 AM

Pre/ Post Test to drive instruction

				2	BD	11/8/2014 9:39 AM

Benchmark Formative Assessments

Internals\\steve Survey Round 1						
No		0.0634	1			
				1	BD	11/8/2014 9:46 AM

Performance Assessment – Demonstrate mastery of the subject/topic through various means other than traditional multiple choice/written response assessments.
Presentation
Pictorial representation/Artwork
Oral assessment

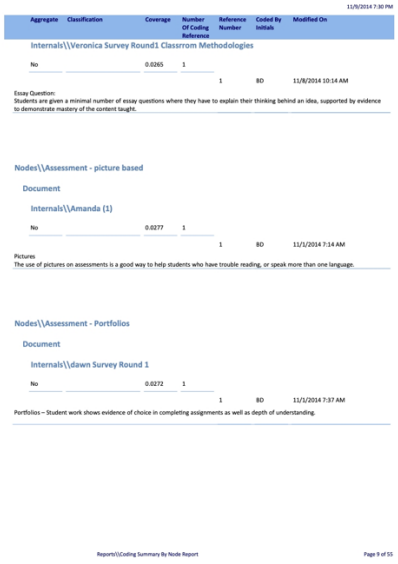
Internals\\Survey_Dysinger Richard_ round 1						
No		0.1158	2			
				1	BD	11/8/2014 9:55 AM

Alternative forms of assessment – alter manner in which student can demonstrate understanding of a given concept

Ex: Test only on areas of need or concern - - vary format of test for specific situations: essay, Multiple Choice, free response - - question design: close versus open-ended questioning

				2	BD	11/8/2014 10:00 AM

Formative versus summative assessment - when and why an assessment takes place – essentially is the data used for contingent teaching or is it used to formally assess total learning up to the point of testing - is it used to rank students or to inform teaching methodology



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Aggregate	Classification	Coverage	Number Of Coding Reference	Reference Number	Coded By Initials	Modified On
Internals\\Veronica Survey Round1 Classrom Methodologies						
No		0.0265	1			
				1	BD	11/8/2014 10:14 AM

Essay Question:
Students are given a minimal number of essay questions where they have to explain their thinking behind an idea, supported by evidence to demonstrate mastery of the content taught.

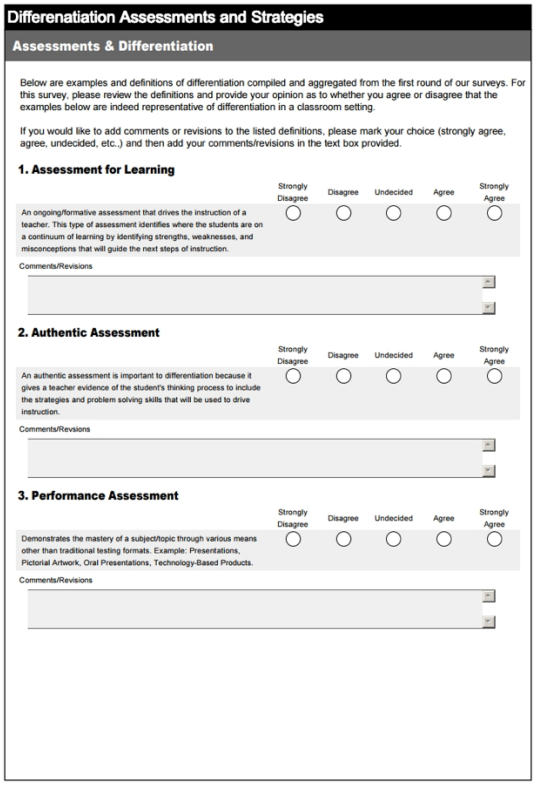
Nodes\\Assessment - picture based						
Document						
Internals\\Amanda (1)						
No		0.0277	1			
				1	BD	11/1/2014 7:14 AM

Pictures
The use of pictures on assessments is a good way to help students who have trouble reading, or speak more than one language.

Nodes\\Assessment - Portfolios						
Document						
Internals\\dawn Survey Round 1						
No		0.0272	1			
				1	BD	11/1/2014 7:37 AM

Portfolios – Student work shows evidence of choice in completing assignments as well as depth of understanding.

Appendix C: Differentiation Survey



Differenatiation Assessments and Strategies

Assessments & Differentiation

Below are examples and definitions of differentiation compiled and aggregated from the first round of our surveys. For this survey, please review the definitions and provide your opinion as to whether you agree or disagree that the examples below are indeed representative of differentiation in a classroom setting.

If you would like to add comments or revisions to the listed definitions, please mark your choice (strongly agree, agree, undecided, etc..) and then add your comments/revisions in the text box provided.

1. Assessment for Learning

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
An ongoing/formative assessment that drives the instruction of a teacher. This type of assessment identifies where the students are on a continuum of learning by identifying strengths, weaknesses, and misconceptions that will guide the next steps of instruction.	◯	◯	◯	◯	◯

Comments/Revisions

2. Authentic Assessment

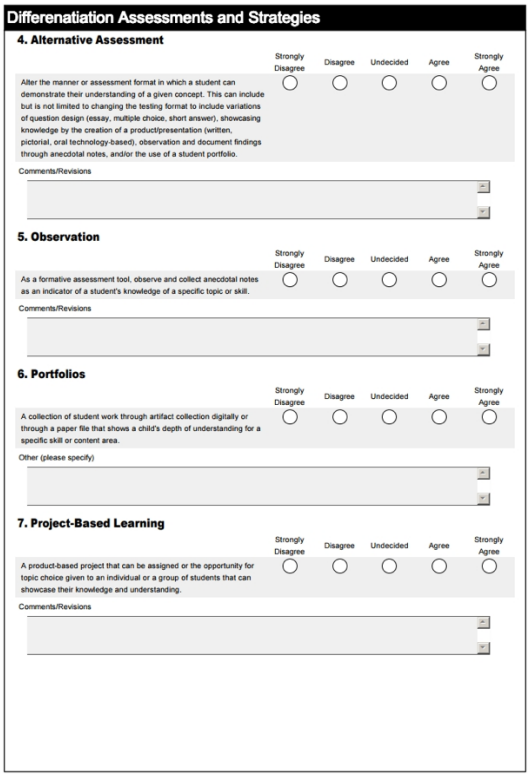
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
An authentic assessment is important to differentiation because it gives a teacher evidence of the student's thinking process to include the strategies and problem solving skills that will be used to drive instruction.	◯	◯	◯	◯	◯

Comments/Revsions

3. Performance Assessment

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Demonstrates the mastery of a subject/topic through various means other than traditional testing formats. Example: Presentations, Pictorial Artwork, Oral Presentations, Technology-Based Products.	◯	◯	◯	◯	◯

Comments/Revisions



Differenatiation Assessments and Strategies

4. Alternative Assessment

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Alter the manner or assessment format in which a student can demonstrate their understanding of a given concept. This can include but is not limited to changing the testing format to include variations of question design (essay, multiple choice, short answer), showcasing knowledge by the creation of a product/presentation (written, pictorial, oral technology-based), observation and document findings through anecdotal notes, and/or the use of a student portfolio.	◯	◯	◯	◯	◯

Comments/Revisions

5. Observation

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
As a formative assessment tool, observe and collect anecdotal notes as an indicator of a student's knowledge of a specific topic or skill.	◯	◯	◯	◯	◯

Comments/Revisions

6. Portfolios

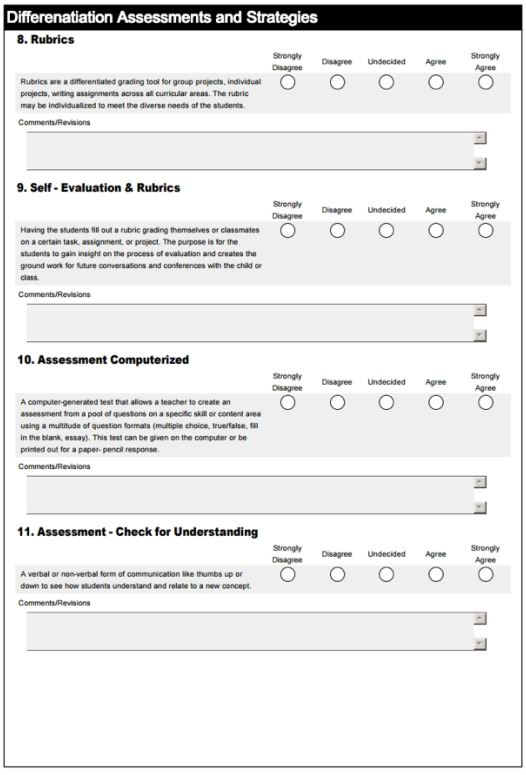
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A collection of student work through artifact collection digitally or through a paper file that shows a child's depth of understanding for a specific skill or content area.	◯	◯	◯	◯	◯

Other (please specify)

7. Project-Based Learning

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A product-based project that can be assigned or the opportunity for topic choice given to an individual or a group of students that can showcase their knowledge and understanding.	◯	◯	◯	◯	◯

Comments/Revisions



Differenatiation Assessments and Strategies

8. Rubrics

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Rubrics are a differentiated grading tool for group projects, individual projects, writing assignments across all curricular areas. The rubric may be individualized to meet the diverse needs of the students.	◯	◯	◯	◯	◯

Comments/Revisions

9. Self - Evaluation & Rubrics

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.	◯	◯	◯	◯	◯

Comments/Revisions

10. Assessment Computerized

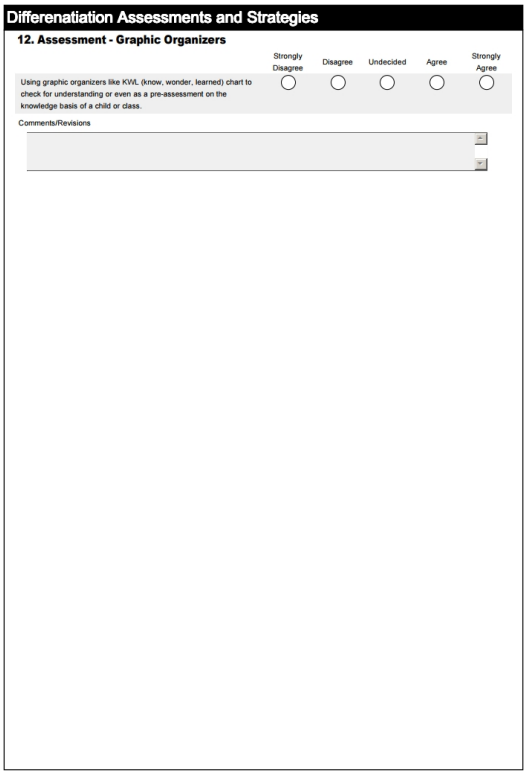
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of question formats (multiple choice, true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper- pencil response.	◯	◯	◯	◯	◯

Comments/Revisions

11. Assessment - Check for Understanding

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A verbal or non-verbal form of communication like thumbs up or down to see how students understand and relate to a new concept.	◯	◯	◯	◯	◯

Comments/Revisions

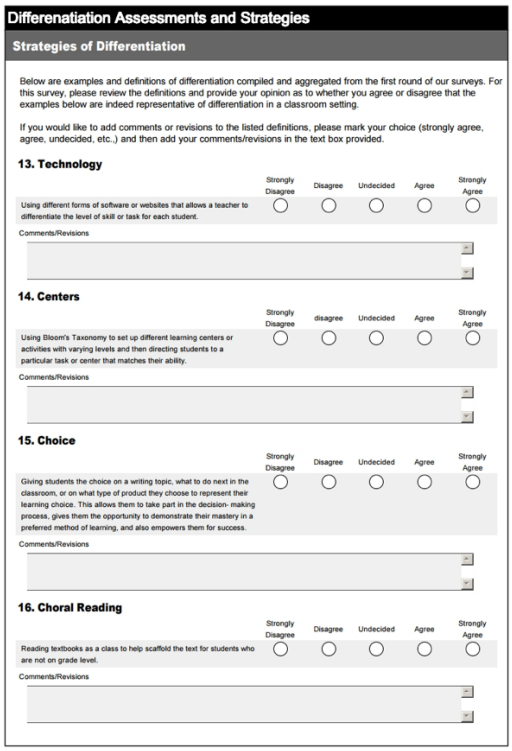


Differenatiation Assessments and Strategies

12. Assessment - Graphic Organizers

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Using graphic organizers like KWL (know, wonder, learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of a child or class.	◯	◯	◯	◯	◯

Comments/Revisions



Differenatiation Assessments and Strategies

Strategies of Differentiation

Below are examples and definitions of differentiation compiled and aggregated from the first round of our surveys. For this survey, please review the definitions and provide your opinion as to whether you agree or disagree that the examples below are indeed representative of differentiation in a classroom setting.

If you would like to add comments or revisions to the listed definitions, please mark your choice (strongly agree, agree, undecided, etc..) and then add your comments/revisions in the text box provided.

13. Technology

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Using different forms of software or websites that allows a teacher to differentiate the level of skill or task for each student.	◯	◯	◯	◯	◯

Comments/Revisions

14. Centers

	Strongly Disagree	disagree	Undecided	Agree	Strongly Agree
Using Bloom's Taxonomy to set up different learning centers or activities with varying levels and then directing students to a particular task or center that matches their ability.	◯	◯	◯	◯	◯

Comments/Revisions

15. Choice

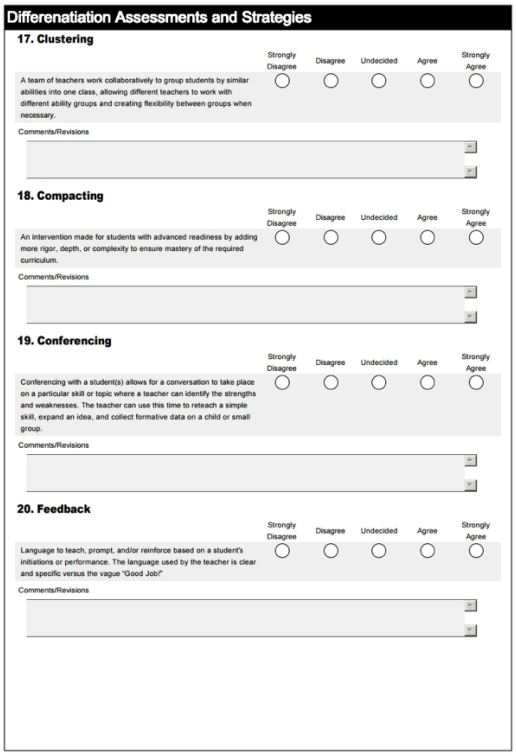
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Giving students the choice on a writing topic, what to do next in the classroom, or on what type of product they choose to represent their learning choice. This allows them to take part in the decision- making process, gives them the opportunity to demonstrate their mastery in a preferred method of learning, and also empowers them for success.	◯	◯	◯	◯	◯

Comments/Revisions

16. Choral Reading

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Reading textbooks as a class to help scaffold the text for students who are not on grade level.	◯	◯	◯	◯	◯

Comments/Revisions



Differenatiation Assessments and Strategies

17. Clustering

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.	◯	◯	◯	◯	◯

Comments/Revisions

18. Compacting

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
An intervention made for students with advanced readiness by adding more rigor, depth, or complexity to ensure mastery of the required curriculum.	◯	◯	◯	◯	◯

Comments/Revisions

19. Conferencing

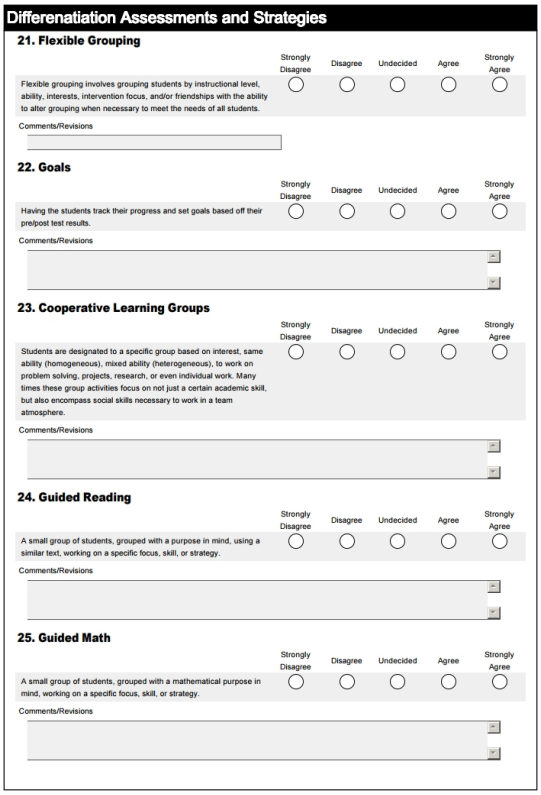
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Conferencing with a student(s) allows for a conversation to take place on a particular skill or topic where a teacher can identify the strengths and weaknesses. The teacher can use this time to reteach a simple skill, expand an idea, and collect formative data on a child or small group.	◯	◯	◯	◯	◯

Comments/Revisions

20. Feedback

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Language to teach, prompt, and/or reinforce based on a student's initiations or performance. The language used by the teacher is clear and specific versus the vague "Good Job!"	◯	◯	◯	◯	◯

Comments/Revisions



Differenatiation Assessments and Strategies

21. Flexible Grouping

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Flexible grouping involves grouping students by instructional level, ability, interests, intervention focus, and/or friendships with the ability to alter grouping when necessary to meet the needs of all students.	◯	◯	◯	◯	◯

Comments/Revisions

22. Goals

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Having the students track their progress and set goals based off their pre/post test results.	◯	◯	◯	◯	◯

Comments/Revisions

23. Cooperative Learning Groups

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Students are designated to a specific group based on interest, same ability (homogeneous), mixed ability (heterogeneous), to work on problem solving, projects, research, or even individual work. Many times these group activities focus on not just a certain academic skill, but also encompass social skills necessary to work in a team atmosphere.	◯	◯	◯	◯	◯

Comments/Revisions

24. Guided Reading

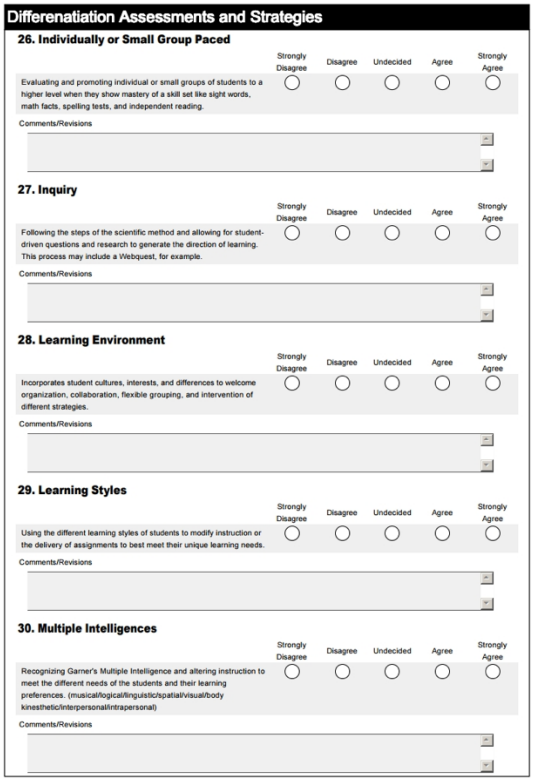
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A small group of students, grouped with a purpose in mind, using a similar text, working on a specific focus, skill, or strategy.	◯	◯	◯	◯	◯

Comments/Revisions

25. Guided Math

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A small group of students, grouped with a mathematical purpose in mind, working on a specific focus, skill, or strategy.	◯	◯	◯	◯	◯

Comments/Revisions



Differenatiation Assessments and Strategies

26. Individually or Small Group Paced

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Evaluating and promoting individual or small groups of students to a higher level when they show mastery of a skill set like sight words, math facts, spelling tests, and independent reading.	◯	◯	◯	◯	◯

Comments/Revisions

27. Inquiry

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Following the steps of the scientific method and allowing for student-driven questions and research to generate the direction of learning. This process may include a Webquest, for example.	◯	◯	◯	◯	◯

Comments/Revisions

28. Learning Environment

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Incorporates student cultures, interests, and differences to welcome organization, collaboration, flexible grouping, and intervention of different strategies.	◯	◯	◯	◯	◯

Comments/Revisions

29. Learning Styles

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Using the different learning styles of students to modify instruction or the delivery of assignments to best meet their unique learning needs.	◯	◯	◯	◯	◯

Comments/Revisions

30. Multiple Intelligences

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Recognizing Garner's Multiple Intelligence and altering instruction to meet the different needs of the students and their learning preferences. (musical/logical/linguistic/spatial/visual/body kinesthetic/interpersonal/intrapersonal)	◯	◯	◯	◯	◯

Comments/Revisions

Differenatiation Assessments and Strategies

31. Modified Assignments

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Changing the assignment to work on the same skill or standard but altering it to meet needs. For example, giving fewer problems or asking for a simpler response by the student to illustrate their understanding.	◯	◯	◯	◯	◯

Comments/Revisions

32. Peer Mentoring

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Students working collaboratively with classmates or students from another grade level to accomplish a task. This gives a platform of instruction to take place between peers.	◯	◯	◯	◯	◯

Comments/Revisions

33. Seating

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Arranging seats to incorporate the best learning environment for each child to include access to the teacher, behavior modification, and peer mentoring.	◯	◯	◯	◯	◯

Comments/Revisions

34. Differentiated Spelling

	Strongly Disagree	disagree	Undecided	Agree	Strongly Agree
Using or creating a curriculum that allows students to work on spelling in an individual or small group format, thereby, focusing on spelling patterns that the child needs specifically.	◯	◯	◯	◯	◯

Comments/Revisions

Differenatiation Assessments and Strategies

35. Adult Intervention

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Using other teachers, assistants, and volunteers to help differentiate. For example, extended practice of a specific skill or extension for the advance students.	◯	◯	◯	◯	◯

Comments/Revisions

36. Tiering

	Strongly Disagree	disagree	Undecided	Agree	Strongly Agree
Adjusting or scaffolding the learning experiences according to a student's readiness, interest, or learning modality.	◯	◯	◯	◯	◯

Comments/Revisions

37. Whole Group Instruction

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.	◯	◯	◯	◯	◯

Comments/Revisions

38. Writer's Workshop

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
A framework that allows student choice of writing topics and the practice of going through the writing process at an individual pace. This allows conferencing with peers and the teacher.	◯	◯	◯	◯	◯

Comments/Revisions

Differenatiation Assessments and Strategies

Assessment Strategies of Differentiation

39. Strategies for differentiating summative or formative assessments can include:

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Altering assessment administration alteration from large group to a small group format	◯	◯	◯	◯	◯
Assessment administration at the individual level	◯	◯	◯	◯	◯
Giving extended time	◯	◯	◯	◯	◯
Breaking up an assessment into smaller portions	◯	◯	◯	◯	◯
Highlighting the important parts of directions	◯	◯	◯	◯	◯
Reading the directions to the student(s)	◯	◯	◯	◯	◯
Reading the test aloud	◯	◯	◯	◯	◯
Giving an example to show proper response format	◯	◯	◯	◯	◯
Changing certain problems or numbers on a math assessment	◯	◯	◯	◯	◯
Shorten the number of items on a test	◯	◯	◯	◯	◯
Change a written assessment to an oral response	◯	◯	◯	◯	◯
Allowing for manipulative use	◯	◯	◯	◯	◯
Altering assessment questions to meet communication abilities	◯	◯	◯	◯	◯
Having an adult scribe or record student responses	◯	◯	◯	◯	◯
Using computer software to record verbal responses	◯	◯	◯	◯	◯
Using technology to read the test to a student.	◯	◯	◯	◯	◯
Making modifications of testing based on IEP (Individualized Education Plan) Protocol	◯	◯	◯	◯	◯
Allowing students to work in a team or group for an assessment	◯	◯	◯	◯	◯
Altering question design to highlight big concepts versus specific details	◯	◯	◯	◯	◯
Using pictures on assessment to help struggling readers or ESL students (English Language Learners)	◯	◯	◯	◯	◯

Comments/Revisions

Differenatiation Assessments and Strategies

Thank You!

I really appreciate all your time, help, and expertise!

40. If you have any questions, comments, or concerns, please write them below.
Thank you!

Appendix D: Differentiation Round 3

Differenatiation Round 3

Welcome to Round Three of the Delphi Study on Differentiation

The Third Round of this survey will provide examples and definitions of differentiation that when compiled and aggregated from the Round Two of our surveys showed that there were some disagreements among our panel. For this survey, please review the definitions and provide a statement of your opinion as to whether you agree or disagree with the term as a strategy or assessment for a differentiated classroom setting.

Thank you for participating in this survey. Your feedback is important.

1

Differenatiation Round 3

Assessments & Differentiation

1. Self-Evaluation

Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.

Below you will find the results from our panel in Round Two of this survey.

Strongly Disagree	0.0%
Disagree	15.79%
Undecided	5.26%
Agree	47.37%
Strongly Agree	31.58%

In the space provided below, please share your opinion why or why not the term Self- Evaluation is a form of differentiation.

2

2. Assessment Computerized

A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of questions on a specific skill or content area using a multitude of questions formats (multiple choice., true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper-pencil response.

Strongly Disagree	10.53%
Disagree	0.00%
Undecided	10.53%
Agree	63.16%
Strongly Agree	15.79%

In the space provided below, please share your opinion why or why not the term Assessment Computerized is a form of differentiation.

3

3. Graphic Organizers

Using graphic organizers like KWL (Know, Wonder, Learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of child or class.

Strongly Disagree	0.00%
Disagree	0.00%
Undecided	21.05%
Agree	42.11%
Strongly Agree	36.84%

In the space provided below, please share your opinion why or why not using a Graphic Organizer is a form of differentiation.

4. Choral Reading

Reading textbooks as a class to help scaffold the text for students who are not on grade level.

Strongly Disagree	16.67%
Disagree	5.56%
Undecided	11.11%
Agree	33.33%
Strongly Agree	33.33%

In the space provided below, please share your opinion why or why not the term Choral Reading is a form of differentiation.

4

5. Clustering

A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.

Strongly Disagree	5.56%
Disagree	11.11%
Undecided	5.56%
Agree	22.22%
Strongly Agree	55.56%

In the space provided below, please share your opinion why or why not the term Clustering is a form of differentiation.

5

6. Compacting

An intervention made for students with advanced readiness by adding more rigor, depth, or complexity to ensure mastery of the required curriculum.

Strongly Disagree	0.00%
Disagree	5.56%
Undecided	16.67%
Agree	38.89%
Strongly Agree	38.89%

In the space provided below, please share your opinion why or why not the term Compacting is a form of differentiation.

6

7. Inquiry

Following the steps of the scientific method and allowing for student-driven questions and research to generate the direction of learning. This process may include a Webquest, for example.

Strongly Disagree	0.00%
Disagree	0.00%
Undecided	22.22%
Agree	33.33%
Strongly Agree	33.33%

In the space provided below, please share your opinion why or why not the term Inquiry is a form of differentiation.

8. Whole Group Instruction

Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.

Strongly Disagree	11.11%
Disagree	11.11%
Undecided	16.67%
Agree	38.89%
Strongly Agree	22.22%

In the space provided below, please share your opinion why or why not Whole Group Instruction is a form of differentiation.

7

8

Differenatiation Round 3

Below you will find statements of strategies a teacher may use in their classroom. Please review these statements and provide your opinion as to whether you agree or disagree with the statement being a form of differentiation.

9. Giving an example to show proper response format.

Strongly Disagree	0.00%
Disagree	11.76%
Undecided	11.76%
Agree	41.18%
Strongly Agree	35.29%

In the space provided below, please share your opinion why or why not this is an example of differentiation.

9

10. Changing certain problems or numbers on a math assessment.

Strongly Disagree	0.00%
Disagree	11.76%
Undecided	29.41%
Agree	17.65%
Strongly Agree	41.18%

In the space provided below, please share your opinion why or why not this is an example of differentiation.

11. Shorten the number of items on a test.

Strongly Disagree	0.00%
Disagree	0.00%
Undecided	23.53%
Agree	41.18%
Strongly Agree	35.29%

In the space provided below, please share your opinion why or why not this is an example of differentiation.

10

12. Allowing students to work in a team or group for an assessment.

Strongly Disagree	5.88%
Disagree	5.88%
Undecided	29.41%
Agree	35.29%
Strongly Agree	25.53%

In the space provided below, please share your opinion why or why not this is an example of differentiation.

13. Altering question design to highlight big concepts versus specific details.

Strongly Disagree	0.00%
Disagree	0.00%
Undecided	35.29%
Agree	29.41%
Strongly Agree	35.29%

In the space provided below, please share your opinion why or why not this is an example of differentiation.

11

Differenatiation Round 3

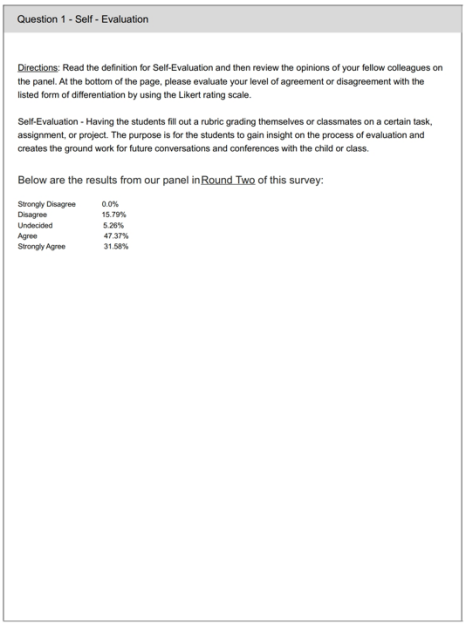
Thank You!

I really appreciate all your time, help, and expertise!

14. If you have any questions, comments, or concerns, please write them below.
Thank you!

12

Appendix E: Summary of Round 3



Question 1 - Self - Evaluation

Directions: Read the definition for Self-Evaluation and then review the opinions of your fellow colleagues on the panel. At the bottom of the page, please evaluate your level of agreement or disagreement with the listed form of differentiation by using the Likert rating scale.

Self-Evaluation - Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.

Below are the results from our panel in Round Two of this survey:

Strongly Disagree	0.0%
Disagree	15.79%
Undecided	5.26%
Agree	47.37%
Strongly Agree	31.58%

Thoughts From the Panel from Round Three:

Agrees - Self Evaluation is Differentiation

I could argue that Self-Evaluation is a form of differentiation because, it allows individual children to gain their own insight into a process of task, assignment, or project. The most vital aspect to make sure the learning takes place for these self- reflections is to make sure the rubric is understandable and maybe even created together as a group, therefore making the expectations explicit to each child.

Self-evaluation is a form of differentiation. Self-evaluation allow students to reflect upon their work within their parameters of understanding. A low performing first grader may be able to look at their writing and see if they are doing a good job on capitalizing and making complete sentences but may not have gained the knowledge or maturity to analyze their work for content.

If it's one type of many evaluations that will be used then I think it would be considered differentiated.

I think this is a great idea for older students. It will work in kindergarten if pictures are involved but I think it is a great tool. This way students will not have questions about what is expected of him or her and can explain their thinking when challenging a grade. I think self-evaluation could be a good tool for all so I would agree that it is a good differentiation tool.

By using self-evaluation, students can gain insight into their own learning. It easily leads into discussions about where a student is currently is and where they want to go.

Self-Evaluation is a form of differentiation because students have the opportunity to demonstrate their understanding and skill concerning specific areas. It also provides the student the opportunity to check their own work. The teacher is able to assess the students' progress and create adjustments to each students assignments because the teacher will have a better understanding of what the student knows from the self-evaluation.

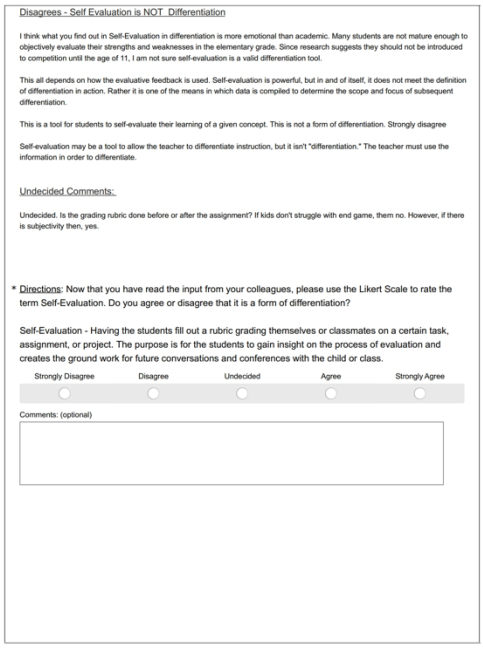
Using a rubric to grade themselves or classmates is a good tool for a student to show how well he or she feel they know the information presented. Students also tend to focus more on what they are doing (what the lesson is providing) when they are assessing themselves or others. If the teacher uses the information gathered from these self-evaluations to differentiate instruction, then I agree that self-evaluation can be a form of differentiation.

Yes, it could help the teacher see what the student thinks he/she could have done better. That information would help with future instruction.

It allows students to evaluate themselves and understand the process of evaluation. Having rubrics is also helpful in understanding expectations. Self-evaluation is a K-2 classroom however is very general and basic. Students are learning what it means to evaluate according

I believe it is…starting at a certain age, maturity, or grade level. I can differentiate students and put them into differentiated groups according on how they self-evaluate themselves.

Each student will look at evaluation with different eyes and I believe you will see a difference between female and male outlooks on the Self-Evaluations.



Disagrees - Self Evaluation is NOT Differentiation

I think what you find out in Self-Evaluation in differentiation is more emotional than academic. Many students are not mature enough to objectively evaluate their strengths and weaknesses in the elementary grade. Since research suggests they should not be introduced to competition until the age of 11, I am not sure self-evaluation is a valid differentiation tool.

This all depends on how the evaluative feedback is used. Self-evaluation is powerful, but in and of itself, it does not meet the definition of differentiation in action. Rather it is one of the means in which data is compiled to determine the scope and focus of subsequent differentiation.

This is a tool for students to self-evaluate their learning of a given concept. This is not a form of differentiation. Strongly disagree

Self-evaluation may be a tool to allow the teacher to differentiate instruction, but it isn't "differentiation." The teacher must use the information in order to differentiate.

Undecided Comments:

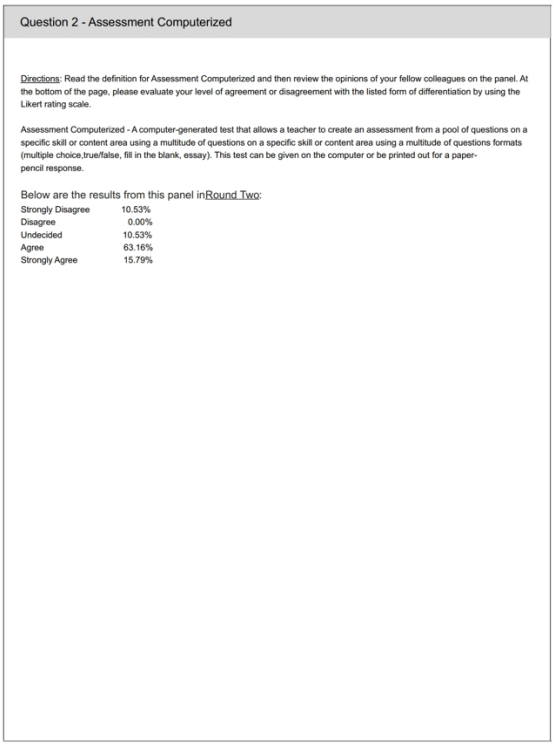
Undecided. Is the grading rubric done before or after the assignment? If kids don't struggle with end game, them no. However, if there is subjectivity then, yes.

* Directions: Now that you have read the input from your colleagues, please use the Likert Scale to rate the term Self-Evaluation. Do you agree or disagree that it is a form of differentiation?

Self-Evaluation - Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
○	○	○	○	○

Comments: (optional)



Question 2 - Assessment Computerized

Directions: Read the definition for Assessment Computerized and then review the opinions of your fellow colleagues on the panel. At the bottom of the page, please evaluate your level of agreement or disagreement with the listed form of differentiation by using the Likert rating scale.

Assessment Computerized - A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of questions on a specific skill or content area using a multitude of questions formats (multiple choice,true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper-pencil response.

Below are the results from this panel in Round Two:

Strongly Disagree	10.53%
Disagree	0.00%
Undecided	10.53%
Agree	63.16%
Strongly Agree	15.79%

Thoughts from the panel from Round Three:

Agrees - Assessment Computerized is Differentiation

Again, this depends upon the nuances. The fact that the assessment is computerized is not differentiated unless the computer accomplishes some task such as reading the test aloud or uses AI to monitor and adjust according to the child's specific answers. Test questions themselves are definitely a form of differentiation and target different learning domains rather than the traditional read, recite, repeat. Essay questions can target analysis and evaluation skills and authentic performance objectives can focus on synthesis. Mixed together it targets the whole kid. Likewise, picking questions from a pool to target specific skills can be a form of differentiation.

Very much so. It hones in on specific areas for specific needs/goals.

It is a form of differentiation in that students are familiar with technology and many feel more comfortable utilizing this type of assessment. It also allows you to use assistive technology for students who cannot read well. Teachers can also make different test formats for differentiation purposes.

If the assessment is tailored to the specific student and his or her work, it can be considered a form of differentiation.

Because there are different types of questions and it can be done on computer or written.

I agree because the test bank can be differentiated based on the learner's needs.

If used appropriately, assessments have obvious benefits for teachers to provide differentiation as long as a student is comfortable with taking assessments. With an appropriate assessment, a teacher will be able to better understand what their students need in different areas of a curriculum and the better they will be able to meet the individual needs of each student. Useful information about students as learners can be gained. Assessments can let teachers know how specific children work best and where they need to grow. Teachers are also able to share this information with parents and give suggestions about what activities would help support and strengthen their child's education.

I agree that computer generated tests can be an assessment that supports differentiation if students are being assessed before, during, and after a lesson, and the teacher is using the data to differentiate instruction based on the needs of the learners.

I think giving a multitude of question formats is differentiation for students. Students have different learning styles so the test could be adapted for them base off their needs. The type of test the students take could also be their choice so that the students can show what they know in the way that works best for them.

Addresses different learners and students mostly like working on computers.

You can design the test to cover all aspects of teaching and student achievement.

Disagrees - Assessment Computerized is NOT Differentiation

This is not a form of differentiation. The tool used here to assess students knowledge of the content is a means to an end and not a form of differentiation. Strongly disagree

I strongly disagree... unless each student has their own assessment catered towards his or her level of comprehension. The SRI does this...

The term Assessment Computerized seems to be not a form of differentiation unless the computer application can adjust to the child's ability and accurately assess the child.

We tried this at the kindergarten level and it was very frustrating. Many students do not know how to use a mouse and are now touching on the monitor thinking it is a touch screen. A computer generated test may be convenient but I do not think it should be a main form of assessment. Students first need a working knowledge on the computer if a computer will be used.

Computerized assessments could be considered differentiated if the test is then differentiated for individual children. Just because there are various types of questions does not mean that the children will have more entry points to be successful, therefore making the test differentiated. These tests are good for teachers to get a glimpse of where kids are, but it doesn't really show differentiation, in my opinion.

Undecided: No Comments

* Directions: Now that you have read the input from your colleagues, please use the Likert Scale to rate the term Assessment Computerized. Do you agree or disagree that it is a form of differentiation?

Assessment Computerized - A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of questions on a specific skill or content area using a multitude of questions formats (multiple choice,, true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper-pencil response.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
○	○	○	○	○

Comments: (Optional)

Question 3 - Graphic Organizers

Directions: Read the definition for Graphic Organizers and then review the opinions of your fellow colleagues on the panel. At the bottom of the page, please evaluate your level of agreement or disagreement with the listed form of differentiation by using the Likert rating scale.

Graphic Organizers - Using graphic organizers like KWL (Know, Wonder, Learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of child or class.

Below are the results from this panel in Round Two of this survey:

Strongly Disagree	0.00%
Disagree	0.00%
Undecided	21.05%
Agree	42.11%
Strongly Agree	36.84%

Thoughts from the panel from Round Three:

Agrees - Graphic Organizers are Differentiation

Yes, this can help kids organize their thoughts and thinking in an informal way. Then a teacher knows where to teach up or down.

A graphic organizer serves the same purpose as a pretest as it lets me know what children already know and are lacking so that I can differentiate instruction.

It can be... I've had years where graphic organizers worked and years where they were a waste of time and frustrating. Low students can often process information more easily than from traditional text. High students tend to get bored and lose focus leading to classroom and learning disruption.

Graphic organizers, especially the KWL charts are differentiated for students because it allows them to show what they already know, are interested in and what they found to be their most important learning. This is an individual way of seeing into children's learning.

Graphic Organizers can be a form of differentiation in that children can fill them out independently or used in whole group of small group setting. Graphic organizers can be made as simple or complex as needed by the child.

Graphic organizers are great. They are great tools for showing thinking, informal assessments, allows children to ask questions and gain answers. Although having said that, teachers need to make sure that all students can show and tell their thinking using graphic organizers.

Graphic organizers enable visual learners to achieve success.

Graphic Organizers assist with differentiation because teachers are able to see where a student is because students have the opportunity to demonstrate their understanding and skill concerning specific area after the instruction has taken place. Teachers are able to asses what a student already knows about specific content areas and what needs to be covered.

Graphic Organizers assist with differentiation because teachers are able to see where a student is because students have the opportunity to demonstrate their understanding and skill concerning specific area after the instruction has taken place. Teachers are able to asses what a student already knows about specific content areas and what needs to be covered.

Yes, the KWL chart can show what the students know ahead of time. The teacher can use the information to know where to begin teaching and then again to fill in the gaps.

Addresses visual learners.

Each student will see what works for him/her and use it within to context.

Disagrees - Graphic Organizers are NOT Differentiation

Pre-assessment by itself is not a form of differentiation, which is what the shared definition listed above seems to imply. Giving a student a KWL chart and then moving on is not differentiation. Much like self-evaluation, it is the means to gain the data needed to successfully create and enact a scope and focus of differentiation. However, graphic organizers can offer forms of differentiation by providing various levels or types all on the same skill or strategy but at varying levels of complexity. This allows for the natural differentiation of choice by students but also can provide a scaffolding of ideas presented in class to all levels of learners. More so, graphic organizers can also present information in a new medium, which meets the needs of different learning styles.

Strongly disagree. This a tool to gage what students know or don't know about a topic prior to teaching a new topic or concept.

Graphic organizers are tools that allow the teacher to observe the student's knowledge base, understandings &confusions. They are not a form of differentiation, but may inform differentiated instruction.

Undecided Comments:

Not sure.

* Directions: Now that you have read the input from your colleagues, please use the Likert Scale to rate the term Graphic Orgnaizer. Do you agree or disagree that it is a form of differentiation?

Graphic Organizers - Using graphic organizers like KWL (Know, Wonder, Learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of child or class.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
○	○	○	○	○

Comments: (optional)

Question 4 - Choral Reading

Directions: Read the definition for Choral Reading and then review the opinions of your fellow colleagues on the panel. At the bottom of the page, please evaluate your level of agreement or disagreement with the listed form of differentiation by using the Likert rating scale.

Choral Reading - Reading textbooks as a class to help scaffold the text for students who are not on grade level.

Below are the results from this panel in Round Two:

Strongly Disagree 16.67%
Disagree 5.56%
Undecided 11.11%
Agree 33.33%
Strongly Agree 33.33%

Thoughts From the Panel from Round Three:

Agrees - Choral Reading is Differentiation

It is a form of differentiation as it makes the information accessible to students who read below grade level.

Agree. It's a way for students to read in an unthreatening setting. Usually for low readers. High readers serve as role models for low readers.

Choral reading helps build students' fluency, self-confidence, and motivation. Because students are reading aloud together, students who may ordinarily feel self-conscious or nervous about reading aloud have built-in support. Students that know they are good readers thrive off of knowing that they are helping the not so versatile readers.

Yes, because it is helping meet the needs of low students by having it read aloud as they follow along.

Students can hear and see what other students are thinking and discussing during Choral reading.

Disagrees - Choral Reading is NOT Differentiation

No, because it helps few. Some get embarrassed, skip ahead, and point out weakness.

This is NOT differentiation. Not even in the slightest. Explain to me how a group of kids reciting the same passage is in any way individualized. How does this meet a specific student's need, along with the unique needs of other kids in class? If a student cannot read, they will just chant along with everyone else if they speak aloud at all, which might help a little. Very little. This doesn't even really scaffold for others at all. There are so many other more powerful tools that can be used to address reading issues. Truthfully, it's a dated method which may have its place in classes (mostly of yesteryear) but should be utilized sparingly by a classroom teacher.

This is not differentiation. Just as the questions states, choral reading can be seen as a scaffold to support students, not as giving students access at their individual levels.

Choral reading is not a form of differentiation in that it really only improves the comprehension, decoding ability or fluency of the struggling reader. It might support some fluency for the advanced reader but more than likely the text is too simplistic for that student.

No, choral reading is not differentiated. There should be different ways to present the material.

I think choral reading is difficult especially if you have students that need extra help. Choral reading can be confusing and out of control. Some students would hear what was read, try to repeat it, and then not hear the next part. I think it would be very frustrating.

Choral reading is a tool for gaining fluency that is more valuable to some students than to others.

I disagree because some students may struggle; especially if they are at a BR level with an intermediate text.

I believe that with any kind of reading that students are able to make connection between what they know and new information. I am not certain that reading as a class (Choral Reading) is way to differentiate because it is difficult to distinguish reading levels from student to student.

While choral reading is helpful because of practice through repetition and hearing others read, I wouldn't necessarily consider it differentiation.

Undecided

I'm not quite sure that choral reading is a form of differentiation unless it is used in a small group setting where read aloud material is chosen on a different level for like-leveled students. Traditionally, choral reading provides children with the practice needed to build fluency and self-confidence. It helps them learn how to decode words, develop effective and fluent read aloud skills, improves sight vocabulary, and helps them learn how to pronounce words by hearing their peers read them, and helps them understand rhythm. Therefore, I am undecided as to whether choral reading is a form of differentiation or not.

* Directions: Now that you have read the input from your colleagues, please use the Likert Scale to rate the term Choral Reading. Do you agree or disagree that it is a form of differentiation?

Choral Reading - Reading textbooks as a class to help scaffold the text for students who are not on grade level.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
○	○	○	○	○

Comments: (optional)

Question 5 - Clustering

Directions: Read the definition for Clustering and then review the opinions of your fellow colleagues on the panel. At the bottom of the page, please evaluate your level of agreement or disagreement with the listed form of differentiation by using the Likert rating scale.

Clustering - A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.

Below are the results from this panel in Round Two:

Strongly Disagree 5.56%
Disagree 11.11%
Undecided 5.56%
Agree 22.22%
Strongly Agree 55.56%

Thoughts From the Panel from Round Three:

Agrees - Clustering is Differentiation

Clustering is a great form of differentiation because students are solely grouped with same level peers. This will apply to any subject across the curriculum. In this setting I think students try harder, lose their shyness, and after a while may even try to get relegated into a "higher" group.

Clustering does allow for differentiation within the child's ability group. The groups then focus on what the overall group needs and then can go even further down to each child's individual needs.

If the groups are truly flexible, then I would say that it is differentiated because the groups are getting different instruction and I'm assuming different activities based on their needs.

I think clustering is a great tool for differentiation provided it is not all the time. Students get into groups with peers having the same abilities and therefore are receiving instruction on level.

Super strongly believe this to be beneficial. Students receive instruction at their level. The key to this is flexible grouping.

Yes! Work on what needs fixed.

Clustering is a form of differentiation because clustering allows students to work with other students in their comfort learning level academically and socially. It also helps the teacher become more acquainted and work better with the students at their particular level. It also enables teachers to place students together who have similar learning styles, abilities, and/or interest in order to advance students to their educational best.

I strongly agree with clustering as a form of differentiation. If students pretest, take formative assessments, and post-test,(assuming teachers provide instruction as determined by the assessments), then this team of teachers working collaboratively are definitely differentiating for the different needs of the students.

Yes, I think kids working at their ability level is differentiation because the students are working at a pace/level that works best for them.

Clustering allows teachers to target specific skills of a "kind of" homogeneous learning group.

Disagrees - Clustering is NOT Differentiation

Disagree. This is a crutch hidden behind the guise of differentiation. We claim that we group kids by ability or track them because it allows us to target our teaching to their needs. In a rudimentary way it does, but it bypasses the heart of differentiation which is to individually meet student needs. Clustering is just sticking kids at roughly the same levels – never exactly the same level with the same needs – so that the teacher does not have to differentiate nearly as much. Instead the teacher can deliver whole class instruction without having to demonstrate differentiation at the various levels. The art of differentiation is to act at the individual level but grouping kids together because they are close to one another is not true differentiation. It's a crutch so that teachers can claim differentiation while they just teach one lesson to one group. Instead we should embrace a class of variables and react accordingly using sociocultural elements of instruction, which is true scaffolding at the social group and peer level.

I like the clustering because it makes the teacher's job more manageable when students are in flexible groups based on ability. While we are differentiating based on ability, I am not sure clustering really embodies the true spirit of differentiation.

Disagree. This is an intervention and not differentiation.

Clustering is a form of homogeneity, not of differentiation. I can see the benefits of giving students the chance to work at just right levels, but it is vital for students to be among their peers at different levels. We cannot separate out every single skill into like groupings, sometimes it is important for more advanced students so see the thinking of lower students and vice versa. This is a tough question because, classically separating students would seem as differentiation, but I feel in this scenario kids loose out.

Sounds like tracking rather than differentiation. Homogeneous groupings are not usually effective ways to scaffold learning, except for the highest performers.

It is not a form of differentiation, but a form of keeping all the same abilities together. This has an adverse impact on that groups learning.

Undecided: No Comments

* Directions: Now that you have read the input from your colleagues, please use the Likert Scale to rate the term
Clustering. Do you agree or disagree that it is a form of differentiation?

Clustering - A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
○	○	○	○	○

Comments: (optional)

Appendix F: Copy of Participant letter

Dear Participant,

You are invited to continue your participation in the study titled "Differentiation According to Educators: Using a Delphi Model Approach" This study is being conducted by Billie Dysinger, a DODEA elementary school teacher and Department of Education doctoral candidate from Durham University, UK. This survey is completely optional and has been cleared by the DODEA Research Review Committee and Area Office.

The overall goal of this research is to examine how educators define and rate differentiation strategies in general and those used in your classroom. The initial, first round survey in May offered an open-ended format through which we generated a list of terms and definitions for various types of differentiation strategies.

This second round survey's objective is to review the collected examples and determine if they are indeed representative of differentiation in a classroom. Using a Likert Rating Scale (strong disagreement, disagree, undecided, agree, or strongly agree), you will rate each item based upon your level of agreement that the listed term/definition is a strategy of differentiation. Please rate the strategy provided, and if you would like to add a revision/comment for a particular strategy, please use the text box below each question/item.

During this evaluation, you may find that, in your professional opinion, that some of the gathered terms do not support differentiation and this is your chance to voice your opinion. Likewise, please feel free to add additional input or revisions to our gathered definitions.

For this second round survey, I will send gentle, kind, and annoying reminders for you to send in your survey back to me by Wednesday, December, 17th. The format of this survey will take much less of your time to complete. I know that this part of the year is hectic and you are jammed with holiday/family stress, but I really appreciate all your time and help.

Just like last time, as a form of a bribery, motivation, or simply enticement, I will raffle off a gift certificate for Amazon using the names of those who complete the survey.

Thank you again for all your time and help.

Billie Dysinger

Appendix G: Comments on Round 3

Teaching Strategy	Definition
Self-Evaluation	Having the students fill out a rubric grading themselves or classmates on a certain task, assignment, or project. The purpose is for the students to gain insight on the process of evaluation and creates the ground work for future conversations and conferences with the child or class.

Agrees – Self Evaluation is Differentiation
I could argue that Self-Evaluation is a form of differentiation because, it allows individual children to gain their own insight into a process of task, assignment, or project. The most vital aspect to make sure the learning takes place for these self- reflections is to make sure the rubric is understandable and maybe even created together as a group, therefore making the expectations explicit to each child. Self-evaluation is a form of differentiation. Self-evaluation allow students to reflect upon their work within their parameters of understanding. A low performing first grader may be able to look at their writing and see if they are doing a good job on capitalizing and making complete sentences but may not have gained the knowledge or maturity to analyze their work for content. If it's one type of many evaluations that will be used then I think it would be considered differentiated. I think this is a great idea for older students. It will work in kindergarten if pictures are involved but I think it is a great tool. This way students will not have questions about what is expected of him or her and can explain their thinking when challenging a grade. I think self-evaluation could be a good tool for all so I would agree that it is a good differentiation tool. By using self-evaluation, students can gain insight into their own learning. It easily leads into discussions about where a student is currently is and where they want to go. Self-Evaluation is a form of differentiation because students have the opportunity to demonstrate their understanding and skill concerning specific areas. It also provides the student the opportunity to check their own work. The teacher is able to assess the students' progress and create adjustments to each students assignments because the teacher will have a better understanding of what the student knows from the self-evaluation. Using a rubric to grade themselves or classmates is a good tool for a student to show how well he or she feel they know the information presented. Students also tend to focus more on what they are doing (what the lesson is providing) when they are assessing themselves or others. If the teacher uses the information gathered from these self-evaluations to differentiate instruction, then I agree that self-evaluation can be a form of differentiation. Yes, it could help the teacher see what the student thinks he/she could have done better. That information would help with future instruction.

It allows students to evaluate themselves and understand the process of evaluation. Having rubrics is also helpful in understanding expectations. Self-evaluation is a K-2 classroom however is very general and basic. Students are learning what it means to evaluate according

I believe it is....starting at a certain age, maturity, or grade level. I can differentiate students and put them into differentiated groups according on how they self-evaluate themselves.

Disagree- Self-Evaluation is NOT Differentiation
I think what you find out in Self-Evaluation in differentiation is more emotional than academic. Many students are not mature enough to objectively evaluate their strengths and weaknesses in the elementary grade. Since research suggests they should not be introduced to competition until the age of 11, I am not sure self-evaluation is a valid differentiation tool. This all depends on how the evaluative feedback is used. Self-evaluation is powerful, but in and of itself, it does not meet the definition of differentiation in action. Rather it is one of the means in which data is compiled to determine the scope and focus of subsequent differentiation. This is a tool for students to self-evaluate their learning of a given concept. This is not a form of differentiation. Strongly disagree Self-evaluation may be a tool to allow the teacher to differentiate instruction, but it isn't "differentiation." The teacher must use the information in order to differentiate.

Undecided Comments
Undecided. Is the grading rubric done before or after the assignment? If kids don't struggle with end game, them no. However, if there is subjectivity then, yes.

Teaching Strategy	Definition
Computerized Assessment	A computer-generated test that allows a teacher to create an assessment from a pool of questions on a specific skill or content area using a multitude of question formats (multiple choice, true/false, fill in the blank, essay). This test can be given on the computer or be printed out for a paper- pencil response.

Agrees - Assessment Computerized is Differentiation
Again, this depends upon the nuances. The fact that the assessment is computerized is not differentiated unless the computer accomplishes some task such as reading the test aloud or uses AI to monitor and adjust according to the child's specific answers. Test questions themselves are definitely a form of differentiation and target different learning domains rather than the traditional read, recite, repeat. Essay questions can target analysis and evaluation skills and authentic performance objectives can focus on synthesis. Mixed together it targets the whole kid. Likewise, picking questions from a pool to target specific skills can be a form of differentiation. Very much so. It hones in on specific areas for specific needs/goals. It is a form of differentiation in that students are familiar with technology and many feel more comfortable utilizing this type of assessment. It also allows you to use assistive technology for students who cannot read well. Teachers can also make different test formats for differentiation purposes. If the assessment is tailored to the specific student and his or her work, it can be considered a form of differentiation. Because there are different types of questions and it can be done on computer or written. I agree because the test bank can be differentiated based on the learner's needs. If used appropriately, assessments have obvious benefits for teachers to provide differentiation as long as a student is comfortable with taking assessments. With an appropriate assessment, a teacher will be able to better understand what their students need in different areas of a curriculum and the better they will be able to meet the individual needs of each student. Useful information about students as learners can be gained. Assessments can let teachers know how specific children work best and where they need to grow. Teachers are also able to share this information with parents and give suggestions about what activities would help support and strengthen their child's education. I agree that computer generated tests can be an assessment that supports differentiation if students are being assessed before, during, and after a lesson, and the teacher is using the data to differentiate instruction based on the needs of the learners. I think giving a multitude of question formats is differentiation for students. Students have different learning styles so the test could be adapted for them base off their needs. The type of test the students take could also be their choice so that the students can show what they know in the way that works best for them. Addresses different learners and students mostly like working on computers.

You can design the test to cover all aspects of teaching and student achievement.
Disagrees - Assessment Computerized is NOT Differentiation
This is not a form of differentiation. The tool used here to assess students knowledge of the content is a means to an end and not a form of differentiation. Strongly disagree I strongly disagree... unless each student has their own assessment catered towards his or her level of comprehension. The SRI does this... The term Assessment Computerized seems to be not a form of differentiation unless the computer application can adjust to the child's ability and accurately assess the child. We tried this at the kindergarten level and it was very frustrating. Many students do not know how to use a mouse and are now touching on the monitor thinking it is a touch screen. A computer generated test may be convenient but I do not think it should be a main form of assessment. Students first need a working knowledge on the computer if a computer will be used. Computerized assessments could be considered differentiated if the test is then differentiated for individual children. Just because there are various types of questions does not mean that the children will have more entry points to be successful, therefore making the test differentiated. These tests are good for teachers to get a glimpse of where kids are, but it doesn't really show differentiation, in my opinion.
Undecided Comments
No Comments

Teaching Strategy	Definition
Graphic Organizers	Using graphic organizers like KWL (know, wonder, learned) chart to check for understanding or even as a pre-assessment on the knowledge basis of a child or class.

Agrees - Graphic Organizers are Differentiation
Yes, this can help kids organize their thoughts and thinking in an informal way. Then a teacher knows where to teach up or down. A graphic organizer serves the same purpose as a pretest as it lets me know what children already know and are lacking so that I can differentiate instruction. It can be... I've had years where graphic organizers worked and years where they were a waste of time and frustrating. Low students can often process information more easily than from traditional text. High students tend to get bored and lose focus leading to classroom and learning disruption. Graphic organizers, especially the KWL charts are differentiated for students because it allows them to show what they already know, are interested in and what they found to be their most important learning. This is an individual way of seeing into children's learning.

Graphic Organizers can be a form of differentiation in that children can fill them out independently or used in whole group of small group setting. Graphic organizers can be made as simple or complex as needed by the child.

Graphic organizers are great. They are great tools for showing thinking, informal assessments, allows children to ask questions and gain answers. Although having said that, teachers need to make sure that all students can show and tell their thinking using graphic organizers.

Graphic organizers enable visual learners to achieve success.

Graphic Organizers assist with differentiation because teachers are able to see where a student is because students have the opportunity to demonstrate their understanding and skill concerning specific area after the instruction has taken place. Teachers are able to asses what a student already knows about specific content areas and what needs to be covered.

Graphic Organizers assist with differentiation because teachers are able to see where a student is because students have the opportunity to demonstrate their understanding and skill concerning specific area after the instruction has taken place. Teachers are able to asses what a student already knows about specific content areas and what needs to be covered.

Yes, the KWL chart can show what the students know ahead of time. The teacher can use the information to know where to begin teaching and then again to fill in the gaps.

Addresses visual learners.

Each student will see what works for him/her and use it within to context.

Disagrees - Graphic Organizers are NOT Differentiation

Pre-assessment by itself is not a form of differentiation, which is what the shared definition listed above seems to imply. Giving a student a KWL chart and then moving on is not differentiation. Much like self-evaluation, it is the means to gain the data needed to successfully create and enact a scope and focus of differentiation. However, graphic organizers can offer forms of differentiation by providing various levels or types all on the same skill or strategy but at varying levels of complexity. This allows for the natural differentiation of choice by students but also can provide a scaffolding of ideas presented in class to all levels of learners. More so, graphic organizers can also present information in a new medium, which meets the needs of different learning styles.

Strongly disagree. This a tool to gage what students know or don't know about a topic prior to teaching a new topic or concept.

Graphic organizers are tools that allow the teacher to observe the student's knowledge base, understandings &confusions. They are not a form of differentiation, but may inform differentiated instruction.

Undecided Comments

Not Sure

Teaching Strategy	Definition
Choral Reading	Reading textbooks as a class to help scaffold the text for students who are not on grade level.

Agrees - Choral Reading is Differentiation
It is a form of differentiation as it makes the information accessible to students who read below grade level. Agree. It's a way for students to read in an unthreatening setting. Usually for low readers. High readers serve as role models for low readers. Choral reading helps build students' fluency, self-confidence, and motivation. Because students are reading aloud together, students who may ordinarily feel self-conscious or nervous about reading aloud have built-in support. Students that know they are good readers thrive off of knowing that they are helping the not so versatile readers. Yes, because it is helping meet the needs of low students by having it read aloud as they follow along. Students can hear and see what other students are thinking and discussing during Choral reading.
Disagrees - Choral Reading is NOT Differentiation
No, because it helps few. Some get embarrassed, skip ahead, and point out weakness. This is NOT differentiation. Not even in the slightest. Explain to me how a group of kids reciting the same passage is in any way individualized. How does this meet a specific student's need, along with the unique needs of other kids in class? If a student cannot read, they will just chant along with everyone else if they speak aloud at all, which might help a little. Very little. This doesn't even really scaffold for others at all. There are so many other more powerful tools that can be used to address reading issues. Truthfully, it's a dated method which may have its place in classes (mostly of yesteryear) but should be utilized sparingly by a classroom teacher. This is not differentiation. Just as the questions states, choral reading can be seen as a scaffold to support students, not as giving students access at their individual levels. Choral reading is not a form of differentiation in that it really only improves the comprehension, decoding ability or fluency of the struggling reader. It might support some fluency for the advanced reader but more than likely the text is too simplistic for that student. No, choral reading is not differentiated. There should be different ways to present the material. I think choral reading is difficult especially if you have students that need extra help. Choral reading can be confusing and out of control. Some students would hear what was read, try to repeat it, and then not hear the next part. I think it would be very frustrating. Choral reading is a tool for gaining fluency that is more valuable to some students than to

others. I disagree because some students may struggle; especially if they are at a BR level with an intermediate text. I believe that with any kind of reading that students are able to make connection between what they know and new information. I am not certain that reading as a class (Choral Reading) is way to differentiate because it is difficult to distinguish reading levels from student to student. While choral reading is helpful because of practice through repetition and hearing others read, I wouldn't necessarily consider it differentiation.
Undecided Comments
I'm not quite sure that choral reading is a form of differentiation unless it is used in a small group setting where read aloud material is chosen on a different level for like-leveled students. Traditionally, choral reading provides children with the practice needed to build fluency and self-confidence. It helps them learn how to decode words, develop effective and fluent read aloud skills, improves sight vocabulary, and helps them learn how to pronounce words by hearing their peers read them, and helps them understand rhythm. Therefore, I am undecided as to whether choral reading is a form of differentiation or not.

Teaching Strategy	Definition
Clustering	A team of teachers work collaboratively to group students by similar abilities into one class, allowing different teachers to work with different ability groups and creating flexibility between groups when necessary.

Agrees - Clustering is Differentiation
Clustering is a great form of differentiation because students are solely grouped with same level peers. This will apply to any subject across the curriculum. In this setting I think students try harder, lose their shyness, and after a while may even try to get relegated into a "higher" group. Clustering does allow for differentiation within the child's ability group. The groups then focus on what the overall group needs and then can go even further down to each child's individual needs. If the groups are truly flexible, then I would say that it is differentiated because the groups are getting different instruction and I'm assuming different activities based on their needs. I think clustering is a great tool for differentiation provided it is not all the time. Students get into groups with peers having the same abilities and therefore are receiving instruction on level. Super strongly believe this to be beneficial. Students receive instruction at their level. The key to this is flexible grouping.

Yes! Work on what needs fixed.

Clustering is a form of differentiation because clustering allows students to work with other students in their comfort learning level academically and socially. It also helps the teacher become more acquainted and work better with the students at their particular level. It also enables teachers to place students together who have similar learning styles, abilities, and/or interest in order to advance students to their educational best.

I strongly agree with clustering as a form of differentiation. If students pretest, take formative assessments, and post-test,(assuming teachers provide instruction as determined by the assessments), then this team of teachers working collaboratively are definitely differentiating for the different needs of the students.

Yes, I think kids working at their ability level is differentiation because the students are working at a pace/level that works best for them.
Clustering allows teachers to target specific skills of a "kind of" homogeneous learning group.

Disagrees - Clustering is NOT Differentiation
Disagree. This is a crutch hidden behind the guise of differentiation. We claim that we group kids by ability or track them because it allows us to target our teaching to their needs. In a rudimentary way it does, but it bypasses the heart of differentiation which is to individually meet student needs. Clustering is just sticking kids at roughly the same levels – never exactly the same level with the same needs – so that the teacher does not have to differentiate nearly as much. Instead the teacher can deliver whole class instruction without having to demonstrate differentiation at the various levels. The art of differentiation is to act at the individual level but grouping kids together because they are close to one another is not true differentiation. It's a crutch so that teachers can claim differentiation while they just teach one lesson to one group. Instead we should embrace a class of variables and react accordingly using sociocultural elements of instruction, which is true scaffolding at the social group and peer level.
I like the clustering because it makes the teacher's job more manageable when students are in flexible groups based on ability. While we are differentiating based on ability, I am not sure clustering really embodies the true spirit of differentiation.
Disagree. This is an intervention and not differentiation.
Clustering is a form of homogeneity, not of differentiation. I can see the benefits of giving students the chance to work at just right levels, but it is vital for students to be among their peers at different levels. We cannot separate out every single skill into like groupings, sometimes it is important for more advanced students so see the thinking of lower students and vice versa. This is a tough question because, classically separating students would seem as differentiation, but I feel in this scenario kids loose out.
Sounds like tracking rather than differentiation. Homogeneous groupings are not usually effective ways to scaffold learning, except for the highest performers.

It is not a form of differentiation, but a form of keeping all the same abilities together. This has an adverse impact on that groups learning.
Undecided Comments
No Comments

Teaching Strategy	Definition
Compacting	An intervention made for students with advanced readiness by adding more rigor, depth, or complexity to ensure mastery of the required curriculum.

Agrees - Compacting is Differentiation:
Agree because that's what they are ready to work. The key for this is depth. If it is just rushing kids through, advancing them to the next grade level because they can pass a surface level test, then compacting is not true differentiation. Yet, if you go deep, if you seek to have the students evaluate, apply and synthesis based on the skill or information at a faster, more compact pace, you will see a more differentiated approach. It is a form of differentiation as you are providing enrichment to those who need it. Agree. Adding rigor for advanced students as an option is a form of differentiation. Compacting the curriculum allows students to skip content they know or to jump quickly through content. This strategy addresses students' academic levels. Higher or faster students stay challenged. This is a form of differentiation because it takes into the account that in some subjects or for some tasks, some students are able to go more in depth into a topic. Compacting is a form of differentiation in that you go deeper into the content and the higher thinking skills of Analysis, Synthesis, and Evaluate instead of just touching on the knowledge and comprehension. Yes - compacting adds rigor to the curriculum. I think it is because, the student's work is different based on ability level. I would think if they are already advanced than they will certainly accomplish the curriculum. Any intervention groups are great for differentiation if you get to all of your groups. All students will benefit. I believe in this when there are no avenues in place that provide rigor. Compacting is a form of differentiation because it allows teachers to identify content and

skills that will accelerate and/or eliminate curriculum for advanced students. It helps these students not to have to repeat content they have already mastered. It also helps these students not to become bored. If teachers have gathered information before a standard is taught, and the student shows mastery, then I agree compacting can be a form of differentiation. Yes because, this is a way to challenge the more advances students. They are being instructed at the level that will benefit them the most. Kind of relates to clustering except that it's more for advanced students. It is because it is giving the advance student additional work to enhance their learning.
Disagrees - Compacting is NOT Differentiation:
No Comments
Undecided
No Comments

Teaching Strategy	Definition
Inquiry	Following the steps of the scientific method and allowing for student-driven questions and research to generate the direction of learning. This process may include a Webquest, for example.

Agrees - Inquiry is Differentiation
Agree, because it allows for more critical evaluation. Agree. Differentiation is individualized and authentic learning inquiry is student driven, hence it is individualized. I feel that this is more a form of allowing students to explore their interests. It is a strategy. However, it will lend itself to differentiation as students have different intellectual abilities that they bring to the inquiry. This can be considered differentiation if the ultimate outcome of the Webquest are different formats of projects. The Webquest should also consider the various abilities of the students and offer different levels of research information based on the questions students come up with. Inquiry is a form of differentiation in that students lead the direction of study. The outcome is controlled by the teacher being the guide on the side but the student decides how far into the research they go by their own ability. Yes - student directed inquiry allows for students to work independently within the same structure.

The process will be different for each student so it is differentiated. Strongly agree. This allows for exploration and it can be individualized according to the needs of the learner. Inquiry is a form of differentiation because it allows for teachers to have a better understanding of where a student is from the questions that are generated. The benefits of inquiry are incredible. By following the steps of the scientific method, students are encouraged to explore different standards. When a teacher allows for student-driven questions and research to generate the direction of learning, inquiry becomes a rather powerful form of differentiation. Students then take ownership of their learning. I strongly agree that inquiry can be a form of differentiation. Inquiry allows students to learn at their own pace so yes - it's a type of differentiation. Each student will provide information that they feel is important and that way the teacher can use it to differentiate.
Disagrees - Inquiry is NOT Differentiation:
Following specific steps of the scientific method does not seem to me a good form of differentiation.
Undecided Comments
I am undecided on this.... I don't see how this could work at an early elementary age. Unsure????? Undecided

Teaching Strategy	Definition
Whole Group	Instruction directed by the teacher and delivered to the whole class to help meet learning gaps.

Agrees - Whole Group is Differentiation
Agree. There are times in life where information needs to be given and evaluated after instruction. It gives a starting point, refresher, shows weakness, and quick. I often use the analogy of a toilet flushing for students to hold onto information. Sometimes we flush things that we don't think are that important. For this reason, and others, whole group instruction can be beneficial to all, especially to help meet learning gaps. If whole group instruction is based on the needs of a class as a whole, then I agree it can be a form of differentiation. I think it is a form of differentiation since it impacts all students and they can understand what others are thinking and what different views they may give to the discussion.
Disagrees - Whole Group is Not Differentiation
Seriously, how can this even be differentiation? I am actually shocked at this point. Don't get me wrong, whole group is a valued tool and an important part of the classroom experience. However, differentiation is an individualized approach to student instruction based on unique student needs. It can even be driven by choice and interest on the student level. How is whole group teaching even in this discussion? You meet individual student needs by teaching to the whole group a set lesson? Is that lesson focused on Johnny's need that day? What about the other 18 kids in class and their needs? Is tomorrow Tommy's lesson and after that Susie's? I'm sorry, but this absolutely criminal. Not that teachers use whole group instruction because they should, but because they actually consider it differentiation. That's the same as saying photocopying the same worksheet for every kid is differentiating. I really do not see it as differentiation as not all students have learning gaps. Disagree. Whole Group instruction only meets the needs of some of the students. This does not meet the needs of the High or Low students to understand or extend their knowledge of the concepts being taught. I don't think whole group is a form of differentiated instruction at all... yes it has it's benefits, i.e. lower slower students learning from their peers role modeling correctly... unless you have a whole group at a close level as in clustering. Whole group is not differentiation unless the teacher offers the space for various students to share out their way of thinking on different lessons. If there is a math questions taught whole group and then the teacher chooses different levels of kids to fill in the learning gap by showing their different techniques of understanding the topic. Whole group discussion normally does not differentiate but teaches to the mean level of the group.

A responsive teacher can scaffold learning within the whole group, but such scaffolding is likely to be haphazard. Whole group instruction is important but I would prefer more small group intervention type instruction. Having the whole group do all of the same things at the same time would not be differentiation. Maybe if it is taught whole group but the work is differentiated would be a form of differentiation. It depends on the make-up of the class. Whole group instruction may not reach all levels of learners. Whole group instruction is not necessarily going to provide differentiation because every student is not on the same knowledge level. It is important when maybe introducing a subject area or curriculum, but in order to differentiate, it is important to have a better understanding where each student is individually. No because, it is not adapting teaching based on what the students need. I don't consider whole-group instruction as a type of differentiation as a type of differentiation because it is usually one way of teaching for all. Whether or not the students' learning style is addresses or not.
Undecided Comments:
Depends on the instruction and the teacher. I think it's necessary to some degree.

Assessment Strategy	Definition
Process Feedback	Giving an example

Agrees - Process Feedback is Differentiation
If you are using this as a scaffold for some students in need and the example does not limit potential responses then I would see this has a form of differentiation. We all have different perspectives and ways in which we come to an answer for a question, so if the example limits how a child can answer, I don’t see it as differentiated. If it helps those that need a scaffold to answer such as a sentence or story starter then I think it meets the definition. Modeling/demonstrating is a step in the gradual release of control. It would be differentiation only if the models were different for different students. If the example was for 1 specific child or group of children then that would be differentiation. I agree. This way students know your expectations. Yes, examples help meet the needs of students who need visual prompts. It also clarifies

what the exceptions are. Yes, because modeling shows students what is expected of them. Using white boards allows the teacher to understand who is getting it and who is not and can alter the instruction to include those who are not getting it yet.
Disagree - Process Feedback is Not Differentiation
Disagree, this is the same for all. I think this is clarification not differentiation unless you are doing it for a student on an IEP. Disagree...This is only an example not a strategy. A strategy is the umbrella as to how a "type" of problem can be solved, an answer to that problem is an example. Backwards Planning is a strategy Then showcasing how to use the strategy is an example I kind of disagree because in certain areas giving a perfect example for everyone like a rubric or modeling a perfect response will intimidate the intimidated even more. Some students may get confused. Some may see from the get go that the are going to be unable to fulfill the expectations a modeled response brings forth. This is not differentiation, but it can set up clear expectations for an end product. It can also set up the class for discussion of how they would grade the end product or create a rubric. No, this is your example of what you would like to see as the teacher. Some students may have a different interpretation of the material presented. I think that is not differentiating. It's just teaching. Giving an example to show proper response format can be an example of differentiation for students who may not be able to answer a question without the example format. I am thinking specifically about students who might be on an IEP and need the extra help to get started on answering questions. I would not call this differentiation as much as I would call it giving an example of the way a teacher would like a response to an assignment.
Undecided Comments
No Comments

Assessment Strategy	Definition
Modifying Questions	Changing certain problems or numbers on a math assessment

Agrees - Modifying Questions is Differentiation

Agree. Modification of questions is a powerful tool to help those in need of a challenge or those in need of remediation while keeping the focus on the same subject or skill. It is as you can provide students with problems based on their current level. It is a sample of differentiation because you cater towards individual interests and needs of each student. I have done this many times... so I strongly agree. This could be considered differentiation because it allows different students to be able to assess their skills at their developmental stages. Yes, if an assessment does not accurately reflect the true ability of your students. If the numbers are changed to make the problem easier or harder examples of the same process, it might be a form of differentiation. Yes, I think this is definitely differentiating because, you are giving the student something within their ability level. This is definitely a form of differentiation. Changing problems or numbers to suit a child's needs still maintains that the student is doing everything as the rest of his or her peers but at their level. Yes, this is an example. It needs to meet the needs of the learner. This is definitely a form of differentiation because it responds to the readiness of students for the subject at hand and gives them an appropriate amount of questions for their knowledge base and understanding. I strongly agree that changing certain problems or numbers on a math assessment can be an example of differentiation if, for example, students who are on a higher level are doing problems with more place value, and/or students who are not quite on grade level are doing problems with less place value. This is differentiation for sure. Yes, because it is assessing on the level the students are at.
Disagree - Modifying Questions is Not Differentiation
Strongly disagree. Still an assessment. Not necessarily differentiation but it does help students to practice similar problems.
Undecided Comments
Undecided. If it is to show growth of the child's level than yes. However, if it is to make the test easier, then no. I am not sure how this would help in differentiation.

Assessment Strategy	Definition
Adapted Tiered Assessment	Shorten the number of items on a test

Agrees - Adapted Tiered Assessment is Differentiation
Agree, especially for kids who show attention issues. It helps them focus on a few items and allows for task completion. Sure, why not. Again it helps with those who need advancement or remediation. It also allows for deeper responses by limiting how many problems the kids are expected to complete. If the remaining items still assess the same concepts, it would be a form of differentiation. Yes, because you're doing something different for a student. I agree that making a test shorter is a good form of differentiation. I am biased because, some teachers do this for my daughter. She takes hours on tests if the test is long; however, she also does not want to be the last one done and will turn a paper in even if it is just filled in with anything. If the test is shortened she will work to her ability and not worry about kids finishing before her. Yes, depending on the needs of the learner. This is definitely a form of differentiation because it responds to the readiness of students for the subject at hand and gives them an appropriate amount of questions for their knowledge base and understanding. I agree that shortening the number of items on a test is an example of differentiation, I have seen this mode of differentiation on many IEPs. Yes, because it makes tests more manageable for students who get overwhelmed. Definitely! Some students get overwhelmed when they see a huge workload. Having smaller portions helps many not feel too overwhelmed by an assignment. It is for those on 504s or IEPs.
Disagree - Adapted Tiered Assessment is NOT Differentiation
I feel this is more for an IEP student than a means of differentiation. Strongly disagree. A modification not differentiation. I don't shorten the test or the papers or the expectations - I just grade and scaffold on what was accomplished if I know the student tried his or her hardest... This seems more as an accommodation than differentiation. I think it is also dependent on the type of test given and from whom it is required. If the test is for a group of students that have already worked on a project in a differentiated format, then maybe the test should be varied as well. It really depends on a few more factors to be clear cut.
Undecided Comments
Not sure if this is or not.

Assessment Strategy	Definition
Group Based Assessment	Allowing students to work in a team or group for an assessment

Agrees - Group Based Assessment is Differentiation
Of course. I wholeheartedly endorse small peer group differentiation. It allows for natural peer scaffolding and also enables group problem solving, enhancing conflict resolution, openness to new ideas, and consolidation of ideas into larger wholes. It would be a form of differentiation if the groups were composed of students of all ability levels. Agree - Given each student has been assigned a specific task for the group indicating understand of each strand in the concept being assessed. At this low age group I do that to about 40% of the graded work that flows into the report card - I do group them in small same or similar ability groups though. Yes - If the members have a rotating role in the work. Students working in groups is also a form of differentiation. On one hand you could group homogenously and have all students work on the same thing at the same time on their level or group the students heterogeneously and have peers help guide struggling students to success. Sometimes a good lesson for our high achievers is to learn patience in helping other students. Yes, it does depend of the level of the students. This is an example of differentiation because it enables teachers to put students together who have similar learning styles, abilities and/or interests in order to accomplish specific tasks as long as the group is serving the changing needs of each student. Yes, because some students work best when they can talk through their answers. Absolutely! They can all learn with and from one another. This is good, since they will feed off of each other and the weak ones will play up to the stronger students and put more effort into their work.
Disagrees - Group Based Assessment is NOT Differentiation
Again, this is not a clear cut way of differentiating. I think some students will benefit more from working together in a group, but some might not. This is a wonderful way for letting kids discuss various ideas, but differentiation it is not. This is not an example of differentiation in that it is hard to determine if the work is done fairly and equally.

Are they all working in groups? If so, then I don't think it is differentiated.
Undecided Comments:
Undecided, if it is done and everyone is accountable for their role in the group. I am undecided as to whether allowing students to work in a team or group for an assessment would be a viable example of differentiation. If a teacher needs to know what an individual can or cannot do (the purpose of an assessment?), then a team or group assessment would not show what the individual can do, rather, it would show what the collaborative group can or cannot do.

Assessment Strategy	Definition
Question Design	Altering question design to highlight big concepts versus specific details

Agrees - Question Design is Differentiation
Yes Agree You betcha. This alters the concept. Perspective, focus, or scope of the lesson or assessment to identify connections between ideas. This focuses on differentiated skill sets, the ability to analyze facts rather than just repeat them back using memory. This would be differentiation as the questions would be more general and required less intensive knowledge. This is another form of differentiation. adding too much jargon confuses some students and adds stress to the problem. Yes, because of the goal of the lesson and the needs of the learners. This is more for an advance grade level then the elementary school. Expanded thinking is more for the upper grade levels and more specific and ground work or basic learning is good for the lower grades.
Strongly Disagree - Question Design is NOT differentiation
Modification not differentiation This is not an example of differentiation in that the question would be for every student not just individuals.
Undecided Comments

Undecided...maybe you need to alter this question into specific detail in order not to confuse people. There is no right or wrong here.... differentiate all questions to again cater towards the needs and interests of the individual to ensure the best learning outcome.

I am not completely sure of this question. I can see how the test broadens the range of how students see the big concepts, but it is not clear as to how it could show differentiation.

Not sure on this one.