

**The Impact of Using Effective Differentiation Strategies  
on Students' Learning: A case study of an Elementary  
School in Dubai**

أثر استخدام استراتيجيات التفاضل الفعال على تعلم الطلاب: دراسة تجريبية في إحدى  
مدارس دبي الابتدائية

by

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**Dissertation submitted in fulfilment  
of the requirements for the degree of  
MASTER OF EDUCATION**

at

**The British University in Dubai**

**June 2020**

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## **ABSTRACT**

The aim of this research is to highlight the effectiveness of differentiation in Elementary classrooms in a private school in Dubai. Moreover, the research provides comprehensive analysis through applying multiple research method in order to identify the impact of differentiation on students' learning. This study investigates the impact of differentiated instructions and recommend strategies to guide teachers who might lack understanding of how and why they need to differentiate. In this study, the research approach will be followed is a multi-method research has been applied. The samples are students of two elementary classrooms has been gathered. Furthermore, documents analysis, survey from 22 respondents and interviews from two teachers, one inclusion head and one curriculum coordinator have also been performed. The effectiveness of differentiation strategies has also been compared from 10 students. Research were obtained based on assessment data collected after teaching using effective differentiation strategies and compare the results to their results before using these effective strategies of differentiation. The study confirmed that using effective differentiated strategies and instructions impact positively on students' performance and their learning outcome.

## التلخيص

ان الهدف من هذا البحث يكمن في تسليط الضوء على فاعلية استخدام التفاضل في صفوف المرحلة الابتدائية في إحدى المدارس الخاصة بإمارة دبي. علاوة على تقديم البحث تحليل دقيق للتعرف على أثر استخدام أساليب التفاضل المختلفة على التحصيل الدراسي للطلاب وذلك من خلال استخدام طرق مختلفة للبحث. وكنتيجة للدراسة سيتم سرد توصيات لتوجيه المعلمين والمعلمات الذين قد يفتقرون لفهم أهمية وأسباب تطبيق التفاضل داخل الصفوف.

لقد تم اتباع وسائل وطرق مختلفة للبحث من خلال اختيار مجموعة من طلاب المرحلة الابتدائية لتدقيق نتائجهم في الاختبارات ومقارنة نتائجهم لقياس مدى فاعلية تطبيق أساليب الدمج المختلفة، بالإضافة إلى تدقيق وتحليل مستندات متعلقة بسياسات المدرسة التي لها علاقة بالمناهج. وللحصول على نتائج دقيقة تم عمل استبيان للمعلمين وكذلك مقابلات مع معلمتين ورئيس قسم المناهج ورئيس قسم الدمج بالمدرسة. من خلال هذه الدراسة تم التأكيد على الفاعلية والأثر الإيجابي المترتب على تطبيق أساليب التفاضل على مستوى الطلاب ومخرجات التعلم.

## **ACKNOWLEDGEMENT**

Foremost, I would like to express my sincere gratitude to my supervisor Dr. Abdulai for the continuous support of my study and research. This achievement is dedicated to:

My mother, my little daughters, and my brothers who supported, motivated, and encouraged me to achieve my goals.

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## List of Abbreviations

CAT4	The Cognitive Abilities Test Fourth Edition
DSIB	Dubai School Inspection Bureau
DI	Differentiation Instruction
IEP	Individual Education Program
KHDA	Knowledge and Human Development Authority
MTSS	Multi-Tiered System of Support
MAP	Measures of Academic Progress
PD	Professional Development
RTI	Response to Intervention
SLT	Senior Leadership Team
UbD	Understanding by Design
UDL	Universal Design for Learning

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Overview**

Differentiation is not a new concept. It requires teachers to know their students better in order to fulfill their needs. Students don't come to school as equal sets, they are all different. In one classroom, we might find students who read at the grade level whereas there are others who read below their grade level. This will require the teacher to move students who missed some skills backwards to gain these skills and at the same time, move them forward to acquire the current grade level skills. The purpose of the following research is to examine the impact of implementing effective differentiation strategies on students' learning in one of the Elementary schools in Dubai and to provide insight about the best ways to differentiate in the classroom to enhance individual learning process. In this chapter, we will define the effective differentiation term. Problem statement will be revealed as well as the background of this study. In addition to the objective and aim of the study and the significance of it. The chapter will be concluded by going through the structure of this paper.

Sousa and Tomlinson (2018, p. 9) listed the following essential elements to set effective differentiation strategies which will lead to effective teaching:

1. Learning environment must be welcoming, safe, and equipped to support students. This will enable students to collaborate, interact, and make connections to what they are learning.
2. Teachers must have deep knowledge of their subject area and the skills need to be gained by students at their age level. In addition to rich and powerful curriculum and well-planned assessments to focus on students' understanding.
3. Teachers must plan their assessment to provide information about students' knowledge and understanding.
4. Ongoing assessment data must inform teachers' teaching and planning. This data will guide the teacher and help to plan accordingly.
5. There must be classroom routine to enable teachers to work with individual students. This will take place through students' agreement and understanding of each other's' needs.

## **1.2 Problem Statement**

Differentiation in the classroom becomes one of the challenges to teachers. Many teachers might lack the understanding of how to differentiate effectively. Some may have a narrow understanding of differentiation thinking that if they use different worksheets in classroom, this is differentiation regardless the content of these worksheets or the skills they cover.

There are challenges that teachers might face when they plan differentiated set of instructions. These challenges are listed by McCarthy in his book “So All Can Learn”. McCarthy described “time, pacing charts, prospective curriculum, mandates, and standardized testing are commonly shared as the major challenges to instructing students.” (McCarthy, 2017, p. 3).

This study will focus on identifying effective strategies of differentiation. It will also investigate the impact of differentiated instructions and recommend effective strategies to be followed by teachers when they plan their lessons.

## **1.3 Background of the Research**

In the end of the nineteenth century and beginning of the twentieth century, teachers used to teach several students in different grade levels and ages in one room using very limited resources such as chalks and blackboard (Wylie, 2012). In this context, students got to stay with the same teachers for consecutive years which enabled them to build strong relationship and know each other very well. Later as the number of students increased, they were separated into classes according to their grade level. The first initiative of Dewey (1938) to establish schools as “caring communities” which directed teachers to plan and teach to meet students’ needs (Sousa and Tomlinson, 2011). From that time, educators’ attention was directed to students’ needs and differentiation. In the context of this study, Dubai is a city where 2,878,344 people live in. 85% of Dubai’s population is formed by expatriates from different countries around the world. With this being said, we can understand the diversity of classrooms and the need to differentiate according to students’ needs as the majority come from different backgrounds.

## **1.4 Current Situation of Differentiation in Dubai Schools**

“Inclusion doesn’t mean treating people the same without regard for individual differences.”  
KHDA framework (2015, p.13)

To have a full understanding about the differentiation implementation in Dubai, it was essential to examine the school’s inspection framework.

According to the framework, there are six performance standards as follows (Moe.gov, 2015, p.18):

1. Students’ achievement
2. Students’ personal and social development, and their innovation skills
3. Teaching and assessment
4. Curriculum
5. The protection, care, guidance and support of students
6. Leadership and management

We will focus here on the standards that relate to our study. By looking at the third standard, teaching and assessment, we found out that it is divided into two sub standards and each is broken down into five elements.

The first substandard is “teaching for effective learning” which is divided into five main elements. We will mention the element that emphasizes on the differentiation implementation in class. 3.1.4 “Teaching strategies to meet the needs of individuals and groups of students”, (Moe.gov,2015, p. 48)

Quality of teaching will be evaluated as good in this element if teachers have clear understanding of their students’ needs and plan their lessons accordingly to meet the needs of individuals and groups of students.

The fourth standard, “Curriculum” is extremely important. It is divided into curriculum design and implementation and curriculum adaptation.

The curriculum adaptation is a very important element that urges schools and teachers to modify the curriculum to meet the needs of all students. In the description of this element, schools are evaluated well in this element if the curriculum is planned and modified to motivate all groups of students including students of determination.

In a study that was conducted in 2018 to examine the impact of streaming students on their progress in mathematics, it was found that students showed growth in their MAP (the Measure of Academic Progress) test scores. Moreover, majority of teachers agreed that differentiation helps improve students' performance in mathematics (Abdelsalam, 2018)

In another study that was conducted in 2016 to examine the effectiveness of differentiation on the gifted students in the regular classrooms. The study found that teachers face many challenges in order to differentiate effectively. School management support was needed to provide teachers with the necessary professional development workshops to help teachers know and implement the effective strategies of differentiation (Kfoury,2016)

A third study that was conducted in 2015 to explore teachers' beliefs and practices of differentiation in their classrooms. Teachers explained the challenges they have to face when they differentiate. Lack of time was one of these challenges as teachers need to spend time planning and engaging students in the learning process which is very difficult with the rigid curriculum they have. In addition to the lack of teachers' training to help teachers to differentiate effectively (Bourini,2015)

As we can see, teachers in the United Arab Emirates find that differentiation is a challenge which might lead them to prefer the whole group teaching and this is the answer of the first sub-question.

## **1.5 Research Aim, Objectives and Questions**

### **1.5.1 Main Aim**

The main aim of this study is to investigate the impact of implementing effective differentiation strategies in Elementary classrooms at one of the American private schools in Dubai. The study will find answers to the research questions

### **1.5.2 Objectives**

The objective of this study is

- To understand the differentiation strategies used in an American school in Dubai.
- To determine the effectiveness of using differentiation in classrooms.
- To propose or recommend best ways to differentiate in order to improve the learning process.

### **1.5.3 Research Question**

In this study we will find answers to the main question which is:

What is the impact of implementing effective differentiation strategies in Elementary classrooms at one of the American private schools in Dubai?

In order to answer this question, we will be focusing on sub questions listed below:

- What is the current differentiation situation in UAE schools? This was revealed in the previous chapter.
- What are the effective strategies of differentiation in one of Dubai schools ( the school of the study)?
- What are the recommendations to improve differentiation in this school?

### **1.6 The Significance of the Study**

As a teacher who had been teaching for more than ten years, I used to struggle with differentiation implementation. Therefore; researcher has decided to conduct this study to provide teachers with information to guide them on how to differentiate effectively in classrooms.

Teaching in a context of a diverse classroom and being able to reach every student might be a challenge if a teacher is not aware of the effective strategies to differentiate. This study will guide teachers to fully understand how to differentiate successfully. It will explain the reasons behind the importance of differentiation. Moreover, the research will reveal the impact on students' learning. The study will contribute in spreading the culture of differentiation among teachers by explaining when and how to make differentiation a habit.

Nielsen (2002), have added modification to their planning which was designed to focus on three levels into a model that focuses on four levels of groups in addition to students with determination and others who are gifted. (Brown,2004) shows that differentiation is no longer following the traditional design of dividing students into three levels of students, whereas it extends to focus on every student in class.

### **1.7 Structure of the study**

This study contains five chapters. The first chapter presents overview of the study where the statement and background of the problem are introduced, in addition to the research questions and the importance of the study. The second follows the critical literature review of other studies related to the differentiation. Third is focusing on the research methodology, and detail explanation of how data will be collected and analyze. Findings and discussions have been presented in chapter four. The fifth chapter discusses the findings, provides some recommendations, and finally gives conclusion of the study.

### **1.8 Summary of the Chapter**

This chapter provides background of the study and also discusses the problem statements. The aim, objectives and research questions have also been discussed. Furthermore; chapter one also explains significance of the study and structure of the paper.

## **CHAPTER TWO LITERATURE REVIEW**

### **2.1 Introduction**

The following chapter focus on the critical analysis of the previous literature to accomplish the research objectives. The aim of the following research is to examine the significance of differentiation strategy in elementary level in one of the American private schools in Dubai. To fulfil the research aims and objectives the basic structure of the following chapter includes an overview of differentiation learning, critical analysis of differentiation, theories and past studies on differentiation. Further, the literature discusses the impact of differentiation strategies on academic performance of students.

### **2.2. Overview**

Differentiation is not new; however, it is critical to understand and implement effective differentiation methods. As McCarthy described the best and worst understanding of differentiation. The author described the best understanding of differentiation as a set of strategies that used by a teacher to meet students' needs. Whereas the worst misunderstanding of differentiation as stress and frustration that might result in very limited instructions by the teacher. (McCarthy, 2017; Tomlinson, 2014).

Unlike teaching in late nineteenth when a teacher had to teach students of different age groups and abilities with very limited resources. Our teachers nowadays are lucky having students of the same age in classrooms with various resources. Dewey (1938) was the differentiation champion calling for creating a "caring community" and urged teachers to set their targets to meet individual needs. At that time curriculum was designed based on the community needs. The requirements of the subjects taught were varied from place to another. With the industry revolution, schools' structure was changed. The availability of larger classrooms and more resources were features of this period of time. Academic subjects were introduced and specialized teachers for each subject was applied to secondary schools. With the philosophy of "one size fits all" differentiation was decreased. As a result of the inconsistency where each state has their own subjects according to their academic requirements, in 1960's, states educational operations were controlled and strictly bonded by standards that all had to follow in the meantime standardized tests took place. (Sousa and Tomlinson, 2011). As people

migrated to US, classrooms were turned to diversity place where students from different cultural backgrounds were gathered in one room. This increased the demand of differentiation in classrooms.

### **2.3. The Concept of Differentiation**

Differentiation is defined in the dictionary as “the act or process of differentiation or the state of being differentiated” (Corley, 2005). Carol Ann Tomlinson and Caroline Edison (2003, p. 2) defined differentiated teaching as “responsive teaching, it stems from a teacher’s solid understanding of how teaching and learning occur, and it responds to varied learners’ needs for more structure or more independence, more practice or greater challenge, a more active or less active approach to learning.”

Andra (2016), defined differentiation as a modified learning approach in order to meet student’s needs by paying more attention to the “how” of personalized learning. Teachers who adopt effective differentiation strategy utilize a range of data sources to recognize what students know now and what they are ready to learn. Teachers gathered data through observing individual student in the classroom, feedback, meeting with parents and assessment and examination. with the help of collected data teachers decide what and how to differentiate in their teaching regarding: the content students are required to learn, type of learning and teaching process, how students show learning, how to develop the learning environment.

It has been argued that differentiation teaching achieved by adjusting content, process and product (Corley, 2005). Differentiation does not occur when the instructor assigns the same task to all students. Differentiation occurs when the instructor plans to teach by adjusting the content, process that utilized during learning and the product which expected from the learners to ensure learning successfully occurs.

### **2.3.1. Differentiating a Lesson by Adjusting Content**

Differentiating the lessons by adjusting the content is a very effective approach. In this approach, teachers deliver different curriculum content to different students as per their capacity and capability as well as what they expect from a particular lesson to learn (Lewis and Batts, 2005).

### **2.3.2. Differentiation by Adjusting the Process**

When the teacher changes the process of the lesson then they change the methods of teaching, as well as expectations from students, has also changed related to learning. This adjustment occurs through collective learning with talented students as well as demonstrate instructions to other students. Through adjusting the process instructor able to develop a lesson which helps individual learners to fulfil their specific learning needs (Lewis and Batts, 2005).

### **2.3.3. Differentiation through Adjusting Product**

When the teacher adjusts the product of the lesson then they are modifying the success criteria among students to recognize what they learned (Lewis and Batts, 2005). Instruction can change the lesson product like by asking some students to teach other students or by utilizing certain learning outcomes to complete the task. It has been suggested when teacher adopt grouping approach then a careful examination should be performed to design a mixed group which nurture peer learning and teaching.

## **2.4. Theories and Studies on Differentiation**

One of the very important theories in the field of education is Piaget's cognitive development theory. According to Piaget, children cognitive development is divided into four main stages: sensorimotor, preoperational, concrete operational, and formal operational. The first stage occurs from birth to the age of two years. It's called sensorimotor as children use their senses and motor skills to know about their surroundings. This stage is followed by the preoperational stage. This stage begins from the age of two to seven years. In this stage, children focus on one aspect and property of an object ignoring other aspects or properties. Children think in this stage that all other people see the world exactly the way they view it which is called "egocentrism". Concrete operational stage follows the preoperational stage which starts from

seven to eleven years. Children at this stage can solve problems and understand relationships when they connect these concepts to familiar situations. The final stage is the formal operational stage which occurs from the age of eleven to the adulthood. In this stage, students can logically explain and justify situations which they didn't experience before by create hypothesis (McLeod, 2018).

Based on Piaget's cognitive development stages, Brek (1997) summarizes four teaching indications stimulated from Piaget's study:

1. Teachers must focus on students' thinking process and how they reach to their answers rather than only considering the final answers.
2. Teachers encourage students to explore the knowledge by themselves.
3. Children should not be considered as "adult like" in their thinking. Teachers must work to find strategies that develop their progress during Piaget's stages.
4. Although Piaget claims that all children follow the same sequence of cognitive development, his theory assumes that they develop differently. This requires teachers to modify the class activities to meet individual needs. (Slavin, 2006)

Dasen and Heron (1981), argue that Piaget's theory was followed by various studies that highlighted other factors such as cultural background and social interactions. Scarr and Weinberg (2007) conducted a study on American children from Africa. Those children were expected to underachieve considering their background. However, when they were adopted by a white American family, and after five years, children's performance was evaluated above average (Long, et al., 2011). Scarr and Weinberg (2007), concluded their study that family's cultural experience has great impact on students' performance.

Vygotsky's theory is another well-known theory in the field of education. Vygotsky focused on the zone of proximal development and on social interaction. According to Vygotsky, children can learn when learning falls in their zone of proximal development (Lindqvist, 2003). Learning within the zone of proximal, this means that the child will need assistance to do the given tasks. Vygotsky emphasized on the fact that collaboration and group work help students learn better. This theory can be applied in the classroom by designing activities to allow students to collaborate and work in groups. (Long, et al., 2011)

By looking at these different theories, teaching is no longer teacher's centered. With we take into consideration students' age factor or we will follow Vygotsky's theory and focus on student collaborations, as educators, we need to understand and know our students better in order to provide a quality of learning and differentiate effectively.

## **2.5 Research Studies on the Impact of Differentiation on Students' Academic Performance**

Although there is lack of the studies conducted to measure the impact of differentiation on students' academic performance in the mixed ability classrooms the studies that were recently conducted care about specific groups of students such as gifted and talented or students with disabilities.

In a study conducted in 2018 by Valiandes, and Neophytou on teachers' professional development for differentiated instruction on students' achievement. The study was conducted on 14 teachers of fourth grade in elementary school. Observations and interviews were done to gather information about teachers' points of view and perceptions before and after the PDD. After the professional development, teachers shifted their instructions into effective differentiated instructions to meet the needs of students. The observations before and after the implementation indicated that using effective differentiated strategies impacted positively on students' achievement Valiandes and Neophytou (2018).

Another study was conducted to evaluate the impact of differentiated instructions on literacy and reading in mixed ability classrooms. The participants of this study were 24 teachers and 479 students of the fourth grade in elementary school. Comprehension assessments were done before and after the implementation. The study supported and approved that students showed progress in their literacy skills after using effective differentiated instructions in teaching literacy and reading (Valiandes, 2015).

Karadag and Yasar (2010), performed the study to determine the impact of differentiation instruction strategy on student's attitude toward academic courses. The findings of the study explored that differentiation strategy put a positive influence on student attitude related to the academic courses which contribute to the high academic performance of students.

Additionally, the research of Subban (2006), identified that by adopting adjusting content or processes for differentiation learning can make the student learning process more engaging than the one size fit for all students learning approach. His study further shown that differentiation strategy has a positive impact on student academic performance and achievements. Tomlinson (2015), claimed in his narrative review that student gets a better result and improve performance in a mixed ability classroom where teacher adopt differentiation strategy with a homogeneous classroom were single learning approach utilized. The analysis of Parsons et al., (2018), discovered that a differentiation strategy of teaching put a positive impact on student academic and non-academic performance primary level education. The past literature also discusses the potential approach of differentiation teaching. One of the common approaches to differentiation instruction is tiring, it refers to adopt the same curriculum for all the students, but teacher adjust the content depth, learning process and product type according to learner interest, readiness, and learning style.

## **2.6 Students Who Need Instructions to be Modified**

### **2.6.1 Gifted and Talented Students**

Children whose general ability is high “intelligence” or those who have high level of specific ability “gifted” should be identified and treated as a separate group to meet their needs. In 2000 the House of Commons Education and Employment Committee announced an initiative to identify and target group of students called GandTs. This initiative was aligned with Grander’s (1983) theory which was about ‘multiple intelligences. Grander identified seven intelligences and added one more in 1999. In his theory, linguistic intelligence is the first intelligence where people can use words whether in writing or verbally. Logical- mathematical intelligence which is the ability of using numbers and have high level of reasoning skills. Moreover, it includes inference, classification, calculation, and hypothesis skills. Spatial intelligence is how to understand and realize the ‘visual-spatial’ world effectively. It is related to visuals, colors, shapes, and graphics. Bodily-kinesthetic intelligence represents the ability to use person’s body to show his/her feelings. It also can be represented when someone uses his/her hands to produce things. Musical intelligence: It is the ability to understand, perform, and express using music. Interpersonal intelligence which is to be able to understand other people’s feelings. Including the ability to recognize others’ facial expressions and voice. Intrapersonal intelligence: Understand person’s self, strengths and weaknesses in addition to

the ability to adapt accordingly. It includes self-esteem and self- discipline. Naturalist intelligence: it relates to the nature and the ability to recognize different species of animals and plants. Armstrong (2019) encourage teachers to combine different intelligences when they teach. Designing and creating classroom centers that are labeled with each intelligence helps students understand their intelligences more.

### **2.6.2 Students with Academic Disabilities**

Students who have learning disabilities are categorized according to three academic areas (reading, writing, and math). Reading difficulty is known as Dyslexia. In this case students have difficulties to understand the written form of words. Research proved that dyslexic children have difficulty to learn if information is not clear. Therefore, instructions must be modified for this type of student. Gillingham and Stillman (1956) found that teachers should associate the three learning styles visual, auditory, and kinesthetic- tactile to effectively reach out dyslexic students. In addition to that Hendrickx (2010) listed a very helpful set of strategies to help in modifying instructions to fulfill this type of students' needs.

- Begin by building a student's profile to help the student and teacher to understand their strengths to help support other areas of improvement.
- Pair them up with someone who can support them in class. Working with others is very important for them.
- Using charts, calendars, and reminders help to be organized.
- Always praise dyslexic students as creative members in class.
- Make good use of the fact that dyslexic students have the ability to solve problems by finding solutions and thinking effectively in ways other people might not think of.

Dysgraphia is another learning disability. It is known as a “brain-based” learning disability that impacts mainly on their motor skills, especially writing. Intervention is recommended in cases where children diagnosed with dysgraphia.

Hendrickx (2010) provided strategies to help teachers to accommodate students with dysgraphia:

- Using technology and keyboard to replace a pen and a paper to reduce students' frustration when they struggle with writing tasks.
- Using note taker will help being organized and keeping track of the tasks.
- Provide extra time if they are asked to do writing assignments.
- Use another way of assessment to avoid the focus on writing. This can be by asking dysgraphia students to record videos or prepare presentations.
- Avoid asking this type of students to copy from the board or books. This can be replaced by using a voice recorder.
- Speaking out loud when they write will help focusing more.
- Implement exercises, during the physical activities that develop motor skills to help improve their muscles.
- Ask students to draw before they write to remember what they are writing about.
- Make sure that everyone in class and out of the class understands that students who are struggling with writing are not stupid.

The third learning disability is Dyscalculia which is students' difficulties with numbers. Emerson, J. (2015) has emphasized that dyscalculia is not a disease to be cured, however it requires strategies to be followed to help students to cope with this type of difficulty. Although there is no one specific way to support people with dyscalculia, early intervention is required. The following strategies will help teachers to minimize student's frustration and difficulty Hendrickx, S. (2010).

- Get to know student's learning style.
- Focus on student's strengths.
- Use encouragement statements and praise them when they succeed to gain their self-confidence.
- Give real life examples when teaching new rules as they have difficulty to understand abstracts.
- Avoid assuming that they understand the simple mathematical rules.
- Use visual resources and manipulatives.
- Do not check their understanding verbally. Quick assessment will help.

## 2.7 Different Types of Differentiation in the Mixed Abilities Classrooms

Eidson, and Tomlinson (2003) have listed eight components for an effective differentiation. To begin with, teachers' instructional planning stage which contains the content, process, and product/ learning artifacts. The next five components are related more to students' voices.

- Content is the access to the skills and knowledge and in other words “KUD” which refers to what students need to know, understand, and do. Teachers must think of students' learning preferences to plan the content in different forms to enable students to access information and make connections.
- The process is mainly about checking students' understanding before moving to the next content concept. Usually formative assessments play a key role in this process by using exit slips or reflective notes to check students' understanding in order to move forward.
- The third part of the instructional planning is the product. Students are expected to show their understanding of the content delivered. Since the student is the center of this process, teachers should give students the freedom to choose the form of the product that will present their understanding. Teachers need to ensure that the product is aligned with the learning objectives.
- Readiness is when teachers plan their lessons, they must ensure that the concept is at students' level and moving from simple to complicated levels. Formative assessments help teachers to plan for the next lessons to understand their students' readiness. Teachers can group students based on the assessment data into the guided reading or math groups.
- When teachers plan their lessons, they must take into account their students' interests. This will give students the ownership of their learning. Engaging students by giving them the opportunity to make choices based on their interests will encourage those making connections of their learning and spending more time on tasks of their choice. This can be done when teachers give students a chance to choose their products through implementing learning menus.

- Presenting information in different ways provides opportunities for all students to learn rather than using one approach.
- Preparing resource-able learning environment that enables students to collaborate or work individually is extremely important. Universal design for learning helps teachers to understand how to design the learning space to ensure students' success.
- Getting to know students is a fundamental part of the learning process in order to build a strong relationship between teachers and students. When students feel that they are well known by their teachers who are aware of what they like and dislike, students get more productive. This can be done by building students' profiles.

## **2.8. Common Differentiation Strategies**

It is claimed by different academic that there are various ways through which teacher can differentiate instruction among students. Differentiation begins by assessing student's previous knowledge and skills and set each student learning goals. Some of the most common differentiation strategies are discussed below:

### **2.8.1 Response to Intervention (RTI)**

It is implemented as a whole differentiation strategy because it is considered a highly effective strategy. This is a multi-tier approach of classroom learning which help the teacher to explore individual learner abilities as well as offer additional instructions to the learners having learning and behavior needs. It starts with high-quality instruction and children screening in the general classroom. A student who performs below the grade level is offered interventions to enhance their learning rate. For the effective implementation of RTI strategy, the fundamental elements need to be implemented in a rigorous way which includes; continuous student assessment, high-quality scientific-based classroom instruction, tier approach and involvement of parents (Greenwood et al., 2011).

### **2.8.2 Explicit Teaching**

This strategy is one of the high impact teaching strategies which emphasizes on offering students with a comprehensive understanding of new ideas and knowledge as well as opportunities for independent or group practice. By adopting this strategy teacher explicit students what to do and how to do. Effective teachers utilized this differentiation strategy to offer teaching instruction, establish the concept and develop learner's knowledge and skills. Explicit teaching is sequential and systematic and led by a series of guided steps. Initially instructor explicit learning goals and the success criteria then the instructor shows how to accomplish stated learning goals through demonstrating with example and modelling. Lastly, students provide an opportunity to practice themselves and develop new learning. A high level of student-teacher interaction leads to explicit teaching (De La Paz, and Graham, 2002).

### **2.8.3 Multiple Activities**

This is one of the most common types of differentiation strategy where instructor differentiates the product through setting various activities. With this strategy instructor offer opportunity to the students to work on the same concept but utilizing different activities and proficiency. In this strategy students can work in their own area of development by the support and feedback from teachers (vic.gov, 2017). Through multiple activities, students engage, collaborate, elaborate and encounter with new skills and knowledge. Research shows that through multiple activities differentiation strategy, the learning process of the student becomes deep and embedded with new skills.

### **2.8.4 Feedback**

This is another high impact teaching strategy as well as play a critical role in the differentiation strategy. Continuous, timely and actionable feedback helps students to get an insight into their learning progress. Along with the clear success criteria individual and group, feedback result in self-regulation among students. Additionally, peer feedback can also contribute to deeply reflect on themselves in order to improve further. Feedback can either be formal or informal like oral, written, summative and formative. Whatever kind of feedback students always get benefit from.

### **2.8.5 Metacognitive Strategies**

In order to adopt a differentiation strategy, effective teacher's utilized metacognitive strategy to enable students to create awareness of their own learning and progress for the purpose to self-regulate, drive and sustain their motivation to learn. This strategy empowers students to recognize their own thinking. Awareness help students to take control of their own learning process as well as improve motivation to learn. This differentiation strategy potentially enhances student learning. This strategy is being implemented when the teacher offers learners with a set of learning goals and then monitor their learning process, support student to accomplish set goals, show how to use this strategy to make content more accessible.

### **2.9. Benefits of adopting Differentiation Strategy**

Adopting differentiation strategy helps instructors to build an engaging and healthier classroom. There are many benefits of differentiation strategy which teacher seen without burnout their extra hours and energy. Some of the benefits are:

#### **2.9.1. All level students are learning at a suitable challenge level**

One of the clear benefits of a differentiation strategy is each student learn and teach at their own level which increases success chance because the content of each level is different. Like a student who is above the grade level continuously learn advanced and challenging content. Students who are below the grade level continuously growing and learning at their own pace. Lastly, a student who is at grade level support with the individual lesson instead of one size fits all content.

#### **2.9.2. All student will participate in activities**

Differentiation strategy enables students to be involved in the classroom activities. In this way all levels students get the opportunity from learning process. Group students in a mixed ability group for small activities lead to the peer to peer coaching. Here student high above the grade level will share their ideas and knowledge among students who need support while performing activity task. Moreover, grouping will help to teach students team work and collaborative skills instead of strive toward own goals.

### **2.9.3. Students value individual interests and abilities**

In a differentiated classroom students get the chance to discover their own interests. Like each student pick their own reading content to read and share with the classroom. Moreover, each student shows their learning in a diversified way than others. All students learn differently, and it is the responsibility of instructor to ensure each student adopt a learning approach that works for them because everyone has different strength and capacity.

This chapter answered the second sub question and the second aim of the study by describing the effectiveness of different strategies of differentiation and providing critical analysis of differentiation, theories and past studies on differentiation. (NAS, 2019)

## **CHAPTER THREE: METHODOLOGY**

### **3.1 Introduction**

This chapter has been designed to provide the detail research process that have been implemented to achieve the objective of the study. In this study, the researcher has adopted the case study to achieve the aim of the research. Moreover, multiple methods have been used to strengthen the value of the case study. This chapter provide all details regarding research approach, research method, data collection, data analysis and reliability. In the last, this chapter also discuss the ethical consideration of this study.

### **3.3 Research Design**

Research design provides detail framework of various techniques and methods. Research design can be classified into a qualitative research approach and quantitative research. The qualitative technique is exploratory in nature which is applied to understand and uncover reasons, opinion and motivations. It provides comprehensions into the problem and helps to improve the thoughts for impending qualitative research. For qualitative data, unstructured and semi-structured techniques are used including observations, interviews or focus group discussion. On the other hand, quantitative research is used to quantify research problems by generating statistical data. It generalizes the outcomes for a larger sample group of a particular population. It uses quantifiable data in order to formulate the particulars and recognize the patterns in research. Quantitate data are collected from the survey, face to face interview, longitudinal studies, websites and systematic observation (Becker et al, 2012). Based on the research approach, this research adopts a qualitative research approach.

### **3.4 Choice of Method**

There are three different choices of research methods that include mono-method, mixed-method and multi-method (Saunders et al., 2009). In mono-method, one type of data is collected either qualitative or quantitative. Mixed method permits to use combine methodology to create a single dataset. While multi-method uses combination of both methods in order to establish different set of data. As it is cleared that, this study has been chosen as multi-method research due to application of various qualitative research techniques through interviews, survey and interviews.

### **3.5 Research Strategy**

There are various kinds of research strategy can be categorized as action research, surveys, experimental research, case study, ethnography, grounded theory, and research archival. In this study, case study strategy, is used for solving certain problems through gathering data and information from documents, survey and interview. (Becker et al., 2012). This case study was conducted in one of Dubai American private schools. Participants of the study were carefully selected based on their job position and experience to have a clear understanding of the implementation process in the school as well as the impact on the students' learning. Furthermore, the researcher is neutral about the findings of the study and does not influence the results either they reject the hypothesis and theory or accept them.

### **3.6 Research Approach**

Saunders et al., (2009), argue that the deductive approach focuses on the previous choice research hypothesis and theory that is already tested in the previous research to prove its application on different research designs. Also, data is gathered to test the theory after theory choice. Another research approach is an inductive approach, which is usually adopted to produce, adjust and update the theory. The following study adopts the inductive research approach to achieve the research aim. While adopting inductive research approach, the investigator starts with the particular observation that is lead to generalized theories and drawn conclusion from the research. The rationale to choose inductive research approach is it considered the context where research effort is dynamic as well as it is suitable for small sample size data (Saunders et al., 2009).

### **3.7 Data Collection**

The choice of research methodology will lead to the selection of appropriate data collection and analysis methods and techniques (Becker et al., 2012). Primary and Secondary sources are two ways of data collection. First-hand source is used for primary data using various research instrument such as interview questionnaire or survey. Secondary data is collected from published source such as books, reports, articles, journals, websites etc. In this study, both data sources have been used to gather information through all published documents reviews, interviews and survey.

### **3.8 Population**

For this study, the school curriculum coordinator, the inclusion head of department and classroom teachers of different grade levels in elementary school have been categorized as population of the study.

### **3.9 Sample Selection**

There are two types of sampling technique, probability and non-probabilities. This study will be based on non-probability sample technique. Non-probability sampling has been categorized into four types such as conveniences, snowball, and quota and judgmental. This study has adopted purposive sampling which is more appropriate due to limitation of time and large sample size. The purposive sampling will opt to establish the research sample before the discussion. It is a sub-division of non-probability sampling techniques, in which participants are choice base on their expertise, knowledge and relationship with respect to the subject of research.

### **3.10 Sample Size**

For the purpose of survey; 22 teachers have been selected that have participated in responding to the survey. These teachers have significant knowledge about differentiation strategies. Whereas; for semi-interviews; the school curriculum coordinator, the inclusion head of department and three classroom teachers of different grade levels in elementary school have been selected. In addition to the selection of teachers, curriculum coordinator and the inclusion head to interview, students' work samples and growth reports were used. A total of 10 students of different abilities were selected to examine their progress by choosing samples of their work and use their external data analysis to find out the growth they have made in a period of time.

**Table 3.1 Selected Sample of the Study**

Survey	Interviews	Examination of progress report
22 Teachers	Two Teachers One Curriculum Coordinator One Inclusion Head of department	10 students

Source: Author

### **3.11 Accessibility**

To gain accessibility to the school documents, interviews and surveys, an email was sent to the school principal with a full description of the study and a consent form attached. In addition to that the researcher's position as a Vice Principal and responsible for the elementary school helped in reaching out to the stakeholders and conducting interviews with the participants.

### **3.12 Research Instruments**

The research questionnaire has been developed through self-administration and adoption of previous study. Furthermore; document analysis and review have also been used in order to create a clear picture of the policies followed to successfully implement differentiation in all classrooms. Semi-structured interviews are used to highlight the unified procedures the school follows to ensure that teachers are supported, and they can differentiate effectively.

#### **3.12.1 Survey Questionnaire**

Self-administrated survey questionnaire has been adopted. The data has been collected through google form targeted respondents.

### **3.12.2 Document Review**

Document is referred to any form of written, visual, or digital related to the study Sharan, Merriam and Elizabeth (2016). Using documents as a source of information is very useful as it is an objective and stable source of information. The documents used to gain deep understanding of the study are as follows;

- School Inclusion Policy
- Curriculum Modifications
- Teaching and Learning Policy
- Learner's Profile
- Lesson Plans
- Seating Plan Chart
- Students' e-portfolios
- Students' MAP growth report

These documents are used to help in finding out answers to the research questions and understand the impact of using effective differentiation strategies on students' progress.

### **3.12.3 Semi-structured Interviews**

Sharan, Merriam and Elizabeth (2016). Salmons (2015) explained that data can be collected in the qualitative research by using online tools. Since the research is conducted during the period of COVID 19 and since restrictions are made to any gathering, virtual interviews took place to ensure the safety of all participants. The interviews have been conducted with the policy makers at school such as the curriculum coordinator and the inclusion head. Two teachers of different classes in elementary have also been interviewed to collect information about policies implementations and differentiation best practices.

### **3.13 Data Analysis**

According to qualitative and quantitative approach, data analysis technique is chosen. In quantitative data analysis statistical methods are used such as correlation, descriptive statistics, regression analysis etc. whereas; in qualitative data methods, systematic analysis, content analysis, and thematic analysis and descriptive analysis are performed. In this study, for

frequency distribution, percentage and content analysis have been used to analyze the gathered data and information from survey, interviews and documents and student's samples.

### **3.14 Trustworthiness of the Study**

It is very crucial for any research to evaluate its trustworthiness (Creswell et al., 2009). It is the responsibility of the researcher to bring meaningful insight produced into action in any qualitative research. This contributes researchers to understand and recognize any investigation valid. Additionally, the researcher focuses on four things to examine the trustworthiness of research that include; credibility, dependability, transferability and confirmability. The following investigation leads by the thematic analysis and adopt a pragmatic path to raised trustworthiness standards. The researcher of the following research utilized the above panel structure requirements to ensure that this research is trustworthy.

#### **3.14.1 Credibility of the Study**

With the detailed involvement with the research subject and analyzing my personal association with the information researcher proved legitimacy. Also, to get the comprehensive knowledge of their subjective report, researcher gives more time to familiarize myself according to the perspective of the individual respondent of the study. Researcher has also used my thoughtfulness to assist keep outlook and dedication to the primary study issue. In addition to this, this exercise also performed a significant part in this study as it allowed researcher to recognize his prospective impact on it. The response from the consultations with supervisor as well as colleagues offered efficient questioning and confirmed the simplicity of the analytical method which researcher opts for the following research. Also, the responses have contributed to understand researcher own position.

#### **3.14.2 Dependability of the Study**

Investigator of research accomplishes reliability by ensuring that the method of the research is recordable, logical, and traceable. Thus, the dependability of this study is proved by adopting a systematic method for performing research. Additionally, it is also clear in this chapter that all the measures that consider at the time of information gathering and evaluation as well as

how it impacts the research study. The following study also proved reliability by offering information of methods to audit the research by another person (Sutton & Austin, 2015).

### **3.14.3 Transferability of the Study**

As the research background, methods and development were clearly reinforced then it proves the transferability of this research. Moreover, the investigator gives the possible overview of all respondents and their engagement is compulsory for this research. The provision of the detailed description in the research will help those who are looking to transfer the findings to their own to examine the transferability of the research (Sutton & Austin, 2015).

### **3.14.4 Confirmability of the Study**

The confirmability of the research is ensured when the dependability, transferability and credibility are achieved (Sutton & Austin, 2015). Confirmability has been proved in the following research by comparing methods and techniques listed above. Also, I always tried to establish a constant analysis of gathered information and drawn conclusion. Additionally, side by side the investigator gives the evidence of the applied methodology in whole research which is suitable to fulfil the research aim and other research requirements from every aspect including the adaptation of research methodology, data analysis, interpreting and concluded the findings. In this way, this offers a clearer basis for readers of this study to know how and why these choices have been undertaken.

### **3.15 Time Horizon**

The time horizon defines the time frame of research in terms of cross-sectional studies and longitudinal studies. (Becker et al., 2012). Cross-sectional time horizon has been applied in this study because; data has been collected for one point in time.

### **3.16 Ethical Consideration**

A large number of studies have emphasized that while performing qualitative research the researcher experiences many difficulties. These include issues related to safety and protection of research participants, maintenance of research boundary, minimal treat assurance, reflexivity and submitted the job (Creswell et al., 2009). Along with all these, consideration of ethics of study is also significant to ensure that participants and investigators are being safe

and protected. Permission is also required from the key stakeholders to gather the data from students of college and university. In the ethical consideration of research great emphasis was given to maintain the confidentiality of the research participants and keep them anonymous in whole research through utilizing initials of their name. The gathered information must be safely recorded, encrypted and anonymized. It is very important to take the consent from all participants and researchers have no issue on their mental capability. It is also the right of the participants which every research give the respect that participants are allowed to withdraw from the research process at any stage of research. At this time, it is important to remind the protection of anonymity of participant by the researcher. The data of the withdrawing participant remain protected with a guarantee (Sutton & Austin, 2015). The information of interviews was recorded through audio tapes which are encrypted as per the information acquisition process. The recorded audio tapes will be preserved in a closed room where no one can access other than the researcher as well as audios were deleted after transcribing. There are no recognizable quotes will be presented in the data, just participants initials are used to call the participants. In addition to this, the participants endorsed these titles before they were included in the study, consent forms were sent to the school principal in order to access the required information and documents. All participants in the interviews and survey were given the autonomy to participate in the research by sending consent forms to them.

### **3.17 The Role of the Researcher**

In this study, researcher has made sure that his position as Vice Principal and responsible for the elementary school does not impact on the research process or the participants' responses. Researcher has used his university email address to communicate with the participants to ensure that they consider me as a research student rather than using his work email address. researcher role in the policy implementation was more of guiding teachers and setting right procedures in place.

### **3.18 Summary of the Chapter**

This chapter has shed light on the methods used in this study. The considerations taken in the process of selecting the participants were listed as well as the tools that were used to collect and analyze the data. Clear description of the ethical considerations, validity and reliability were provided in this chapter.

## **CHAPTER FOUR: RESULTS AND ANALYSIS**

### **4.1. Introduction**

Flick (2014) gave a clear description of the data analysis procedures which will be followed in this chapter. He stated that data analysis process is “the classification and interpretation of linguistic (or visual) material to make statements about implicit and explicit dimensions and structures of meaning-making in the material and what is represented in it” (p.5). The aim of this study is to investigate the effectiveness of the implementation of using differentiated strategies in the classrooms and evaluate the impact of using differentiated strategies on students’ learning. In order to achieve our aim of the study, the findings of the study will be represented and discussed in two stages. The first stage will be focusing on the school’s teaching and learning policy and inclusion policy through documents review and the policy makers’ interview in order to understand the foundation and base of the practices followed by teachers. Secondly, the researcher will shed the light on teachers’ understanding of the school policy and the recommendations from their perspectives to improve the implementation of the policy. This will be through the survey. In addition to that, teachers will be interviewed to share their best practices of differentiation strategies. In this stage as well, students’ work will be presented as well as their eternal data to have a deep understanding of the impact of the implementation of differentiation on their learning.

### **4.2 Document Analysis**

The main objective of doing document analysis is to gain the knowledge regarding current situation in the current differentiation situation in UAE schools. This documents analysis provides general outlook of differentiation situation while analysis several themes related to differentiation learning. The documents that were analyzed are School Inclusion Policy, Teaching and Learning Policy, Learner’s Profile, Lesson Plans and Seating Plan.

#### **4.2.1 Teaching and Learning Policy**

The first document is the school teaching and learning policy which was developed and created by the curriculum department in the school. The school follows the Common Core California States Standards. The school has a well-structured curriculum policy that promotes best

practices and establishes consistency in teaching and learning. The policy highlighted a very important approach that is followed in order to help teachers effectively plan their lessons and activities. The backward design that is implemented goes through three stages. The first stage is checking the standards and reviewing the expectations. Second is collecting data of students' assessments and evidence pieces that will help in the third stage. Third, the planning stage that is based on the collected data, the standards, and targets. In addition to that, the policy outlined the procedures which are unified and followed to enable all students to access the curriculum. Curriculum adaptation is an ongoing process that modifies the curriculum to meet different student's needs. It gives teachers ideas of what their students of the next academic year look like, what they need to improve in. Teachers as well as subject's head of departments work on the preparation of the school curriculum adaptation document. The process of the curriculum adaptation begins at the end of the year when teachers summarize what standards they modified the instructions by using different resources or extended the time to help students master these standards. It shows who the students are and what standards teachers modified the instructions to teach. The teacher provides information about the time the standard was taught, resources were used and comments. Figure 1

[Type here]

Curriculum Adaptations Summary (2019-2020)  
Teachers' Class Overview

Grade/Class	Student Name	Standard (s)/Topic	When(date)	Resource (s)	Comments	Teacher Name
KG						
1						
2						
3						
4						

**Figure 1: Curriculum adaptation summary, teachers' overview**

Subject: **Science**  
Class Overview  
Grade: **5 A,B,C,D**

Grade/Class	Student Name	Standard (s)/Topic	When(date)	Resource (s)	Comments	Teacher Name
5A	Hareth Rafat, Hamad Khaled, Noor Ud Din, Rashed Ghanem, Elvin Biju and Naveya Obaid	5 PS 1 5 PS 2 5 LS 6	March 2020	*More audio-visual aids via <u>Stemscopes</u> to simplify the instructions. * More use of child friendly technology e.g Skills Navigator assignments, Quizzes etc. *Continuation of providing the <u>tailor made</u> Intervention Plans *Elvin Biju and <u>Naveya</u> Should be recommended to the SOD department for further intervention. *Use of Native language only to scaffold instructions. *Continue the motivational strategies to improve classroom <u>behavior</u> and concentration.	<ul style="list-style-type: none"> <li>● Inconsistent and very low scores in MAP as well as internal assessments.</li> <li>● Extremely <u>laid back</u> attitude and inconsistent approach towards study.</li> <li>● Overdependence and usage on the native language. No support or motivation from the home.</li> </ul>	<u>Wozammil</u>
5B	Whole Class	5-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	November 2019	Re-conducted the experiments in the lab. Gave additional worksheets and exercises on <u>STEMscopes</u> .	Majority of the students scored poorly in the <u>EOU</u> and MAP. This indicated that they had not mastered the concept and thus reinforcement was necessary.	V. <u>Amr</u>
5C	Whole Class	5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	January 2020	Differentiated worksheets and exercises from <u>STEMscopedia</u> . Students then drew models.	A low score in the <u>EOU</u> and MAP prompted the need to reinforce the material and enhance the understanding of the concept.	V. <u>Amr</u>
5C	Whole Class	5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in	March 2020	Re-conducted a whole class lesson in the basketball court during	A vast majority had difficulty in writing down their understanding by filling in the	<u>Amr</u>

**Figure 2: Curriculum adaptation summary, teachers' overview (Completed Sample)**

The next step that follows teachers' summary, is the head of department overview. As shown in Figure 3, HODs review teachers' adaptation form and create one whole document for their department from grade 1 to 12 in order to give a holistic view.

Curriculum Adaptations Summary: HOD Overview  
Subject: Science  
(2019-2020) and (2020-2021)  
G1-5 (Elementary)

Grade	Curriculum Adaptations (2019-2020)	Curriculum Adaptation(s) proposed for year 2020-2021
5	<p><b>5-PS1-4</b> Conduct an investigation to determine whether the mixing of two or more substances results in new substances. <b>Majority of the students scored poorly in the EOU and MAP.</b></p> <p><b>Reinforcement was needed for SOD students. More lab work was needed.</b></p> <p><b>5-ESS1-2.</b> Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. <b>The majority found it hard to track down sun's shade according to instructions and to determine sides the direction of North, because some compasses were misleading. Nevertheless few students took initiative and modelled it in front of the class, so the rest of the class could catch up.</b></p> <p>A vast majority had difficulty in writing down their understanding by filling in the CER table and hence it was necessary to re-conduct the experiment and illicit answers and build arguments to clear misconceptions.</p>	<p>Power standards will be focussed as a developmental progression for vertical alignment. Teachers are provided a sequenced pathway, resources and support for meeting the needs of all students. ESS2-A, ESS2B Earth's physical features occur in patterns as do earthquakes and volcanoes. Maps can be used to locate features and determine patterns in those events. SOD will be given differentiated tasks, simplified worksheets and content connection videos for mastery of the concepts.</p> <p><b>Instructional adaptation</b> for student responses by ensuring active participation of student activity by adjusting level of participation, dividing the students into groups and enough time will be given to grasp the difficult concepts slowly.</p> <p>More practice on CER will be given to respond constructively to others' ideas, in order to make progress in solving a challenging problem, interpreting a text, or conducting an investigation etc.</p>

**Figure 3: Curriculum adaptation summary, head of department overview**

Hewitt and Forte (2006) defined curriculum adaptation as a process “ to take curriculum and adjust it to fit the need or modify and use existing materials for insertion in a regular curriculum for very specialized reasons.” (p.270). Furthermore; these key elements that should be considered when teachers adapt the curriculum in order to meet individual needs which is the learning styles. This will lead us to the next important procedure to differentiate which is the learner’s profile.

Tomlinson, (2014) explained how teachers can plan their differentiated instructions by the learning profile. First, he defined the learning profile as the best and effective way we (as individuals) learn. The rationale of creating a student's learning profile is to understand student’s preferences and provide them with these preferred modes of learning. Learner’s profile is a new concept implemented at this school in Elementary specifically. It is built to provide four factors about each learner. These factors are learning style, intelligence preferences, gender and culture.

The learner’s profile is implemented and created in the beginning of the school year to provide teachers with information about students such as date of birth, the language that a student mainly uses at home, and the where the student lives and who are his/her family members. This information is important to understand students’ cultural background.

All About Me:	
<b>Basic Information!</b>	
My Birthday:	18/02/2011
At home; my family speaks	English
I live with	My mommy
<b>My Interests!</b>	
I am interested at	Dancing, singing and drawing
I am good at	math (Skills)
Things that bother me at school	is bullying
When something bothers be at school, I	get sad

[View Original](#)

**Figure 4 Learner's profile (Personal information)**

The second part of the learner's profile is the student's learning style, subjects he/ she prefers, and what type of learner is the student. This information will help the teacher to differentiate based on students' preferences.

**All about me at school!**

How I learn!	
My favorite subject is <b>science</b>	
My least subject is <b>music</b>	
I learn best with <b>reading</b>	
I like to learn new information by <b>reading new books</b>	
I like to show my learning by <b>writing</b>	

What kind of learner am I?	
Auditory 	<input type="checkbox"/>
Visual 	<input checked="" type="checkbox"/>
Tactile 	<input type="checkbox"/>

<http://www.educationplanner.org/students/self-assessments/learning-styles-quiz.shtml>

View Original

**Figure 5 Learner's profile (Learning style)**

The third part of the profile is the data of the external assessments results which plays a vital role in differentiating instructions based on students' academic performance. As we can see Figure 6 a student added his MAP scores and is expected to show his goal. This score helps the teacher to understand that this student needs help in reading to focus more when differentiating on reading.

### My Data!

NWEA	Last Winter	My Fall Goal	Fall	Winter	Spring
Reading	<b>186</b>				
Language	<b>192</b>				
Math	<b>198</b>				
Science	<b>201</b>				

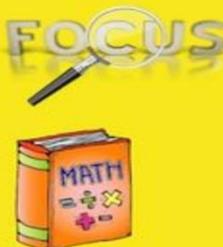
One thing I am going to do to reach my goal is \_\_\_\_\_

**Figure 6 Learner’s profile (External data information)**

The last part is the goal setting stage. In this stage, students set their academic and non-academic goals. This stage is to make learning meaningful to students when they set goals and targets for themselves. They are expected to revisit these targets to evaluate their performance and add the next steps for themselves that will help achieve their goals.

### My Goals This Year!

**Goals!**



An academic goal I have for the year is	<b>Reading arabic words</b>
Some things I can do to reach this goal are	<b>Focus</b>
A behavioral goal I have for the year is	<b>Listening to my teacher</b>
Some things I can do to reach this goal are	<b>studying hard</b>
When I grow up I want to be a	<b>dentist</b>

**Figure 7 Learner’s profile (Goal setting)**

By using last year's information (curriculum adaptation summary) and the current year's information (Learner's profile), teachers have rich knowledge of their students to design their differentiated instructions based on these two sources of information.

#### 4.2.2 Inclusion Policy

The policy document begins with the inclusion department vision

##### 1.1. [redacted] School Inclusion Section Vision Statement

[redacted] community inspires a passion for learning, where students can achieve their fullest potential and become responsible and productive global citizens and ambassadors of their own cultures. [redacted] promotes success for all students through strong and effective partnerships with all stakeholders.

#### Figure 8 School inclusion department vision

It is essential in an inclusive school context to emphasize that every student has the right to learn and succeed. As stated in the policy, it is the school community to support all learners to promote meaningful learning experience.

According to the policy, there are four principles of inclusion at the school. To begin with is the identification stage in order to decide on the support needed. The identification of students who need support is done through formal and informal assessments and observations. This step will be followed by 'overcoming' any barriers and setting challenging scenarios to engage students in the learning process.

barriers to learning, to provide quality education for all. Specifically, the three main principles of inclusion at [redacted] are:

- Identifying and responding to student's diverse needs.
- Overcoming potential barriers to learning.
- Setting suitable learning challenges.
- Ensure positive impact on student's progress.

#### Figure 9 Inclusion Principles

According to the inclusion policy, there are different categories to classify the students who need support. The school follows the DSIB categorization of special needs which states that the eight categories are - Behavior, social and emotional - Sensory which includes hearing or visual impairment - Communication and interaction where autistic spectrum disorder is diagnosed. - Medical/ health related such as students with asthma, epilepsy, allergies, and diabetes. -Physical disability which includes cerebral palsy, cystic fibrosis, spin bifida, gross motor delay. The sixth category is speech and language that expressive language, receptive language, apraxia global language. The seventh category is general learning difficulty such as assessed syndrome. The last category is specific learning difficulties such as dyslexia, dysgraphia, dyspraxia, and dyscalculia. In addition to these categories and in case if there are students who are undiagnosed, the school does not restrict the student from accessing support. The other categories are related to the gifted and talented students. There are three categories as follows (NAS, 2019, p. 7):

- Cognitive Reasoning Abilities: Verbal, Non Verbal, Quantitative and Spatial.
- Academics Performers: Science, Math and English
- Visual and Performance Skills: Art, Music, Physical Education and Information Technology.

The first two categories identification process using parents' and teacher's observations, informal/formal checklists, semester summative assessments and GL CAT4 exams. The visual and performance skills can be observed by Art, PE, Music and ICT teachers' observations as well as the CAT4 test.

The inclusion team provides strategies to support the different categories of gifted students. The policy outlined the role of the school community to support students with determination which shows that every person has a role to support students starting from the governors and the school principal, involving the leadership team, head of departments, inclusion support team, and teachers.

After the categorization of students, the policy has clear explanation and guidance on the tiered system of identification and support. This is followed by the most important part which is the Individual Education Program.

IEP is a document where students who are on tier 3 of support are placed to receive individual educational program. According to the student’s needs and disability, goals will be set on the IEP and also the intervention, strategies, and support that will be provided to the student. Teachers and parents are involved in the review of the IEP to add what they think will help in the student’s learning. This document is reviewed every semester to ensure that students are fully engaged by updating their progress.

The inclusion head along with the support team meet with the perspective teachers monthly to update the IEP plan and make sure that the students receive the required support. Moreover the inclusion team follow a schedule to visit the classes where students on tier 3 are getting their one on one support at least once a week.

### 4.2.3 Lesson plan

In this section we will highlight the daily lesson plan which will reveal the implementation of the policies that we have listed earlier. Differentiated instructions through the daily practices and plan. The researchers have selected one sample of the math lesson plan to show how the teachers differentiate instructions. It is important to note that this template along with the procedure is followed by teachers across the school.

<b>Teacher:</b>	Mc	<b>Grade:</b>	2B	<b>Date:</b>		<b>Subject:</b>	Math	<b># of Students:</b> B: _____ G: _____
<b>Semester</b>		<b>Week:</b>	11	<b>Duration period:</b>	2 lessons 90 mins	<b>Lesson/ Topic:</b>		
<b>Big Idea:</b>	Use of subtraction in real life							<b>Keywords:</b> Sum Difference Equation
<b>Standard:</b>	CC.2.OA.2 fluently add and subtract within 20 using mental strategies.							
<b>Learning Objectives:</b> (skills/knowledge/attitudes to learn/practice)	I can find differences on the number line to develop the mental strategy of decomposing to simplify facts.							
<b>Lesson Outcomes:</b>	<b>In line with curriculum expectation</b>	Find the difference on the number line					<b>Resources:</b> Websites: think central  Teaching Aids: mathematical resources	
	<b>Above curriculum expectation</b>	Solve problem using number line.						
<b>Success criteria:</b>	<ul style="list-style-type: none"> <li>Count back on the number line to find difference.</li> <li>Draw a loop to show each jump and write the size of the jump above it</li> <li>Add all the jump amounts together to find the difference</li> <li>Solve problems to find difference.</li> </ul>							<b>Book Pages:</b>  <b>Additional Support (TA):</b>

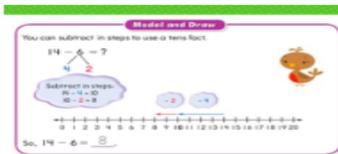
### **Figure 10 Differentiated instruction through lesson plans 1st Sample(Part 1)**

The teacher introduced the learning objective that the lesson will be targeting. (Figure 10) Students are expected to find differences on the number line in order to develop the mental strategy of decomposing to simplify facts. After the learning objective, the teacher showed the expected outcome that is aligned with the curriculum expectations which is in this lesson's context is to find the difference on the number line whereas the outcome that is above the curriculum expectations is to solve the given problems using the number line. These problems include word problems that represent subtractions and addition. The next step is to list the success criteria. There are four criteria that each is suitable for different groups of students. The first is suitable for low achievers as they are expected to count back on the number line to find the difference. The second is for the mid achievers to represent the problem by drawing a loop to show each jump. For high achievers, they will be adding as well as subtracting. The fourth category is for the gifted students as they will be asked to solve the problems to find differences.

Since our aim in this section is to examine the implementation of differentiation, I have selected the part of the lesson plan that showed the teacher's strategies to differentiate the instructions. As we can see in Figure 10, there is a part which is called "Differentiated tasks". In this part the teacher used different tasks according to students' abilities as group 3 (below curriculum expectations) is given the reteach task whereas the students who are on level are given an interactive task by using their tablets. The third task is using the digital number line to solve subtraction problems independently. The teacher showed another way to differentiate by considering students' CAT 4 categorization and differentiate according to students' learning style as special, verbal, and no bias, which is very successful in engaging different groups of students. There is an extension task for students who might finish the assigned tasks.

**Strategy:**

Draw a number line with numbers 1 to 13 on the board. • Have 13 children stand under the number line so that each child represents 1 number. • Ask: How many do we need to subtract from 13 to get to 10? 3 Have 3 children sit down. • Explain that now you need to subtract 4 from 10. Have 4 more children sit down. • Ask: How many children are still standing?



<https://www->

[k6.thinkcentral.com/content/hsp/math/gomath/common/video/video.html#videoid=ref:En\\_316](https://www-k6.thinkcentral.com/content/hsp/math/gomath/common/video/video.html#videoid=ref:En_316)

use math spot on video to clear the concepts

**Differentiated Tasks:**

**Group 1:** Use digital number line to find the difference (students to use ICT area)

**Group 2:** Use think central task chapter 3 lesson 3.7 interactive student book.

**Group 3:** Use reteach R3.7 and find the difference.

**Spatial:** Create a number line on the floor using colored tape. Ask students to jump backwards and find the difference.

**Verbal:** Students will read the problem sums use number line and find the difference Enrich E3.7

**No Bias:** use dice and number line to find the difference and write in the copy books.

**Extension:** do page 146 and 147.

### Figure 11 Differentiated instruction through lesson plans. 1st Sample (Part 2)

This sample showed a well-planned differentiated lesson that proved that teachers understand the policy and implement it successfully. Although this is one sample of one lesson plan, to ensure that all teachers follow the instructions related to equality in learning and providing a fair chance for different students to learn, teachers submit their lesson plans to the head of departments and the vice principal to review and ensure that it meets the expectations.

Another example of using effective differentiation strategies is using learning menus in elementary classes. MacCathy (2017) confirmed that providing learners with opportunities to choose from a variety of options is a successful way to make learning relevant and meaningful to students. MacCathy added that in the differentiated classroom context, choices are designed and controlled by teachers to ensure that activities offered are based on students' data that inform readiness, interests, and learning preferences. Westphal, (2007) has many useful publications in this regard.

Tic- Tac- Toe is a type of choice board that provides students with nine choices. The designed activities should be prepared based on Bloom's taxonomy. This book in addition to another book on using learning menus in teaching English are shared with teachers and used effectively

in elementary classes. The following sample lesson plan is designed using the learning menu strategy to differentiate

<b>Semester</b>	□S1, □S2	<b>Week:</b>	<b>Week</b> 23	<b>Duration period:</b>	45 min	<b>Lesson/Topic:</b>	2-digit subtraction 5.5 and 5.6	B: _____ G: _____
<b>Big Idea:</b>	<b>Use of Subtraction and Problem solving in real life.</b> <b>Driving Question:</b> How can unique and unusual change help us reshape our life and society? <b>Essential Question:</b> How do you record the steps when subtracting 2-digit numbers?							<b>Keywords:</b> Difference Tens Ones Regroup Subtract
<b>Standards:</b>	2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.							
<b>Learning Objectives:</b> (skills/knowledge/attitudes to learn/practice)	Record 2-digit subtraction using the standard algorithm.							
<b>Success criteria:</b>	<ul style="list-style-type: none"> <li>○ Arrange numbers in standard algorithm</li> <li>○ Solve subtraction questions using standard algorithm.</li> <li>○ Use place value and number line to find the difference.</li> <li>○ Apply knowledge of place value to solve word problem.</li> </ul>							<b>Resources:</b> Websites: Online think central app  Teaching Aids: book, tablets  Book Pages: 245 onwards
<b>Starter Activity:</b> (individual   Pair work   <b>Group Work</b> ) (3 min):								
Subtraction board game students will get 3min to put all the answers (bottle caps to the questions on board.								
<b>Main Activities:</b> (Including mini-plenaries)								
<b>Activity 1:</b> (individual   Pair work   Group Work) (10 min):								
<b>Teaching:</b> Demonstrate how regrouping in subtraction is done using standard algorithm. Use questions from share and show student e.book page 246.								
<b>Cross Curriculum Integration:</b> <b>English:</b> Math leveled reader Let's go shopping Read the story and solve								

Figure 12 Differentiated Lesson Plan 2nd Sample Part 1

The teacher started by highlighting the learning objectives and the four success criteria considering different abilities. The main objective is to record 2-digit subtraction problems using the standard algorithm Figure 12.

<b>Differentiated Tasks</b> Students will use learning menus to choose the activities they want to do. Explain how learning menus are <u>used</u> (tic-tac-toe) they will choose three activities in a row (horizontally, vertically, diagonally).	canteen
<b>Activity 2:</b> (individual   Pair work   Group Work) ( 27 min):	<b>Connection to Emirati Culture:</b>
[Type text]	
Differentiated menu cards will be provided with appropriate manipulative per group. Students will have 2mins to decide on the activity and start, display timer to avoid delays.	Imagine you are tourist in Dubai make a list and

Figure 13 Differentiated Lesson Plan 2nd Sample Part 2

Teacher showed that the differentiation strategy is the learning menus Figure 13. The teacher planned all the activities based on the lesson objective. The option in the middle is the challenge task where students will integrate their writing skills with math strategies. All the other options are differentiated to meet students' needs. As we can notice that an option given to solve the problems by using manipulatives and counters, another option is given by using technology. Students also have an option to solve the problems using the number line. Other students who might be kinesthetic learners, they can select the option of using shopping baskets with real items and Dirhams to subtract and count. Figure 14

**Math Menu 1**

<p><b>A</b></p> <p>I can read story "Let's go shopping" and solve questions.</p> <p>Think Central → Mt Lib → Mathematics → Math concept reader → "Let's go shopping"</p>	<p><b>B</b></p> <p>I can model and draw the given subtraction problem</p> 	<p><b>C</b></p> <p>I can use subtraction cards and peg the correct answers.</p>
<p><b>D</b></p> <p>I can use shopping baskets to for grocery and use subtraction strategies to find how much NAS Dirhams I spend and how much is left?</p>	<p><b>E</b></p> <p>I can create my math story by using subtraction strategies.</p> 	<p><b>F</b></p> <p>I can use personal math trainer chapter 5 lesson 5.5 and 5.6 complete the questions given online.</p> <p>Think Central → My Lib → Mathematics → Student interactive book → chapter 5 → Lesson 5.5 and 5.6</p>
<p><b>G</b></p> <p>I can use counters and place value hut to find the difference of the given 2-digit numbers.</p>	<p><b>H</b></p> <p>I can use standard algorithm to find the difference. R49</p>	<p><b>I</b></p> <p>I can use number line in my corridor to find the difference.</p>

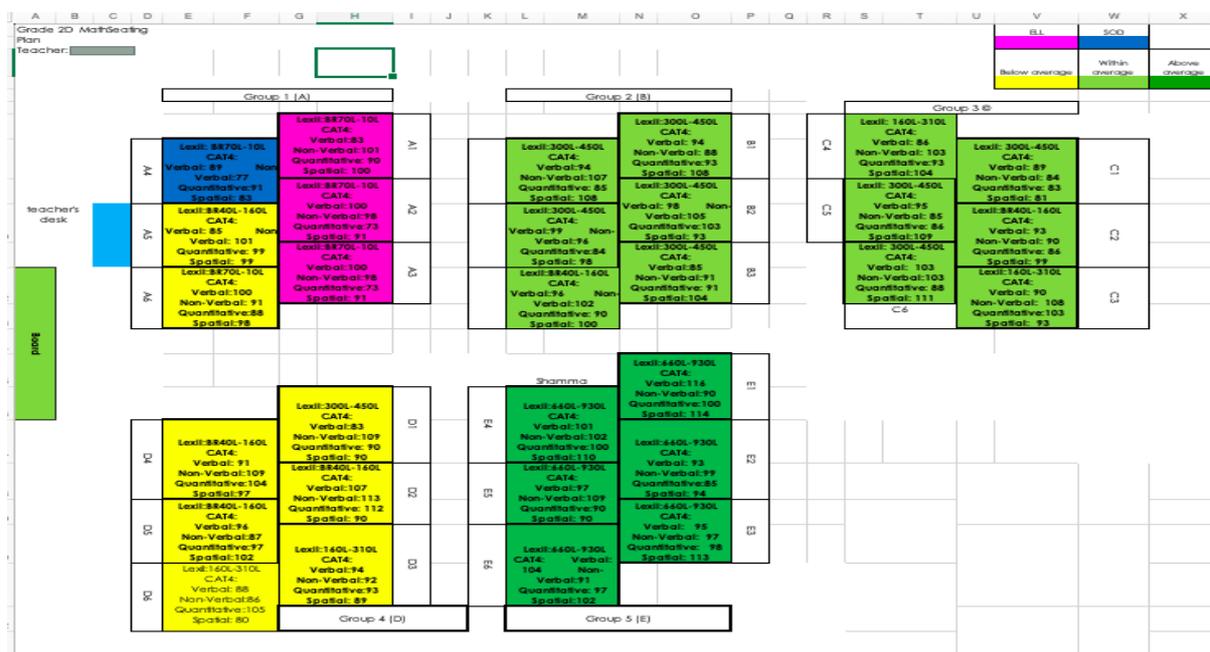
**Figure 14: Learning Menu activities for second grade**

In order to ensure the consistency in implementing differentiation across the same grade level, teachers are given a weekly time slot in their schedule to conduct a collaborative meeting to enhance the collaboration among teachers in order to promote high quality of teaching and learning to all students.

Lesson plan document is designed to guide teachers on the components of the effective differentiated lesson showing differentiated tasks and outcomes. By looking at these samples, we can find some of the effective strategies of differentiation that are used at this school which is the answer of the second sub question.

#### 4.2.4 Seating Plan

Seating plan is important for student’s academic development and for their social functioning in the classroom. As we found that lesson plan is one way to reflect the differentiation, teachers use a seating plan to show how they group their students in class. Researchers agreed that learning environment and classroom management are two essential elements teachers consider when they plan for differentiated instructions Sousa, and Tomlinson, (2018). Students are divided according to their academic performance as well as their CAT4 assessment information. To ensure the confidentiality of students and teachers, students’ names were replaced by alphabets and numbers such as A1, A2, A3, A4... for the first group, and so on.



**Figure 15: Seating Plan Sample**

Teachers use seating plan charts along with their lesson plans to ensure that they implement differentiation effectively considering all the levels and needs of the students in class.

This was intensive analysis of the policies, implementation, and strategies followed by the school community. As question one was related to current differentiation procedures applied and unified at the school. With that being said, the first research question has its clear answer. Also the lesson plans will be counted as the answer of the second part of the second question which is about teachers’ implementation of the differentiated strategies.

### **4.3 Teachers' Survey**

The survey analysis has been done for answering the second research question that how teachers understand and implement differentiation strategies effectively. The survey results have been analysed in addition to teachers' interviews. The survey consisted of open ended questions to create a clear picture of the teachers' understanding of the policies and implementations. 22 teachers from the elementary school participated in the survey, which is 90% of elementary teachers participated in this survey and this gives the survey validity and accuracy to see the full picture of the situation of differentiation in elementary school.

#### **4.3.1 Respondent's role.**

The first question was to mention their role and since the survey was shared with teachers so all participants mentioned that they are teachers in addition to any other role such as head of department depute. The finding shows that 14 respondents are working as teacher or معلم whereas; remaining eight respondents are working as class teacher, homeroom teacher, elementary teacher, shaymaa-islamic, Arabic B teacher, DHOD,

#### **4.3.2 Define Differentiation**

The second question, teachers were asked to define "differentiation", Arabic and Islamic teachers preferred to write their responses in Arabic which was accepted to give them more autonomy and to be comfortable while expressing their thoughts. The responses to this question reflected a deep understanding of differentiation between teachers.

One of the participants have defined differentiation as "tailoring instructions" to meet the needs of individuals. 4 teachers defined it as to differentiate instructions or materials for different abilities. The response which is written in Arabic defines differentiation as providing a learning environment, strategy, and material that is appropriate for different levels of learners. One has defined as "the different levels of ability to process skills between children". Furthermore; the term differentiation can also be understood as the learning outcomes that teachers get from the students and compare between these learning outcomes and learning targets. Even one respondent has clearly defined differentiation as a lesson adaptation that are used to teach diverse groups of students who have different learning needs for a particular lesson. It could also be giving students the liberty.

### 4.3.3 Usage of Differentiation in Classes Effectively

The third question was related to effective use of differentiation in the class room. The question provides and comprehensiveness regarding use of differentiation by these respondents particularly.

It has been found that almost 63 percent of the teachers agreed that teachers of Dubai schools differentiate effectively whereas; 1 participant skipped the question. 18 percent teachers do not use differentiation in the class effectively whereas; 13 percent respondents are not sure about using differentiation in class effectively and think that teachers do not differentiate effectively.

**Table 4.1: Usage of Differentiation in Classes Effectively**

No of respondents	Responses (%)
14	Yes (63)
4	No (18)
3	Not Sure (13)
1	Skip the answer
Total 22 respondents	

Source: Author

### 4.3.4 Challenges for Implementation of Differentiation

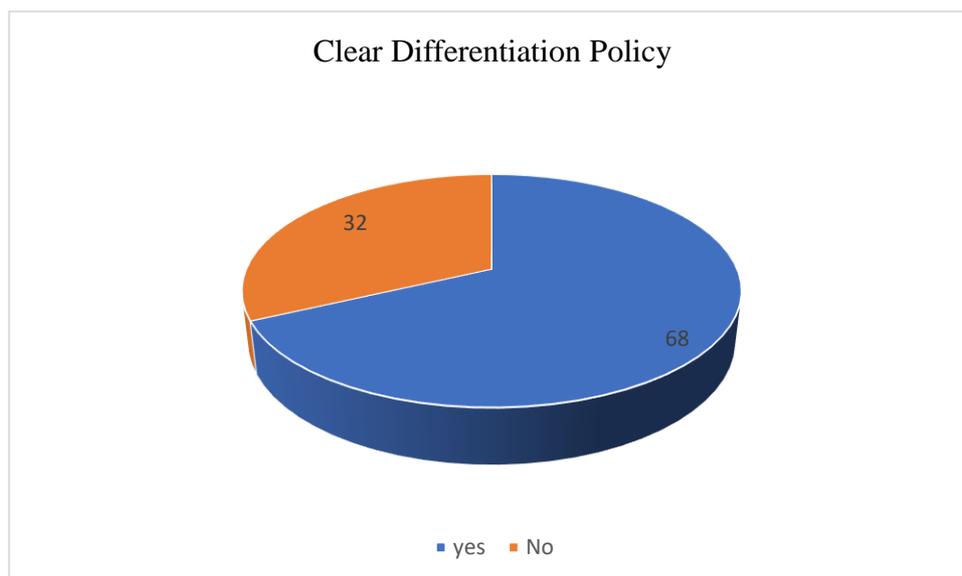
The fourth question was mainly to ask participants about the challenges they face when they differentiate their instructions. The respondents have highlighted various challenges that they are facing while implementing differentiation.

Seven respondents have emphasized that lack of teachers' knowledge on how to differentiate is a big challenge for instance one respondent said that "*requires much more lesson-planning time for teachers*" is major issue for teacher, whereas; according to three respondents, "*differentiated instructions require time to plan, reteach, and analysis of results of students in order to inform their teaching*". On the other hand, one respondent has mentioned that having students of determination in class with no full time learning support that are provided is the major issue which teachers face. One respondents highlighted that "*Most only use*

*differentiated worksheets when accommodating students learning environment is also important. But we stick to our comfort zone and don;t want to do more*". Four respondents have mentioned that lack if require resources is major hurdle. Whereas; four respondents think that there is need to understand the capacity of students in each class which requires more of personalised planning. Teachers' responses showed that they need more resources to help the planning process. Professional development is a serious requirement which should be one of the leadership team priorities to ensure that differentiation is implemented successfully. Furthermore; one respondents also told that *"most only use differentiated worksheets when accommodating students learning environment is also important. But we stick to our comfort zone and don;t want to do more than the bare minimum"*.

#### **4.3.5 Clear Differentiation Policy**

The main objective of asking next question was to find out that respondent’s school has clear differentiation policy on not. It has been found that 68 % of the participants confirmed that they are clear about the differentiation policy which is part of the inclusion policy and also the teaching and learning policy, whereas 32 % are not aware of the policies. This indicates that there is inconsistency that might reflect on the application of the policy.



**Figure 16: Clear Differentiation Policy**

### **4.3.6 Suggestion by Respondents**

To close this gap, it was essential to ask for suggestions from the teachers' side to work on the perfection of the implementation. This leads us to the next question which is What do you suggest in order to implement effective differentiation strategies?

The following points summarize teachers' responses

- Professional development sessions are needed to move from the theoretical phase to the implementation phase.
- To provide more resources to teachers.
- Reduce the capacity of students in classes.
- Make use of students' data to differentiate.
- Differentiated activities should include choices to students and ensure that activities are designed to align with the learning targets.
- Teachers should understand their students' needs in order to plan accordingly.
- More support is required for students with special needs.

Teachers' responses indicated that they understand what differentiated instructions is, however, more attention from the management should be given to teachers' professional development. Moreover, more support should be provided to students with determination from the inclusion team.

## **4.4 Interviews**

The interviews have been conducted in order to gain the opinion, perception and general practices regarding impact of using effective differentiation strategies on students' learning. For this purpose; unstructured interview has been conducted from two teachers, one inclusion head and one curriculum coordinator.

### **4.4.1 Interview with curriculum coordinator**

The aim of conducting the interview of curriculum coordinator to gain knowledge about how curriculum has been designed in elementary school. The curriculum coordinator is working at the school. He has been an English teacher, reading specialist, instructional literacy coach, and

assistant principal. Furthermore; according curriculum coordinator, the California Common Core State Standards is followed in Math and English language arts, and Next Generation Science Standards for Science. *Arabic, Islamic studies and Social Studies Ministry of Education (MOE) and UAE requirements*". Furthermore; he explained that a curriculum action plan was devised from reviewing the KHDA school inspection report and framework. The recommendations listed that in grades 1-12 were focused mostly on the acquisition of knowledge with fewer opportunities for the development of skills. Furthermore; he suggested that *"Increase opportunities for students to involve students in different activities that promote innovation, and creativity. For development: it was suggested to ensure that all teachers fully understand the US curriculum standards"*. It has also provided more opportunities for the development of innovation and enterprise in Grade 1-12. Based on this information, they were able to put measures in place to address these recommendations by providing professional development for teachers based on "Unpacking Standards", Understanding by Design (UbD) which includes the Backwards Design Model for curriculum planning, Weekly Learning Walks for Teacher Observations, Follow-up conferencing with teachers. He also explained that *"Curriculum review and adaptation are important because they enable teachers to consider decision making with the aim of fostering students learning while being guided by principles, practices, and outcomes to meet students' needs. Curriculum coordinator collaborated closely with Subject Area HOD's regarding the curriculum review and adaptation, quality assurance, monitoring standards of teaching and learning, tracking, and analysis of data"*. He also informed that *"all school leaders teachers, Head of departments, Head of Inclusion, Curriculum Coordinator, Assessment Coordinator, Grade-level Vice Principals, and Principal are responsible about the process of implementing differentiation strategies, and ensuring the consistency across the school"*. On the basis of teacher's feedback, curriculum coordinator also talked about planning PDs in the school. According to coordinator, PD sessions are based on the needs of the school and discussed within the Senior Leadership Team (SLT). Upon review and discussion of surveys from teachers the topics based on the areas of weakness the PD sessions are formed and confirmation given by the School principal. Moreover; he also discussed the positive impact of differentiation on student's performance and said that differentiated curriculum through supplement textbooks and taught in group improve their performance with achievement in tests. Differentiating the curriculum may improve students' achievement especially in math. He explained that *"Teachers incorporate Bloom's Taxonomy and/or Webb's Depth of Knowledge to ensure lesson plans are reaching all student ability levels. Differentiation helps the teacher to find different ways in which student work, alone or*

*in groups to enhance student learning*". For ensuring that teachers are following right path, in our school, data analysis of the external assessment MAP and CAT4 are conducted. He said that *"By adapting to each students learning level, MAP Growth creates a clear picture of every students' performance, needs, and strengths. Teachers use this information to plan according to the information provided in the growth report"*. He further explained that *"The CAT4 has been used for diagnostic assessment that help students and their teacher to understand how they learn and what their academic potential might be. Moreover; the profile of each student can be used to understand learning preferences and focus learning material to help improve the educational approach"*.

In the last, he recommended that there is need to consider that how groups of students who would benefit from differentiated interventions could be prioritized when developing the school's development plan using a Response to Intervention (RTI) framework.

#### **4.4.2 Interview with inclusion head**

This interview has been conducted in order to gain the knowledge regarding role on inclusion head in school. While sharing the vision and mission of department, inclusion head explained that *"NAS community inspires a passion for learning; all students including students of determination can achieve their fullest potential and become responsible and productive global citizens and ambassadors of their own cultures"*. It also promotes success for all students through effective partnerships with all stakeholders. He also explained the process of identification and communication with parents and teachers. He explained that the Response to Intervention (RTI) tiered/leveled system is used to support students. *"NAS used the Response to Intervention (RTI) tiered/leveled system structure to identify and support students. Formal and informal methods of assessments are utilized to accurately identify students and using the information to inform of the best intervention which will accelerate learning, progress and development"*.

At level one, all students participate in education learning based on California Common Core State Standards. Use of flexible groups for differentiation of instruction which encourages Universal Design for Learning is encouraged. After that, teachers identify struggling students in spite classroom best classroom teaching given and complete Google drive forms to inform Inclusion Section. At this stage Whole school screening for dyslexia using GL Rapid

Assessment and or checklists is encouraged. At level two, students are further assessed with GL Lucid, RAPID, LASS, LUCID, EXACT, COPS. Individual Learning Plans (ILP)/ Group based Advanced Learning Plans (ALP) are drafted to accommodate students' needs. At level three, individualized Educational plan or Behavior Support Plan are drafted Push in- pull out sessions are carried out by Inclusion Teachers. Modification to the delivery of curricula, instruction and materials is done for tier 3 students. Furthermore; He explained that NAS develops a strong relationship with parents through such a partnership that students with determination will be provided support to achieve their full potentials. He told that *"The school firmly believes in developing a strong partnership with parents and that it is only through such a partnership that students with determination will be provided with holistic support in order to be fully assisted in achieving to their full potential. Parents possess unique information regarding their children that can assist in identification as well as during the continued provision of support. Recently; communication has been enhanced through technology using Google Meet"*.

For ensuring teacher's plan according to meet the requirement of SODs, inclusion head says that *"Teachers are encouraged to differentiate when they plan for SOD since one size does not fit all. Teachers to use the assessment profile of the students when they plan for SOD. This entails using data from CAT4 Battery results and Verbal or Spatial Learning Style. The baseline or starting point of the students for planning is established using NWEA MAP and Internal Curriculum Based test and formative assessments"*. When he was asked to provide the detail of support that inclusion team give, he said that *" the inclusion team provides teachers with the appropriate intervention special education needs strategies for Dyslexia, Autistic Spectrum Disorders and ADHD etc. Impact of the interventions is done by measuring the progress and attainment of SODs"*. He also expressed his thoughts regarding impacts of students learning and stated that Students of Determination are fully included into the school community with their peers. He said that *"students also take part in the same lesson discussions, learn the same standard, concepts and are given the opportunity to engage in brainstorming higher order thinking questions. Student s in Elementary school has made significant progress which is monitored through IEP progress tracking sheet"*.

He also recommended some suggestions that help to improve implementation of differentiation in school through enhancing use of data analysis of a wide variety of sources to be used by teachers to differentiate and/or modify the curriculum, strengthening the use of appropriate

adaptive learning tools, through providing alternative curriculum pathway to students with significantly lower intellectual functioning, implementing of Universal Design for Learning (UDL) strategies for all students, and through providing trainings to teachers for appropriate scaffolding techniques in order to reinforce differentiation and independent learning. He further recommended that “*enhance use of technology tools such as the interactive games, Raz Kids, Read Theory and Skill Navigator are required to improve students skills and workshops to train the teachers on appropriate scaffolding techniques so as to reinforce differentiation and independent learning*”.

#### **4.4.3 Interview with Teachers**

For knowing the perceptive and understanding about the differentiation strategies in elementary schools, interviews were conducted from two teachers.

##### *4.4.3.1 Background of Teachers*

Question 1 was asked to gain the knowledge about general background of the teacher related to their working experiences. Both teachers are working as classroom teacher of grade 2 and grade 4. In terms of their experiences, both teachers have more than four years of teaching experiences in elementary schools.

##### *4.4.3.2 Understanding of Differentiation*

Differentiation strategies is effective way to provide learning opportunities to students based on their diverse requirement. According to teacher one “*differentiation is different strategies teachers use to meet individual’s needs*” On the other hand, teacher two think that “*differentiation is the way of teaching to make sure all students understood the topic*”. Classroom are mostly filled with different kind of students with differences in their readiness, prior knowledge and learning profiles. Therefore; it is very necessary for teachers to understand the basic concept of differentiation and have comprehensive understanding.

#### 4.4.3.3 Achieving Learning Targets

Teachers have also shared their views and perception about achieving learning targets through telling and engaging students in a performance of understanding, an activity that demonstrate the students related to defined targets and establish their understanding the concepts and skills, and generate the evidence of their progress toward the targets. Hence; teachers and students both use that evidences in order to make decision regarding future learning. According to teacher one *“I use Bloom’s Taxonomy to prepare the learning targets and success criteria. This helps me to know how different levels can achieve the targets”*. Teacher two also responded that *“When we plan, we use success criteria to show how different students can meet their needs. Not only students who need support, but also high achievers, they need to be challenged”*. Hence; learning targets provide a general guidance to teachers for setting up for success while choosing essential contents, skills, planning effective lesson, sharing strategies and providing feedback to students.

#### 4.4.3.4 Successful Strategy

. . Some students perform better in group work while some students do better while working on their own. Therefore; Various strategies are adopted while analyzing the characteristics of the students. This question has been designed to know that what learning strategies are being applied by teachers. Teacher one thinks that *“Learning Menu”* is successful strategy in math lesson. According to him *“this strategy specially had a huge impact on my students specially my student of determination, because they had the autonomy to select the activities they want so they had their ownership of their learning”*. Whereas teacher two use CAT4 results to plan his lesson. He said that *“I use students’ CAT 4 results to plan my lessons. I make sure that every lesson has different ways to be learnt whether the auditory, kinesthetic, or verbal. My students feel comfortable when they do activities that matches their learning style”*. It is indicated that learning strategies address students’ academic needs in the classroom.

#### 4.4.3.5 Challenges Faced by Teachers

There are various factors that restrict the efficient and effective use of differentiation strategies in the classroom environment. It has been argued that teaching strategies should be diversified and adapted according to the diversity of student’s requirement. Therefore; teachers face

various challenges while implementing. Teacher one states that *“The number of students as there are 30 students in my class. Sometimes I feel overwhelmed and need to spend my weekends to plan properly”*. Teacher two think that *“when teachers have more than one student with determination and these students need one on one support. As a teacher with no assistance, I feel challenged to reach out to all my students”*. It has been highlighted that large number of students is major challenge that prevents large prevent effective implementation of differentiation strategies.

#### *4.4.3.6 Support from Administration*

The question was asked related to administration and school support to teachers and teachers say that they do not receive sufficient support by administration of schools then it can create more challenges for carry out differentiation strategies. Teacher one told that *“In the beginning of the year, the school leadership team set different workshops to help us with the planning process of the lessons”* whereas teacher two stated that *“I do receive support, however, it is not sufficient. In grade 4 we don’t have teacher’s assistance which is a challenge”*. Furthermore; it has been pointed out that teacher face trouble in searching materials for their lessons however; sufficient resources are important for teachers and student in order to implement effective strategies for differentiation, well-equipped classroom with all available facilities will also help teachers.

#### *4.4.3.7 Recommendations for Implementation of Differentiation Learning*

The last question was asked to suggest some recommendation from teachers for implementation of differentiation learning. Teacher one recommended that *“The school needs to provide teachers with more resources to help students specially those who are kinesthetic learners”*. Whereas; teacher two suggested *“I recommend assigning learning support members to give extra support to the ELL students”*.

### **4.5 Analysis of MAP Data and Student’s Portfolio**

In order to find out how implementation of differentiation strategies impact on students, the external MAP data and sample of student’s portfolios of the students of the classes where we interviewed their teachers have been examined. Selected MAP results will be used to track the

growth of students from the beginning of the year (Fall window) and the middle of the year (Winter window). Due to COVID-19 situation, students did not do the Spring MAP test, therefore we have used two windows to compare students' MAP results.

#### 4.5.1 Students' MAP Results

The MAP assessment is a unified assessment to measure students' performance according to his/her grade level (Simpson, 2017). The school runs three MAP assessments throughout the year. Teachers use the data obtained from these assessments to track students' growth and use this data to inform their planning in order to meet students' needs.

In this section, we will examine the growth in students' performance. The selection of students will be based on their abilities in addition to one student with determination for each class. To ensure the validity of the results of the assessments, the MAP tests were done in a very restrictive environment.



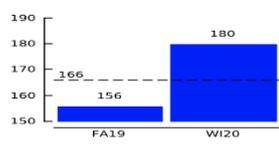
### Student Goal Setting Worksheet

**Abdulla Saif Mohamed Melaih, Shaikha**  
 Student ID: 2348  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

**Norms Reference Data:**  
 Growth Comparison Period: 2020 Norms: Fall 2019 to Winter 2020  
 Weeks of Instruction: Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

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**Language Arts: Language Usage** (Growth: Language 2-12 CA 2010)



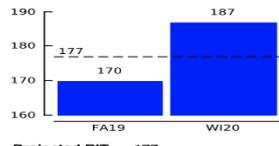
Projected RIT 166  
 My Goal \_\_\_\_\_  
 RIT Growth 24

	FA19	WI20
<b>Overall RIT Score</b>	156	180
<b>Goal Performance</b>		
Writing: Plan, Organize, Develop, Revise, Research	159-169	181-191
Language: Understand, Edit for Grammar, Usage	147-157	167-177
Language: Understand, Edit Mechanics	148-158	178-188

**Student Action Plan:** \_\_\_\_\_

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**Science: Science K-12** (Growth: Science 3-5; for use with NGSS Intl 2013)



Projected RIT 177  
 My Goal \_\_\_\_\_  
 RIT Growth 17

	FA19	WI20
<b>Overall RIT Score</b>	170	187
<b>Goal Performance</b>		
Physical Science	161-173	187-197
Life Science	173-183	184-196
Earth and Space Science	157-169	172-184

**Student Action Plan:** \_\_\_\_\_



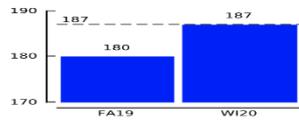
### Student Goal Setting Worksheet

**Hussain Ahmad Abdulla Al, Hamda**  
 Student ID: 2178  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

Norms Reference Data:  
 Growth Comparison Period:  
 Weeks of Instruction:

2020 Norms.  
 Fall 2019 to Winter 2020  
 Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

#### Math: Math K-12 (Growth: Math 2-5 CA 2010)



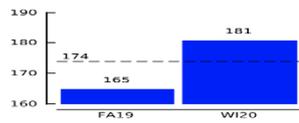
Projected RIT: 187  
 My Goal: —  
 RIT Growth: 7

	FA19	WI20
<b>Overall RIT Score</b>	<b>180</b>	<b>187</b>

Goal Performance	FA19	WI20
Operations and Algebraic Thinking	163-177	179-191
Number and Operations	187-200	184-196
Measurement and Data	175-189	178-190
Geometry	169-181	182-194

Student Action Plan: \_\_\_\_\_

#### Language Arts: Reading (Growth: Reading 2-5 CA 2010 V2)



Projected RIT: 174  
 My Goal: —  
 RIT Growth: 16

	FA19	WI20
<b>Overall RIT Score</b>	<b>165</b>	<b>181</b>

Goal Performance	FA19	WI20
Literature	160-172	185-199
Informational Text	163-175	174-186
Vocabulary Acquisition and Use	154-166	163-175
Lexile® Range	BR140L-10L	180L-330L

Student Action Plan: \_\_\_\_\_



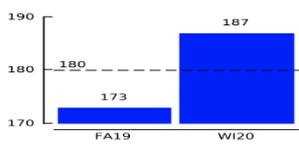
### Student Goal Setting Worksheet

**Khalid Atij Majid Sager, Badr**  
 Student ID: 2198  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

Norms Reference Data:  
 Growth Comparison Period:  
 Weeks of Instruction:

2020 Norms.  
 Fall 2019 to Winter 2020  
 Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

#### Math: Math K-12 (Growth: Math 2-5 CA 2010)



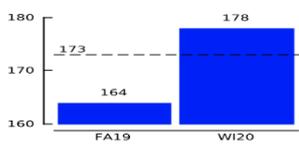
Projected RIT: 180  
 My Goal: —  
 RIT Growth: 14

	FA19	WI20
<b>Overall RIT Score</b>	<b>173</b>	<b>187</b>

Goal Performance	FA19	WI20
Operations and Algebraic Thinking	170-184	177-189
Number and Operations	169-183	184-196
Measurement and Data	170-183	182-194
Geometry	152-166	184-196

Student Action Plan: \_\_\_\_\_

#### Language Arts: Reading (Growth: Reading 2-5 CA 2010 V2)



Projected RIT: 173  
 My Goal: —  
 RIT Growth: 14

	FA19	WI20
<b>Overall RIT Score</b>	<b>164</b>	<b>178</b>

Goal Performance	FA19	WI20
Literature	156-168	167-179
Informational Text	163-175	174-186
Vocabulary Acquisition and Use	157-169	172-183
Lexile® Range	BR160L- BR10L	120L-270L

Student Action Plan: \_\_\_\_\_

Figure 17: Sample of students' growth reports for MAP assessments Fall 2019 to Winter 2020 (Low Abilities)



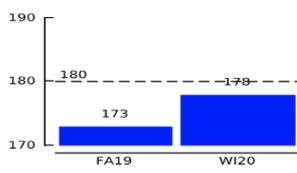
## Student Goal Setting Worksheet

**Faisal Darwish Mohammad, Marwan**  
 Student ID: 2446  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

Norms Reference Data:  
 Growth Comparison Period:  
 Weeks of Instruction:

2020 Norms.  
 Fall 2019 to Winter 2020  
 Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

### Math: Math K-12 (Growth: Math 2-5 CA 2010)

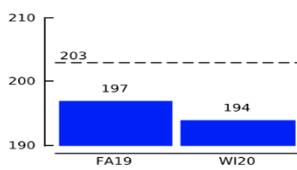


Projected RIT 180  
 My Goal \_\_\_\_\_  
 RIT Growth 5

	FA19	WI20
<b>Overall RIT Score</b>	<b>173</b>	<b>178</b>
<b>Goal Performance</b>		
Operations and Algebraic Thinking	166-178	166-178
Number and Operations	170-182	173-180
Measurement and Data	166-178	175-187
Geometry	167-179	169-181

Student Action Plan: \_\_\_\_\_

### Language Arts: Reading (Growth: Reading 2-5 CA 2010 V2)



Projected RIT 203  
 My Goal \_\_\_\_\_  
 RIT Growth -3

	FA19	WI20
<b>Overall RIT Score</b>	<b>197</b>	<b>194</b>
<b>Goal Performance</b>		
Literature	180-194	187-203
Informational Text	192-204	184-196
Vocabulary Acquisition and Use	202-214	186-198
Lexile® Range	505L-655L	445L-595L

Student Action Plan: \_\_\_\_\_



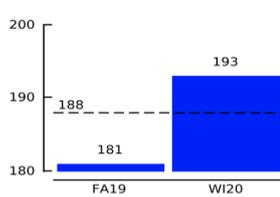
## Student Goal Setting Worksheet

**Mohammad Essa Ahmed Mubarak, Ghala**  
 Student ID: 2209  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

Norms Reference Data:  
 Growth Comparison Period:  
 Weeks of Instruction:

2020 Norms.  
 Fall 2019 to Winter 2020  
 Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

### Math: Math K-12 (Growth: Math 2-5 CA 2010)

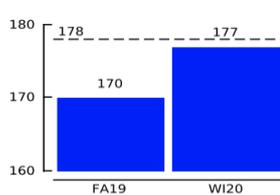


Projected RIT 188  
 My Goal \_\_\_\_\_  
 RIT Growth 12

	FA19	WI20
<b>Overall RIT Score</b>	<b>181</b>	<b>193</b>
<b>Goal Performance</b>		
Operations and Algebraic Thinking	168-180	179-191
Number and Operations	168-180	196-208
Measurement and Data	188-200	184-196
Geometry	173-185	190-202

Student Action Plan: \_\_\_\_\_

### Language Arts: Reading (Growth: Reading 2-5 CA 2010 V2)



Projected RIT 178  
 My Goal \_\_\_\_\_  
 RIT Growth 7

	FA19	WI20
<b>Overall RIT Score</b>	<b>170</b>	<b>177</b>
<b>Goal Performance</b>		
Literature	168-180	171-183
Informational Text	162-174	171-183
Vocabulary Acquisition and Use	161-173	170-182
Lexile® Range	BR40L-110L	100L-250L

Student Action Plan: \_\_\_\_\_



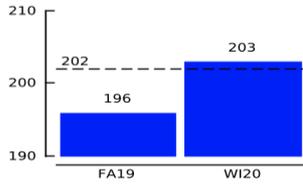
### Student Goal Setting Worksheet

**Hatem Mohamed Masoud Hussein, Basant**  
 Student ID: 3906  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

**Norms Reference Data:**  
**Growth Comparison Period:**  
**Weeks of Instruction:**

2020 Norms.  
 Fall 2019 to Winter 2020  
 Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

#### Language Arts: Language Usage (Growth: Language 2-12 CA 2010)



	FA19	WI20
<b>Overall RIT Score</b>	<b>196</b>	<b>203</b>

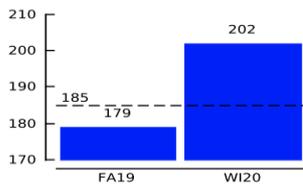
**Goal Performance**

Writing: Plan, Organize, Develop, Revise, Research	189-199	<b>189-199</b>
Language: Understand, Edit for Grammar, Usage	189-199	<b>202-212</b>
Language: Understand, Edit Mechanics	194-204	<b>203-213</b>

Projected RIT 202  
 My Goal \_\_\_\_\_  
 RIT Growth 7

Student Action Plan: \_\_\_\_\_

#### Science: Science K-12 (Growth: Science 3-5: for use with NGSS Intl 2013)



	FA19	WI20
<b>Overall RIT Score</b>	<b>179</b>	<b>202</b>

**Goal Performance**

Physical Science	174-186	193-207
Life Science	<b>181-192</b>	<b>183-197</b>
Earth and Space Science	<b>164-176</b>	<b>210-224</b>

Projected RIT 185  
 My Goal \_\_\_\_\_  
 RIT Growth 23

Student Action Plan: \_\_\_\_\_

Figure 18: Sample of students' growth reports for MAP assessments Fall 2019 to Winter 2020 (Mid Abilities)



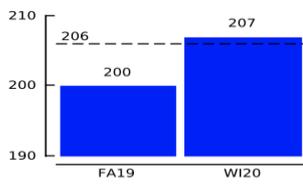
### Student Goal Setting Worksheet

**Mohamed Ismail Humash, Mera**  
 Student ID: 3095  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

**Norms Reference Data:**  
**Growth Comparison Period:**  
**Weeks of Instruction:**

2020 Norms.  
 Fall 2019 to Winter 2020  
 Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

#### Math: Math K-12 (Growth: Math 2-5 CA 2010)



	FA19	WI20
<b>Overall RIT Score</b>	<b>200</b>	<b>207</b>

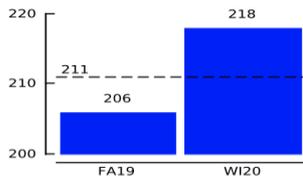
**Goal Performance**

Operations and Algebraic Thinking	<b>204-218</b>	202-214
Number and Operations	193-205	201-213
Measurement and Data	<b>184-196</b>	<b>195-207</b>
Geometry	196-208	<b>206-218</b>

Projected RIT 206  
 My Goal \_\_\_\_\_  
 RIT Growth 7

Student Action Plan: \_\_\_\_\_

#### Language Arts: Reading (Growth: Reading 2-5 CA 2010 V2)



	FA19	WI20
<b>Overall RIT Score</b>	<b>206</b>	<b>218</b>

**Goal Performance**

Literature	<b>209-221</b>	211-223
Informational Text	199-211	213-225
Vocabulary Acquisition and Use	<b>193-205</b>	213-225
<b>Lexile® Range</b>	685L-835L	930L-1080L

Projected RIT 211  
 My Goal \_\_\_\_\_  
 RIT Growth 12

Student Action Plan: \_\_\_\_\_

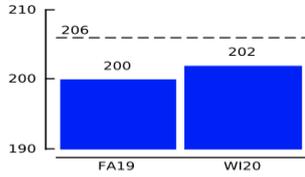


### Student Goal Setting Worksheet

**Nawaf Moosa Yousuf Ismail, Shaikha**  
 Student ID: 2815  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

Norms Reference Data: 2020 Norms.  
 Growth Comparison Period: Fall 2019 to Winter 2020  
 Weeks of Instruction: Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

#### Math: Math K-12 (Growth: Math 2-5 CA 2010)

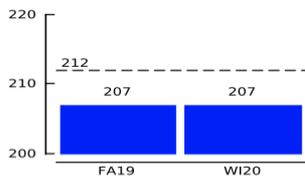


Projected RIT 206  
 My Goal \_\_\_\_\_  
 RIT Growth 2

	FA19	WI20
<b>Overall RIT Score</b>	<b>200</b>	<b>202</b>
<b>Goal Performance</b>		
Operations and Algebraic Thinking	194-206	204-218
Number and Operations	194-206	204-216
Measurement and Data	181-195	193-205
Geometry	203-215	183-197

Student Action Plan: \_\_\_\_\_

#### Language Arts: Reading (Growth: Reading 2-5 CA 2010 V2)



Projected RIT 212  
 My Goal \_\_\_\_\_  
 RIT Growth 0

	FA19	WI20
<b>Overall RIT Score</b>	<b>207</b>	<b>207</b>
<b>Goal Performance</b>		
Literature	205-217	202-214
Informational Text	197-209	209-221
Vocabulary Acquisition and Use	200-212	192-204
<b>Lexile® Range</b>	705L-855L	705L-855L

Student Action Plan: \_\_\_\_\_

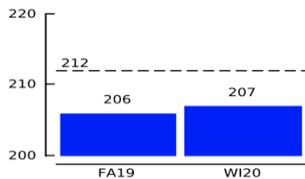


### Student Goal Setting Worksheet

**Ahmed Abdelkhalek Attia, Fatima**  
 Student ID: 2231  
 District: New Academy School  
 School: New Academy School  
 Term Rostered: Winter 2019-2020

Norms Reference Data: 2020 Norms.  
 Growth Comparison Period: Fall 2019 to Winter 2020  
 Weeks of Instruction: Start - 4 (Fall 2019)  
 End - 20 (Winter 2020)

#### Math: Math K-12 (Growth: Math 2-5 CA 2010)

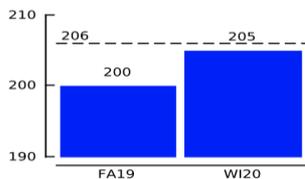


Projected RIT 212  
 My Goal \_\_\_\_\_  
 RIT Growth 1

	FA19	WI20
<b>Overall RIT Score</b>	<b>206</b>	<b>207</b>
<b>Goal Performance</b>		
Operations and Algebraic Thinking	206-218	204-216
Number and Operations	194-206	192-204
Measurement and Data	192-204	205-217
Geometry	207-219	206-218

Student Action Plan: \_\_\_\_\_

#### Language Arts: Reading (Growth: Reading 2-5 CA 2010 V2)



Projected RIT 206  
 My Goal \_\_\_\_\_  
 RIT Growth 5

	FA19	WI20
<b>Overall RIT Score</b>	<b>200</b>	<b>205</b>
<b>Goal Performance</b>		
Literature	198-210	203-215
Informational Text	191-203	193-205
Vocabulary Acquisition and Use	192-204	202-214
<b>Lexile® Range</b>	565L-715L	665L-815L

Student Action Plan: \_\_\_\_\_

Figure 19: Sample of students' growth reports for MAP assessments Fall 2019 to Winter 2020 (High Abilities)

By looking at the graphs, we notice that there is significant progress and growth in all the groups of students' performance. The first group (Figure 16) is for students who performed below curriculum expectations. Students of this group showed progress more than the other groups as the growth was measured more than (10+) in the three cases and in the case of the student with the ID number 2348, the student improved in language usage test from 156 to 180. Moving to the next group of students which is the mid achievers. In this group, there is one with determination (ADHD) with the ID number 2446. The student did not show the desired progress, one of the reasons could be that he does not sit focused for a long time and in the case of MAP assessments, each assessment lasts at least for an hour if the students were fully focused. To prove that, we have checked out this students' profile (Figure 19) and found out that he spent 27 minutes in doing the math assessment which required to be done in 60 minutes.



**Figure 20: MAP Student's Profile**

Other than the student with the ID 2446, all students in this group showed progress. For example, the student with the ID number 3906, the student showed huge improvement in language usage from 196 to 203 and another significant growth in science from 179 to 202. The next group which is the high achievers did not show significant improvement as the growth in this group did not exceed ( 5+) which indicates that teachers were able to differentiate successfully with the low and mid achievers whereas they need to challenge and extend the learning for the high achievers.

As we have selected these students from the classes that their teachers were observed several times from the head of departments and leadership team, and they differentiated their instructions effectively. Generally, the results of the students from these classes showed progress which can be related to the differentiation strategies used by their teachers to meet their needs.

This can be an evidence to answer the main question and shows the positive impact of implementing effective differentiation strategies on students' achievement.

Weber et al., (2013) highlighted that there are three factors which needs to consider for the implementation of differentiation such as; support teachers for enhancing their confidence, the way classroom practices are executed for differentiated methods and characteristics that improve the development of differentiation. For the effective implementation of differentiation, collaboration and cooperation is needed along with support, guidance, experienced and highlight skilled teachers. For successful differentiation, it is suggested to redesign the way teachers and students organize their work. Moreover; in-depth planning and ongoing support for teachers should be initiated as major part of differentiation method. It has been argued that teachers require extra time and effort especially for differentiation instructions, tasks and assessment are quite complex. In addition, some other factors such as class size, planning time, resource availability, increase responsibility of teachers, arrangement for collaboration with other colleagues should also consider for the effectiveness of differentiation. However; there is limited consistency among teachers that led to unsuccessful implementation and use of differentiation. This showed that even though teachers provide in-depth explanation however; they struggle to implement it in daily practices (West and West, 2016). Furthermore; teachers find it challenging to integrate learners from various background cultures. The reasons behind is that teachers do not have enough knowledge about cultural background of the students. There is a need of professional development trainings for teachers related to execution of differentiation. Teachers requires extra time and effort to successful implementation of differentiation. Moreover; in a differentiated classroom, student differences are expected and appreciated as a fundamental of instructional planning. It also reminded the strong bound that exist between assessment and instruction. As a teacher, there is need to recognize some policies and strategies where students are in relation to teaching and learning goals hence; a teacher must be well aware of student's learning needs and interest. In a differentiated classroom, teachers use any information they find or see in the classroom as useful source to know more about their students. Pettig (2000), has identified strategies for implementation of differentiation such as peer collaborations which started when a team of professional teachers are formed, proper timing is provided, beliefs about differentiation instructions are investigated and expectations are made clear. Although trainings are provided by school administration, many teachers find it difficult to put into practices in their classroom. Therefore, professional development with administrative support is must for successful implementation of differentiation in the classroom.

## **CHAPTER FIVE: DISCUSSION AND CONCLUSION**

### **5.1 Introduction**

Differentiation is not a new concept. It requires teachers to know their students better in order to fulfill their needs. As we all agree that students don't come to school as equal sets, they are all different. In one classroom, we might find students who read at the grade level whereas we can find others who read below their grade level. This will require clear understanding from the teacher to move students who missed some skills backwards to gain these skills and at the same. The main aim of this study is to investigate the impact of implementing effective differentiation strategies in Elementary classrooms at one of the American private schools in Dubai. Multi-method through using various qualitative methods to answers research questions. This study has used documents analysis to help in finding out answers to the research questions and understand the impact of using effective differentiation strategies on students' progress. Whereas; survey questionnaire has been conducted to gain the knowledge from teachers about understanding, learning targets, strategies and recommendations. Furthermore; this study has also conducted unstructured interviews from two teachers, inclusion head and curriculum coordinator.

### **5.2 Summary of the Findings**

This case study has proved significant impact of using effective differentiation strategies on students learning in elementary schools in Dubai. The findings of the study highlighted that teachers have comprehensive understanding regarding impact of differentiation strategies. The school has a well-structured curriculum policy that promotes best practices and establishes consistency in teaching and learning. The teaching and learning policy highlighted a very important approach that is followed in order to help teachers effectively plan their lessons and activities. Furthermore; this study proved that Learner's profile is a new concept implemented at this school in Elementary specifically. It is built to provide four factors about each learner such as learning style, intelligence preferences, gender and culture. The learner's profile has been implemented and created in the beginning of the school year to provide teachers with information about students' information such as date of birth, the language that a student mainly uses at home, and the where the student lives and who are his/her family members. This

information is important to understand students' cultural background. It is also an essential in an inclusive school context to emphasize that every student has the right to learn and succeed. Moreover; it is the school community to support all learners to promote meaningful learning experience. The policy outlined the role of the school community to support students with determination which shows that every person has a role to support students starting from the governors and the school principal, involving the leadership team, head of departments, inclusion support team, and teachers. After the categorization of students, the policy has also clear explanation and guidance on the tiered system of identification and support. In addition, teachers have showed that the differentiation strategy through the learning menus. The teacher planned all the activities based on the lesson objective. Students have the ownership to select the activity they want to work on. The teacher showed another way to differentiate by considering students' CAT 4 categorization and differentiate according students' learning style as special, verbal, and no bias, which is very successful in engaging different groups of students. The school management implements this practice to enhance the collaboration among teachers in order to promote high quality of teaching and learning to all students. The survey findings showed that respondents have clearly defined differentiation as a lesson adaptation that are used to teach diverse groups of students who have different learning needs for a particular lesson. It has been found that almost 63 percent of the teachers agreed that teachers of Dubai schools differentiate effectively whereas; 1 participant skipped the question. 18 percent teachers do not use differentiation in the class effectively whereas; 13 percent respondents are not sure about using differentiation in class effectively and think that teachers do not differentiate effectively. Respondents have emphasized that lack of teachers' knowledge on how to differentiate is a big whereas; according to some respondents differentiated instructions require time to plan, reteach, and analysis of results of students in order to inform their teaching. It has been found that 68 % of the participants confirmed that they are clear about the differentiation policy which is part of the inclusion policy and also the teaching and learning policy, whereas 32 % are not aware of the policies. Teachers' responses indicated that they understand what differentiated instructions is, however, more attention from the management should be given to teachers' professional development. Moreover, more support should be provided to students with determination from the inclusion team. Findings from interviews highlighted that Common Core is followed in Math and English language arts, and Next Generation Science Standards for Science. Furthermore; increase opportunities for students to be engaged in different activities that focus on the creativity and enterprise. Curriculum review and adaptation are more important because they enable teachers to consider

decision making by a broader community with the aim of fostering students learning. All school leaders, teachers, head of departments, head of inclusion, curriculum coordinator, assessment coordinator, grade-level vice principals, and principal are responsible about the process of implementing differentiation strategies and ensuring the consistency across the school. In elementary school, formal and informal assessments are used to identify students' needs and using the information to plan the intervention which will accelerate learning, progress and development. The school developed a strong relationship with parents through such a partnership that students with determination will be supported to achieve their full potentials. Moreover; teachers are encouraged to differentiate when they plan for SOD since one size does not fit all. Teachers use the assessment profile of the students when they plan. This entails using data from CAT4 battery results and verbal or spatial learning style. Furthermore; use of technological tools such as the interactive games, Raz Kids, and Skill Navigator are required to improve students skills and workshops to train the teachers on appropriate scaffolding techniques to reinforce differentiation and independent learning. Classroom are mostly filled with different kind of students with differences in their readiness, prior knowledge and learning profiles. Therefore; it is very necessary for teachers to understand the basic concept of differentiation and have comprehensive understanding. According to teacher one Bloom's Taxonomy is used to prepare the learning targets and success criteria. This helps teachers to know how different levels can achieve the targets. Teachers also use success criteria to show how different students can meet their needs. Not only students who need support, but also high achievers, they need to be challenged. Hence; learning targets provide a general guidance to teachers for setting up for success while choosing essential contents, skills, planning effective lesson, sharing strategies and providing feedback to students. However; teachers face various issues and challenges in order to implementation of their strategies in the classroom. However; they have also provided several recommendations for implementing of differentiation strategy. According to curriculum coordinator, PD sessions are based on the needs of the school and discussed within the Senior Leadership Team (SLT). Furthermore; on the basis of teacher's review, the PD sessions are formed, and confirmation given by the School principal. Teachers incorporate Bloom's Taxonomy and/or Webb's Depth of Knowledge to ensure lesson plans are reaching all student ability levels. Moreover; Response to Intervention (RTI) tiered/leveled system is used to support students whereas; formal and non-formal methods of assessment are also used to identify students and this information are further used to take best intervention that will also accelerate learning, progress and development. In the last, it has been proved from MAP

assessment that there is significant progress and growth in all the groups of students' performances.

### **5.3 Discussion**

It has been argued to implement differentiated teaching in order to enhance the knowledge and skills of an individual student in each class. Differentiation strategy aims to boost the performance of all students either they are failing to meet the expected level of education as well as those who are ahead from their grade. Hence; it gives advantages to all the student including gifted students (Robinson et al., 2014). It is proved that all students in the classroom are different which creates the need of differentiation strategies or instructions in order to capitalize diverse intelligences which permits a wider range of students in order to participate in classroom learning. The teachers are responsible for adjusting various development needs and varying levels of each student (George, 2005; Tomlinson et al., 2003).

The teaching approach "One-size-fil-all" assumes that all students should be treated on equal basis which neglects the diverse requirements of student on the basis of their interest, skills and learning abilities. Therefore; implementation of differentiation strategy consider difference among students while acknowledging their strengths and weakness (George, 2005). Teachers adopt a various strategy which helps students to personally involve in their study by taking ownership of their learning. Although, it is argued that differentiated strategy involves a student at high risk of disengagement that result to experience meaningful learning (Parsons and Taylor, 2011).

It has been argued that teaching strategies should be diversified and adapted according to the diversity of student's requirement. To meet student difference is perplexing when these differences are related to a large number of student's characteristics such as their interest, their learning style and speed, abilities, language level cultural background, etc (Moore, 2005). There are various factors that restrict the efficient and effective use of differentiation strategies in the classroom environment. Lack of teachers' knowledge on how to differentiate, effective time to plan, lack of required resources, lack of understanding the capacity of students in each class are some major challenges that have been highlighted in this study. Although all teachers, inclusion head and curriculum coordinator have clear perception regarding differentiation

however more attention from the management side should be given to teachers' professional development. Moreover, more support should be provided to students with determination from the inclusion team. An effective differentiation strategy results in higher academic scores of the students (Tulbure, 2011), improve overall performance as compared to traditional style of teaching, ensure higher student engagement and interest, more motivated and enthusiastic learners and maximize student potential (Tulbure, 2011; Wilujeng, 2012). It has also significant impact on student's self-confidence, self-directedness and meta cognitive awareness of learners (McQuarrie & McRae, 2010).

Furthermore; professional development of teachers cannot be ignored in order to linked with differentiation strategies. Donnell and Gettinger (2015) has highlighted the significance of teacher 's development and stressed that knowledge of theoretical foundation rationale are necessary that enhance teacher's skills for implementation and effectiveness of differentiations strategies. It has been said that without comprehensive understanding of theoretical foundation, teachers will find it difficult to implement concepts in the classroom (Donnell and Gettinger, 2015). It has been highlighted by this study that for the effectiveness of differentiation, there is need to develop clear learning goals, ongoing and diagnostic assessments that may adjust instruction and perplexing tasks for all students (Chamberlin & Powers, 2010).

## **5.5 Recommendations**

On the basis of documents analysis, survey analysis and interviews following recommendation have been suggested to implement and ensure effective differentiation strategies in Elementary schools in Dubai. Based on these recommendations, this study provides significant contributions for effectiveness of differentiation strategies. Effectiveness of differentiation strategies or instruction can be ensured through:

- Professional development sessions through training and development programs are needed to move from the theoretical phase to the implementation phase.
- Reduce the capacity of students in classes.
- Make use of students' data to differentiate.
- Differentiated activities should include choices to students and ensure that activities are designed to align with the learning targets.
- Teachers should understand their students' needs in order to plan accordingly.

- More support is required for students with determination.
- School needs to provide teachers with more resources to help students specially those who are kinesthetic learners
- Assigning learning support members to give extra support to the ELL students.
- Enhancing use of data analysis of a wide variety of sources by teachers to differentiate and/or modify the curriculum, strengthening the use of appropriate adaptive learning tools, through providing alternative curriculum pathway to students with significantly lower intellectual functioning
- Implementing of Universal Design for Learning (UDL) strategies for all students
- Incorporating all aspects of teaching: content, process, produce, and learning environment, effective differentiation can be ensured. Lastly, implementation of the Multi-Tiered System of Support (MTSS) may help educators to provide academic and behavioral strategies for student with various needs.
- Using data analysis of the external assessment MAP and CAT4 for ensuring teacher's right path in the classroom.
- Designing and sharing particular learning targets in order to improve the student achievement in today's lesson needs.

These recommendations show the answer to the last sub question.

## **5.6 Limitation and Future Research**

This study has limited with a small sample size whereas; it is based on qualitative analysis. A larger sample size may help to determine to what extent differentiation can impact student's learning. Furthermore; quantitative analysis can be formed in order to explore the relationship among teacher's experiences, knowledge, differentiation strategies and student learning. This study has not provided which differentiation strategy is better or should be adopted in order to effective use of differentiation in elementary schools. In addition to that, the study is conducted in unusual situation (COVID 19 pandemic) which affected the flow of the study and prevented the possibility of observations under the normal classroom context. Future researchers can explore most strategies in the context of elementary schools. Limited literature is available that particularly adopted differentiation strategies related to different age ranges. However; it will be more beneficial for future researchers explore detail literature for exploring various techniques that are suited for particular grade levels.

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# Appendix

## 1. Teaching and Learning Policy

### Teaching and Learning Policy

#### I. Rationale:

Our policy consists of the principles, practices and expectations that govern and support the operation of the educational system in the 21st century. This policy promotes best practices and establishes consistency in Teaching and Learning across the whole in all phases. Our aim ensures that all students are provided with a high quality education that offers structure and accountability.

#### II. Introduction

At [redacted] we believe that learning is a lifelong process that should inspire students to achieve their fullest potential and become responsible, innovative and productive global citizens, and ambassadors of their own culture. Our curriculum is aligned with *California Common Core State Standards (CACCSS)* which are educational standards that describe what students should know and be able to do in each subject in each grade. *The Next Generation Science Standards (NGSS)* are K-12 science content standards. Standards set the expectations for what students should know and be able to do which promotes the longevity of a student-oriented teaching and learning process. Standards are aligned with internal and external assessments for all subject areas and are to establish guidelines for improving student learning outcomes through research-based teaching practices.

#### III. TEACHING & LEARNING PRINCIPLES

At [redacted] our teaching and learning principles are built upon our core beliefs and values of International Mindedness, Innovation TeamWork, Integrity and Respect. These beliefs and values are underpinned by our well-balanced and progressive curriculum which is supported by up-to-date teaching pedagogies and enriched by a variety of subject choices and extra-curricular programs. In the Learner Profile, each learner can now share their strengths and challenges in how they access and process information.

The Learner Profile describes the way in which a student learns best and can be used to differentiate topics, methods of learning, and manner of demonstrating learning in a classroom. The Learner Profiles identifies a students background, strength, knowledge, learning style, skills and interest. At NAS, we are committed to shaping the future generation who will be creative independent thinkers, able to adapt their knowledge and skills to the ever changing needs of the technological age and the demands of the 21st century.

#### IV. Understanding by Design (U**o**D)

## Cont. Teaching and Learning Policy

In *Understanding by Design*, Wiggins and McTighe argue that backward design is focused primarily on student learning and understanding. When teachers are designing lessons, units, or courses, they often focus on the activities and instruction rather than the outputs of the instruction.

The Understanding by Design method is a planning framework that when you teach you are more goal oriented and effective when teaching a lesson. The long-term goals should be implemented in short-term planning in order to develop strategic, critical, creative and innovative thinking. It is important for students to self-assess themselves against their academic goals for the school year.

### V. Backwards Design Model

The framework for designing classes and content units called "*Backward Design*." Instructors typically approach course design in a "forward design" manner, meaning they consider the learning activities (how to teach the content), develop assessments around their learning activities, then attempt to draw connections to the learning goals of the course. In contrast, the backward design approach has instructors consider the learning goals of the course first.

The Backward Design Approach has teachers consider the learning goals of the class first. These learning goals embody the knowledge and skills that teachers' want their students to have learned when they leave each grade level. Once the learning goals have been established, the second stage involves consideration of assessment. The backward design framework suggests teachers should consider these overarching learning goals and how students will be assessed prior to consideration of how to teach the content.

The benefits of Backwards Design innately encourages teachers to intentionality focus on the design process. It continually encourages the teacher to establish the purpose of doing something before implementing it into the curriculum. Therefore, backward design is an effective way of providing guidance for instruction and designing lessons, units, and courses. Once the learning goals, or desired results, have been identified, instructors will have an easier time developing assessments and instruction around grounded learning outcomes.

The incorporation of backward design also lends itself to transparent and explicit instruction. If the teacher has explicitly defined the learning goals of the course, then they have a better idea of what they want the students to get out of learning activities. Furthermore, if done thoroughly, it eliminates the possibility of doing certain activities and tasks for the sake of doing them. Every task and piece of instruction has a purpose that fits in with the overarching goals and goals of the course.

**VI. Three Stages of Backwards Design Model:**

**A. Stage 1: Identify Desired Results**

1. What should students know, understand, and be able to do?
  - a) The teachers consider in advance the assessment evidence needed to document and validate that the targeted learning has been achieved. Doing so, invariably sharpens and focuses the teaching.
  - b) Consider our goals, examine established content standards (national, state, district), review curriculum expectations
  - c) Learning priorities are established by long-term performance goals-what it is we want students, in the end, to be able to do with what they have learned.
  - d) Important knowledge and skill objectives, targeted by established standards, are also identified in Stage 1.

**B. Stage 2: Determine Assessment Evidence**

1. How will we know if students have achieved the desired results?
2. The teachers will be able to distinguish between two broad types of assessment-performance and other evidence. The performance tasks ask students to apply their learning to a new and authentic situation as means of assessing their understanding and ability to transfer their learning.
  - a) Students can explain concepts, principles, and processes by putting in their own words
  - b) Students can interpret by making sense of data
  - c) Students can apply by effectively using adapting what they know in new and complex contexts.
  - d) Demonstrate perspective by seeing the big picture and recognizing different points of view.
  - e) Display empathy by perceiving sensitively and walking in someone else's shoes.
  - f) Have self-knowledge by showing meta-cognitive awareness.

**C. Stage 3: Plan Learning Experiences and Instruction**

1. How will we support learners as they come to understand important ideas and processes?
2. How will we prepare them to autonomously transfer and skills will students need to perform effectively and achieve desired results?
  - a) Teachers will plan the lesson and learning activities to address the three different types of goals identified and addressed in instruction; *(T,M,A)*
    - (1) Transfer meaning
    - (2) Making meaning
    - (3) Acquisition of knowledge and skills

## Cont. Teaching and Learning Policy

### **VII. Roles and Responsibilities**

The Principal and School Leadership Team (SLT), Other Staff and the Governors will ensure that:

- All statutory elements of the curriculum and those subjects which the school chooses to offer have aims and objectives which reflect the aims of the school and indicate how the needs of individual students will be met. This includes how the subject should be taught and assessed, the use of language (reading, writing, speaking and listening) and the use of information and communication technology.
- The amount of time provided for teaching the curriculum is adequate.
- Where appropriate, the individual needs of students are met by permanent and temporary disapplication of the set standards.
- The procedures for assessment meet all legal requirements and students and their parents receive regular information to show how much progress the students are making, how they compare with school set expectations and what is required to help them improve.
- Other members of staff will ensure that the school curriculum is implemented in accordance with this policy.
- The governing body will ensure that the following;
  - It considers the advice of the principal and the SLT when approving this teaching and learning policy and when setting goals.
  - Progress towards annual targets are monitored
  - Parents received timely reports on the progress of their child against clearly defined.

### **VIII. Aims of the Curriculum**

The curriculum offered should be broad and balanced and should:

- Cater for the needs of individual students from all ethnic and social groups, with a special focus on Emiratis, including the most able and those who are experiencing learning difficulties.
- Facilitate students' acquisition of knowledge and understanding.
- Foster the values, qualities and skills outlined in NAS guiding statements.
- Be delivered through an exciting and stimulating learning environment.
- Ensure that each student's education has continuity and progression.
- Ensure that there is a match between the student's skills and the tasks s/he is asked to perform.

## Cont. Teaching and Learning Policy

- Make sure of the crucial role which parents play in the children's education and encourage parental involvement in the educational process.
- Teacher delivery will include researched instructional strategies based on student needs and California Common Core State Standards pedagogy utilizing various resources and collaboration.
- Vertical and horizontal curriculum mapping will occur based on predetermined dates within the school's calendar.
- Curriculum related documents will be available through the designated electronic platform.
- Curriculum Adaptation is an ongoing dynamic process that modifies and adapts the prescribed program of studies to meet the learning requirements of students. It enables the teaching team to welcome learners of all abilities and ensures that every student is challenged to learn

### **IX. Outcomes for Students**

Student learning outcomes will be the center of the curriculum to demonstrate knowledge, skills, and appropriate disposition.

### **X. Arrangements for Monitoring and Evaluation**

The principal will review the impact and the effectiveness of the policy developed by the curriculum coordinator. The latter shall follow the goals set by the external accreditation bodies.

### **XI. Monitoring and Evaluation**

The effective implementation of all Teaching and Learning policies will be monitored by the Senior Leadership Team (SLT). The effectiveness and impact of the curriculum policy shall be reviewed and revised annually.

### **XII. Language of Instruction Policy**

The languages of instruction at New Academy School are English and Arabic. English is spoken during English, Math, Science, Physical Education, Special Arabic, Special Islamic Studies, Moral Education Program, Music, Art, and elective courses. Arabic is spoken during Arabic, Islamic Studies, and Social Studies classes.

### **XIII. Instructional Equipment Policy**

Equipment used for instructional courses are to support teaching and learning. Teachers are encouraged to integrate technology to enhance student-centered learning

## 2. The School Inclusion Policy

### 1. INTRODUCTION

School (NAS) is committed to meet the educational needs and raise the achievement of ALL STUDENTS. The school recognizes that all learners are not the same i.e. **Students with Determination** may require supplementary support to fulfill their potential and those who are **Gifted and Talented** may need accelerated learning/enhancement programs.

The school's actions are in line with the United Arab Emirates (UAE) government's *legal and statutory requirements concerning the rights and protection of ALL STUDENTS. These are stated in the following nation's educational agendas, priorities and frameworks and are in line with the requirements of the bodies which are responsible for ensuring and maintaining high quality education in Dubai's private schools.*

- UAE Government Executive Council, 2017

Article 4, 14	Article 13, 16	Article 13, 17	Article 13, 19	Article 23, 04
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- *Federal Law No. 29 of 2006 and Law No.2 of 2014.*
- *Vision 2020 Inclusion My City. My Community a City for Everyone Agenda*
- *UAE National Agenda 2021 on Education.*
- *The Dubai Inclusive Education Framework 2017*
- *New England Association of Schools and Colleges (NEASC) STANDARDS*
- *Knowledge and Human Development Authority (KHDA) STANDARDS*

#### 1.1. New Academy School Inclusion Section Vision Statement

NAS community inspires a passion for learning, where students can achieve their fullest potential and become responsible and productive global citizens and ambassadors of their own cultures. NAS promotes success for all students through strong and effective partnerships with all stakeholders.

The teaching and supporting of students with special educational needs and abilities is thus a whole school responsibility and requires effective communication, and collaboration between all stakeholders to ensure success.

## 2. DEFINITIONS

### 2.1. Inclusive Education

Inclusive education is an ongoing process where every child has the right to a good education. It is concerned with breaking down barriers to learning and increasing the participation of children in school. (The UN Convention on the Rights of Persons with Disabilities, 2006)

At NAS there are significant categories of students of included students, which include students with determination, those that are gifted and talented and students the additional language learners.

### 2.1. Special Education Needs and Disability (SEND)

The term 'special educational needs' is used to describe the educational needs of any one with a disability, disorder, difficulty, impairment, exceptionality or any other factor that may affect a student's access to learning and educational performance. (United Arab Emirates Government, 2018)

(The categories of SEND are outlined in Section 4)

### 2.2. Persons with Determination

Persons with determination are those with attributes of special education needs and disabilities as reflected by their strength of character and their perseverance. (His Highness Sheikh Mohammed bin Rashid Al Maktoum: Dubai Inclusive Education Policy Framework, 2017)

### 2.3. Gifted and Talented (G & T)

These are students who are in possession of untrained and spontaneously-expressed exceptional natural ability in one or more domain of human ability. (Differentiation Model of Giftedness and Talent, 2013)

At NAS these are those who demonstrated uncommonly high potential knowledge and/or skills in one or more academic or non-academic endeavors which include abilities in P.E, Art, Music and ICT. (The categories of G & T are outlined in Section 4)

## Cont. Inclusion Policy

provide for the individual needs of students in a way that recognizes their specific talents, individualized learning styles, backgrounds, and culture. It is thus our aim to overcome potential barriers to learning, to provide quality education for all. Specifically, the three main principles of inclusion at NAS are:

- Identifying and responding to student's diverse needs.
- Overcoming potential barriers to learning.
- Setting suitable learning challenges.
- Ensure positive impact on student's progress.

### 3.2. Implementation of Inclusion

At [redacted] School, we aim to meet the standards needs for the Persons with determination which are in line with the Dubai Inclusive Education Framework.

- **Identification and early intervention**

Utilizing formal and informal methods of assessments to accurately identify students and using the information to inform of the best intervention which will accelerate learning, progress and development.

- **Admission, participation and equity**

Students will not be refused admission only because of student's Special Education Needs and Disability (SEND) condition. Admission into all educational settings, including early years, will not be conditional upon the submission of a medical diagnosis.

- **Leadership and Accountability**

The school governance and leadership will be effective in empowering all stakeholders to develop the attitudes, approaches and strategies that build the expertise and culture where students are welcomed, accepted, valued and well-prepared for their next stages of development.

- **System of support for Inclusive Education**

Ensure high quality support by providing robust systems of support for students and teachers and ensuring quality by setting appropriate targets, providing high quality teaching, providing alternative curriculum pathways and using diverse assessment strategies.

## Cont. Inclusion Policy

Involve all key stakeholders including parents, students and all school staff to work together to ensure all students particularly students with determination are given adequate provisions, accommodations and services they need.

- **Fostering a Culture of Inclusion**

Ensuring there is progress in the development of attitudes, behaviors, systems and beliefs that enable inclusive education to become a norm which underpins school culture and is reflected in attitudinal, organizational and pedagogical discussion and decisions.

- **Monitoring evaluating and reporting**

Utilizing a common evaluation framework to monitor, evaluate and report on the quality of inclusive

educational provision and related impact on the outcomes for students who experience SEND.

- **Resourcing for Inclusive Education**

Ensuring there is sufficient school budget that allows for the procurement of resources and payment of staff and for Continued Professional Development (CPD) for the success of the implementation of an Inclusive Education as well as insure that the facilities comply with

the Dubai Universal Accessibility Code.

- **Vocational Training, Higher and post –School Employment**

Work on the development and organization of post-secondary learning pathways to employment and further or higher education for students who experience SEND to enable them to actively participate in the labor market and society in general.

#### 4. INCLUSIVE EDUCATION CATEGORIES

##### 4.1. DSIB SEND categories (2015-2016)

There are 8 categories of SEND. These are students who have been identified with a SEND supported by a formal diagnosis. However, in the absence of a formal diagnosis NAS does not restrict a student's access to support. A student may be identified with more than one category of SEND, therefore; the need which presents the greatest barrier to learning in school becomes the primary need and additional needs are secondary.

Cont. Inclusion Policy

**Table 1: SEND CATEGORIES**

Behavior, Social and Emotional	Sensory	Communication and interaction	Medical/ health-related
-Attention Deficits Disorder -Attention Deficit Hyperactive Disorder -Oppositional Defiant Disorder -Tourette's -Depression -Anxiety	-Hearing Impairment -Visual Impairment	-Autistic Spectrum Disorder	-Asthma -Epilepsy -Allergies -Diabetes
Physical Disability	Speech and Language	General Learning Difficulty	Specific Learning Difficulties
-Cerebral palsy -Cystic Fibrosis -Spina Bifida -Gross Motor Delay (GM)	-Receptive Language -Expressive Language -Apraxia Global Language Dis	-General Learning Difficulty 1 -General Learning Difficulty 2 -Profound and Multiple Learning Difficulties -Assessed Syndrome	-Dyslexia -Dysgraphia -Dyspraxia -Dyscalculia

**4.2.1. Identification and Screening for Gifted and talented**

Students are screened for abilities using parents' and teacher's observations, informal/formal checklists, semester summative assessments and GL CAT4 exams.

**Cognitive:** CAT 4 has batteries which determine different of cognitive abilities. Grade 3 to 12 students are identified by the GL CAT4 tests based on a scores of 120 and above in the cognitive area.

**Academic Achievers:** The students' internal assessments are analyzed and those obtaining 90 percent or higher in the exams are listed as potential distinguished academic achievers.

**Visual and Performance Skills:** At Tier 1 teachers closely identify students skilled in Art, PE, Music and ICT. The CAT 4 aptitude tests are examined to identify students with potential in the non-academic subjects. These maybe students who are underperforming and the purpose is harness the hidden skills.

**4.2.2. Support for Gifted and Talented**

Strategies are shared by the Inclusion Section with teachers and these outline the best interventions for the identified students. The [3 Tiered](#) steps and procedures for identification and support similar for the determined students are followed. Advanced Learning Plans (ALP) for Tier 3 and Group Advanced Plans (GALP) for Tier 2 students are completed. Opportunities are made for students to excel in their giftedness and showcase their talents skills through internal and external competitions, Science/Math exhibitions and sporting events.

## **5.2. Roles of Inclusion TEAM**

Governor: The nominated Inclusion Governor's duties are to hold school leaders accountable for the improving the provision and outcomes for students with determination.

Inclusion Champion: The inclusion champion oversees the Inclusion Policy Implementation and monitors the impact of the strategic inclusive education improvement plan.

Inclusion Head & HODs and Senior Leaders: Ensure that all students receive the support and guidance that they need to reach their potential. It is expected that the Inclusion Head leads and monitors the Inclusion team under the guidance of the school's Inclusion Champion.

### Inclusion Support Team

The team works in partnership with other stakeholders to form an inclusive education action team.

Social Counselor: Is part of the Inclusion support team and works to establish the positive well-being/good mental health for students by ensuring they are happy and have better problem-solving skills and they are more creative.

### Learning Support Assistants & Inclusion Assistants

Support the facilitations of the provisions, accommodations, interventions, modification, and enrichment of learning that is planned and developed by the school's Inclusion Support Team.

## Cont. Inclusion Policy

### 6.2.1 Procedures at Tier 1 Stage

- Universal screening tools- CAT4 assessments, baseline, formative, summative tests and medical records are examined.

Pre-observations made by all stakeholders mainly the class/subject teachers to enable initial Identification.

- Observation requests made after concerns noted to the inclusion section.
- Discussion, coaching and mentoring with teachers by Inclusion Head.
- Strategies shared with teachers for in- class support and these are uploaded on [schools](#) online collaborative platform Common Drive for teacher's reference.

### 6.2.2. Procedures at Tier 2 Stage

- Teacher completes Referral forms for the students to the Inclusion Head.
- Inclusion Sections administers internal Assessments- i.e. using GL SEN Assessment tool kits and other diagnostic assessments.
- In-class targeted group and or individualized direct instructional support is given to Tier 2 students.
- Students identified as English Language Learners (ELL) are referred to the ELL coordinator by the teacher and are supported using an Individual Learning Plans (ILP).
- Parents are informed regarding progress as well as if there are any planned changes.

### 6.2.3. Procedures at Tier 3 Stage

- Specialized internal assessments and External Specialist Assessments
- IEPs, Behavior Support Plans and Advanced Learning Plans (ALP) are developed for the student by all stakeholders including the student.

## Cont. Inclusion Policy

### **8.1. Individual Education Program (IEP)**

Students on Tier 3 will be placed on an IEP as devised by the Inclusion Head. An IEP is a document which describes the goals that are set for the student during the school year, as well as any special support required to best facilitate their progress and success within the school. The IEP will record only that which is different from or additional to the normal differentiated

curriculum. It is important to include the teachers, parents, as well as the student with determination where appropriate, in developing the IEP to best promote students with determination to achieve to their full potential. The IEP describes the goals the team sets for a child during the school year, short-term targets, teaching strategies, date for review, success and/or exit criteria and the outcomes recorded at review

IEPs will be reviewed per semester and parents will be invited to the review so that they remain actively engaged in what support their child is receiving at school.

### **8.2. Behavior Support Plans**

A behavior support plan is a document created to help understand and manage behavior in students who display behavior that others find challenging.

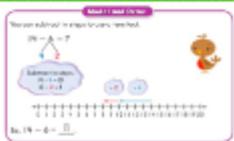
A Behavior Support Plan with a step by step guide is developed after a functional behavior assessment by the SEND counselor. It will make sure the student not only has a great quality of life but also enables support person or teacher to identify when they need to intervene to prevent an episode of challenging behavior.

The Behavior Support Plans are based on the results of a functional assessment and uses Positive Behavior Support (PBS) approaches. The plan contains a range of strategies which not only focus on the challenging behavior(s) but also include ways to ensure the person has access to things that are important to them.

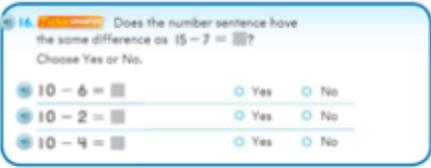
### 3. Lesson Plan A

Semester	Humera CS1, CS2	Week:	11	Duration period:	2 lessons 90 mins	Lesson/ Topic:		B: _____ G: _____
Big Idea:	Use of subtraction in real life							Keywords: Sum Difference Equation
Standard:	CC.2.OA.2 fluently add and subtract within 20 using mental strategies.							
Learning Objectives: (skills/knowledge/attitudes to learn/practice)	I can find differences on the number line to develop the mental strategy of decomposing to simplify facts.							Resources: Websites: think central Teaching Aids: mathematical resources Book Pages: Additional Support (TA):
Lesson Outcomes:	In line with curriculum expectation	Find the difference on the number line					Success criteria:	
	Above curriculum expectation	Solve problem using number line.						
Success criteria:	<ul style="list-style-type: none"> <li>Count back on the number line to find difference.</li> <li>Draw a loop to show each jump and write the size of the jump above it</li> <li>Add all the jump amounts together to find the difference</li> <li>Solve problems to find difference.</li> </ul>							
<b>Starter:</b> (may include Link with previous learning / includes sharing Lesson Objectives and Outcomes)								
<b>Starter Activity:</b> (individual   Pair work   Group Work) (5min): Complete the number sentence.  $10 - 3 = \underline{\quad}$ $10 - 5 = \underline{\quad}$ $10 - 1 = \underline{\quad}$								
<b>Essential Question</b> How does getting to 10 in subtraction help when finding differences?  Ask students how making ten help in finding difference?								
<b>Main Activities:</b> (Including mini-plenaries)								
<b>Whole class activity:</b>								
								
Show number line on the screen demonstrate how to use number line, start from the bigger number and count back, count the jumps to find the difference. <b>Math Talk:</b> Class discussion... Describe the problems and the three problems and answers.								
<b>Activity 1:</b> (individual   Pair work   Group Work) (15min): Students will work on the given number line to find the difference.								
<b>Teaching:</b> <b>Read the following question:</b> Deveron has 13 crayons. He gives 3 crayons to Tyler. How many crayons does Deveron have now? Ask will you add or subtract?								
								Cross Curriculum Integration:
								Link to English: story problems <b>Real World Application:</b>  How can we use subtraction in daily life?
								Connection to Emirati Culture: How would subtraction help you when you go for shopping to global village?
								Internationalism:  How is subtract helpful when you shop online and

Cont. Lesson Plan A

<p>Have children circle the part of the blue line segment on the first number line to show what is subtracted from 13 What is the difference? Read the following question: <b>Diane has 17 crayons. She gives 7 crayons to Anthony. How many crayons does Diane have now?</b> Guide a similar discussion about this problem. Have children circle the part of the blue line segment on the second number line to show what is subtracted from 17 Then read this final problem aloud <b>James has 12 crayons. He gives 2 crayons to Cassie. How many crayons does James have now?</b> Discuss this problem. Have children circle the part of the blue line segment on the third number line to show what is subtracted from 12. <b>Use Math Talk</b> to focus on children's understanding of what is subtracted from a teens number to get to 10.</p> <p><b>Strategy:</b> Draw a number line with numbers 1 to 13 on the board. • Have 13 children stand under the number line so that each child represents 1 number. • Ask: How many do we need to subtract from 13 to get to 10? 3 Have 3 children sit down. • Explain that now you need to subtract 4 from 10. Have 4 more children sit down. • Ask: How many children are still standing?</p>  <p><a href="https://www-k6.thinkcentral.com/content/hsp/math/gomath/common/video/video.html#videoid=ref:En_316">https://www-k6.thinkcentral.com/content/hsp/math/gomath/common/video/video.html#videoid=ref:En_316</a> use math spot on video to clear the concepts</p> <p><b>Differentiated Tasks:</b> <b>Group 1:</b> Use digital number line to find the difference (students to use ICT area) <b>Group 2:</b> Use think central task chapter 3 lesson 3.7 interactive student book. <b>Group 3:</b> Use reteach R3.7 and find the difference.</p> <p><b>Spatial:</b> Create a number line on the floor using colored tape. Ask students to jump backwards and find the difference. <b>Verbal:</b> Students will read the problem sums use number line and find the difference Enrich E3.7 <b>No Bias:</b> use dice and number line to find the difference and write in the copy books. <b>Extension:</b> do page 146 and 147.</p>	<p>pay in different currency?</p> <p><b>UAE National Agenda:</b> (MAP/<b>CAT4</b>/IBT/TIMSS/PISA/PSAT/SAT):</p>
<p><b>Plenary:</b> (Learning Made so far) <b>Type of Assessment:</b> <b>Self-Assessment</b>   Peer Assessment   <b>Teacher Assessment</b> (5 min) <b>Exit slip:</b></p>	

Cont. Lesson Plan A

															
<b>Homework:</b> (As per the homework timetable)															
<b>Comments &amp; Feedback:</b> (students' prior knowledge, things to consider, what worked, desired learning outcomes met, problems, ideas for next time?)															
<input type="checkbox"/> Lesson Objectives achieved <input type="checkbox"/> Lesson Objectives partially achieved <input type="checkbox"/> Lesson Objectives not achieved <input type="checkbox"/> Revisit Lesson Objectives in/on _____															
<b>In Lesson Progress:</b>															
<b>70% of the students performed as per the _</b>															
<b>In Lesson Attainment</b> (including different ability students):															
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 10%;">Class</th> <th style="width: 15%;">Better than expected progress</th> <th style="width: 15%;">At level</th> <th style="width: 15%;">Below</th> <th style="width: 15%;">ELL</th> <th style="width: 15%;">SOD</th> <th style="width: 15%;">G&amp;T</th> </tr> </thead> <tbody> <tr> <td style="height: 40px;"></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Class	Better than expected progress	At level	Below	ELL	SOD	G&T								
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Class	Better than expected progress	At level	Below	ELL	SOD	G&T									

## Lesson Plan B

<b>Semester</b>	□S1, □S2	<b>Week:</b>	<b>Week</b> 23	<b>Duration</b> <b>period:</b>	45 min	<b>Lesson/ Topic:</b>	2-digit subtraction 5.5 and 5.6	B: _____ G: _____
<b>Big Idea:</b>	<b>Use of Subtraction and Problem solving in real life.</b> <b>Driving Question:</b> How can unique and unusual change help us reshape our life and society? <b>Essential Question:</b> How do you record the steps when subtracting 2-digit numbers?							<b>Keywords:</b> Difference Tens Ones Regroup Subtract
<b>Standards:</b>	2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.							
<b>Learning Objectives:</b> (skills/knowledge/attitudes to learn/practice)	Record 2-digit subtraction using the standard algorithm.							
<b>Success criteria:</b>	<ul style="list-style-type: none"> <li>○ Arrange numbers in standard algorithm</li> <li>○ Solve subtraction questions using standard algorithm.</li> <li>○ Use place value and number line to find the difference.</li> <li>○ Apply knowledge of place value to solve word problem.</li> </ul>							<b>Resources:</b> Websites: Online think central app  Teaching Aids: book, tablets  Book Pages: 245 onwards
<b>Starter Activity:</b> (individual   Pair work   <b>Group Work</b> ) (3 min):								<b>Additional Support (TA):</b> TA for support group.  <b>Cross Curriculum Integration:</b> <b>English:</b> Math leveled reader Let's go shopping Read the story and solve
Subtraction board game students will get 3min to put all the answers (bottle caps to the questions on board.								
<b>Main Activities:</b> (Including mini-plenaries)								
<b>Activity 1:</b> (individual   Pair work   <b>Group Work</b> ) (10 min):								
<b>Teaching:</b> Demonstrate how regrouping in subtraction is done using standard algorithm. Use questions from share and show student <u>e-book</u> page 246.								

## Cont. Lesson Plan B

<p><b>Main Activities:</b> (Including mini-plenaries)</p> <p><b>Activity 1:</b> (individual   Pair work   Group Work) (10 min):</p> <p><b>Teaching:</b> Demonstrate how regrouping in subtraction is done using standard algorithm. Use questions from share and show student e.book page 246.</p> <p><b>Listening activity :</b> Students will listen to the question and write the answer in their copy books. They can use any strategy they want. <b>Devin had 36 toy robots on his shelf. He moved 12 of the robots to his closet. How many robots are on the shelf now?</b></p> <p><b>Checking for understanding:</b> Go around and check their understanding.</p> <p><b>MATH TALK:</b> Explain how you know when to regroup?</p> <p><b>Differentiated Tasks:</b> Students will use learning menus to choose the activities they want to do. Explain how learning menus are <u>used</u> (tic-tac-toe) they will choose three activities in a row (horizontally, vertically, diagonally).</p> <p><b>Activity 2:</b> (individual   Pair work   Group Work) ( 27 min):</p>	<p><b>Gross Curriculum Integration:</b></p> <p><b>English:</b> Math leveled reader Let's go shopping Read the story and solve the problems.</p> <p><b>Real World Application:</b> Use of addition in real world includes: Calculating daily expenses Calculating the pocket money Spending on theme parks and shopping. Spending in the school canteen</p> <p><b>Connection to Emirati Culture:</b></p>
<p>[Type text]</p> <p>Differentiated menu cards will be provided with appropriate manipulative per group. Students will have 2mins to decide on the activity and start, display timer to avoid delays.</p> <p><b>Plenary:</b> <b>Type of Assessment:</b> (Self-Assessment   Peer Assessment   Teacher Assessment) ( 5 min) <b>Exit slip:</b> Complete the think smarter sheet along with success criteria. Students completing the 4<sup>th</sup> point of success criteria must highlight it on SC sheet. (evidence in copy book)</p> <div data-bbox="338 1115 801 1191" style="border: 1px solid #ccc; padding: 5px;"> <p><b>8. (2/2/20)</b> Marissa had 51 toy dinosaurs. She gave 14 toy dinosaurs to her brother. How many toy dinosaurs does she have now? (2/2/20)</p>  </div>	<p>Imagine you are tourist in Dubai make a list and calculate how much you intend to spend on your trip in Dubai?</p> <p><b>Internationalism:</b> Use of subtraction all around the world. Currency exchange</p>

## Survey:

How do you define differentiation?

Differentiation means to differentiate for different abilities of students, it can be in instruction not only material.

4 responses

Tailoring instruction, class activities, content, teaching style to meet individual needs,

1 response

توفير بيئة تعليمية وأسلوب تعليمي ومادة علمية تراعي اختلاف وتباين مستويات الطلاب

1 response

Catering to students' needs with consideration to their learning styles and academic levels.

1 response

Different abilities , skills and levels .

1 response

عبارة عن اخلاف في مستوى الطلاب التعليمي منهم المتميز والمتوسط والضعيف

1 response

Meet the needs of students with different levels

1 response

Cont. Survey

Differentiation means tailoring instruction to meet individual needs. Whether teachers differentiate content, process, products, or the learning environment, flexible grouping makes this a successful approach to instruction.

1 response

Differentiation is a process of utilizing and applying observation (internal and external), assessment data on a child /children, to create a variety of specifically created plans to meet all needs. This applies to academic, personal, social, emotional and overall well-being needs of an individual child or a group of students.

1 response

Assigning tasks to students according to their cognitive levels

1 response

Diferentaition is defined as accomadating students based on their learning style to aheive the target

1 response

I look at it as a lesson adaptation used to teach diverse groups of students who have different learning needs for a particular lesson. It could also be giving students the liberty to choose their learning environment - individual study, pairs or groups during the same lesson. It's making them comfortable in their learning.

1 response

The different levels of ability to process skills between children

1 response

Accomodation ro different learning styles

## Cont. Survey

In your point of view, what are the challenges that might face teachers when they differentiate?

Teachers might not have the knowledge how to properly differentiate.

4 responses

The needs of students with diverse backgrounds and disabilities, Differentiated instruction requires more planning time, more analysis time, and more re-teaching time Teaching colleagues rarely have sufficient time to plan together and learn from each other-not to mention time to break down the topic into their levels.

1 response

Most only use differentiated worksheets when accommodating students learning environment is also important. But we stick to our comfort zone and don;t want to do more than the bare minimum.

1 response

Some paid websites have a variety of resources to use differentiated resources and the school doesn't provide teachers such resources which is a challenge for a teacher.

1 response

Knowing exactly their students capabilities, lack of knowledge on how to differentiate according to different levels, lack of resources

1 response

Planning activities for low achievers/ ELA students to meet the learning objective sometimes is very difficult.

1 response

Requires much more lesson-planning time for teachers and may require more resources for a school.

1 response

## Cont. Survey

special needs that they do not have an assistant , time always is the challenge ,

1 response

Time limit, seating arrangement, lack of appropriate resources etc.

1 response

ضعف معلومات المعلم عن الطرق المتعددة لمراعاة مستويات الطلاب

1 response

High no of students increase the no. Of learning levels

1 response

searching for different activity based on child's need.

professional staff, resources, number of students

1 response

تنوع الأنشطة - وتنوع الأسئلة الموجهة للطلاب

1 response

Quantity should not dwarf quality

1 response

Process- flexible pacing

1 response

Students finish early