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Implementing Differentiation in Early Education: The Impact on Student's Academic Achievement

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Abstract
The purpose of this study was to investigate and examine the impact of implementing differentiated instructions on the learners' academic achievements in kindergarten classrooms. The study employed the quantitative experimental design to either reject or accept the research hypothesis based on a sample of 28 students in a 3 weeks implementation process. The results revealed a statistical significance difference between the results of the experimental group learning through differentiated instructions and the control group learning without differentiated instructions. Hence, the outcome of the research discloses a positive impact of differentiated instructions on the learners' achievements.
Keywords: differentiated instructions, early education, academic achievement

INTRODUCTION

Today, more than ever, educators are aware that outdated teaching systems and approaches are extremely outrageous. Rather than following the traditional top-down or the one-size-fits-all approach that prevailed the schooling system in the past, the twenty-one first century educators are intensely urging to implement a more flexible and effective system that gives value and equality to each learner- regardless of any diversity. As McBride (2004) clarifies "the use of the one-size-fits-all curriculum no longer meets the needs of the majority of learners." In fact, according to the Gladstone Web site (as cited in Inoue, 2005, p. 3), "the diversity ranges between race, gender, age, physical abilities, religious and/or political beliefs and any other ideology."

There is no doubt that psychologists, counselors, instructors, teachers and even parents nowadays believe in the uniqueness of each learner even within a distinct classroom and thus in the necessity of adopting an approach to education that as Patterson (2003) suggests "strives to meet unique and fundamental human needs and develop human potential."

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McCombs & Miller (2007) argue that "each learner learns through a unique combination of factors, including "heredity; temperament; experiential history; beliefs, values, and perspectives; talents; interests; capacities; and needs". Consequently, these inevitable diversities in personality and learnings styles present in a mixture of students within a single classroom advocate the importance of implementing differentiation instructions, an advanced method of teaching that meets the educational needs of every learner. As Bender (2012) argues "the diverse learning characteristics displayed by students in today's schools make it necessary for teachers to implement a wide variety of activities in their classes."

This research paper is aiming to examine the crucial importance of implementing differentiation in the 21st century classrooms and its impact on students' academic progress.

Context of the Study

The first section (Historical Background of Al Makassed Dawha School) provides a brief historical background of Al Makassed Dawha School along with its vision, mission and values. The second section (Overview of Education Reform at Al Makassed Dawha School) examines the education reform being conducted in the last couple of years.

Historical background of the Al Makassed Dawha School

Operated by The Makassed Islamic Philanthropic Society in Saida, Dawha School is a private high school located in the South of Lebanon, in Saida city since 1956. Including all the cycles from preschool to high school, the school was originally entitled "Al Makassed Islamic School for Girls". In 1962, both the preschool and elementary departments were transposed to another building, forming a new school called "Al Makassed Islamic School and Dawha for Girls". In 1966, the school renamed again became what we know now as "Al Makassed Dawha School". The vision, mission, and values of Al Dawha School are stated on the school website as follows:

The vision of Al Dawha School is:

"The learners at Al Makassed Dawha School are capable of facing the challenges of the day. They are lifelong learners, fully equipped with the necessary knowledge and skills to pursue higher education while employing the methods of inquiry, analytical thinking and logical analysis. They show responsibility, integrity, respect to others, and love for their country. They are always up to date with the latest technological trends and fast adapting to the local and global changes."

The mission of Al Dawha School is:

"Al Makassed Dawha School aims at raising responsible individuals, capable to make a difference in the local and global surroundings by providing them with necessary scientific, literary and technological knowledge, as well as strengthening the criticism and thinking and analytical skills in contact to their real life while exhibiting positive attitude, responsibility, integrity and respect for themselves and others."

The values of Al Dawha School are:

"Cooperation, Compassion, Honesty, Responsibility, Trust, Tolerance, Innovation, Independency, Integrity, and Transparency"

Overview of education reform at Al Makassed Dawha School

Based on the concept of "effective classroom ecology", Al Makassed Dawha School, for the last few years have been reforming and modifying its educational methods to be able to accomplish its vision and mission and thus raise "responsible individuals, capable to make a difference in the local and global surroundings".

Responsive approach

As a first step towards reforming, the school has been implementing inside their classrooms a culturally responsive approach (RC) for three years now in hopes of better teaching and learning experiences. Launched by the Northeast Foundation for Children (NEFC) in 1981, the responsive approach is best described as a set of practices that teachers can use to help students acquire academic and social-emotional skills throughout the day, every day (NEFC, 2014). Interestingly, thus this approach believes that the academic learning of students is absolutely equivalent in importance to their social learning and therefore, the failure to nourish one hinders the thriving of the other. Knowing the children we teach—individually, culturally, and developmentally—is as important as knowing the content we teach" (NEFC, 2014).

In fact, the responsive approach includes six chief mechanisms that help build the envisioned culture through incorporate teaching, learning, and caring in their daily lives. According to Wood (1994), the highlighted components of the RC approach are: classroom organization, morning meetings, rules and logical consequences, choice time, guided discovery, and communication with parents.

Social- emotional learning

Since the responsive approach is regarded as an SEL intervention approach, Al Makassed Dawha School added last year a "Social and Emotional Learning" program to ensure that the learners are not only showing academic progress but also developing socially and emotionally. The program tackles different topics that include but are not limited to "calmness and focus, motivation and positive thinking, stress management and conflict resolution, communication and teamwork."

Protected safety program

Al Makassed Dawha School have been teaching the protect-ed program published by Kids-proof Safety, the worlds' largest child safety education provider. This program that starts from prekindergarten to grade 12 "strives to make safety education relate to all aspects of children's lives, giving them hands-on activities, skills and resources to continue to make lifelong safe choices." (Safety, 2016)

With the emerging of different theories that tackle the different learning styles of the learners and their multiple intelligence, the educators, as the researcher previously mentioned, ought to shift their educational methods and approaches to a more modern one. As Levine (2003) cites "traditional methods used by teachers often focus on exposing

and remedying deficits, setting up some students for a pattern of failure." Therefore, instead of preparing a single content, a single instructional process and a single assessment tool to all the students, modern teachers should understand their learners' preferences and abilities in order to implement the suitable instructions that tailor the learners' diverse needs. In other words, because not all the students learn in the same way, the same pace, and at the same time, implementing differentiation instruction is perhaps the best resolution to ensure that all the learners are getting the help and support needed to accomplish their academic goals.

Teachers, even those holding on to traditional methods, understand that the learners are different individuals and can never be a homogenous entity. Pinter (2006) described these classrooms stating that "mixed ability classes can be large or small, with vast or little variation in ability" and hence "the teachers must learn to cater to various student needs within the same class". In fact, teachers know that it's the learners' right to be given an equal opportunity to learn even if their level of abilities isn't the same as others. The purpose of this study is to show the importance of implementing differentiation instructions and its relation with respect to students' achievements.

The researcher found numerous research studies and articles that tackle he concept of differentiation worldwide since the 2000. However, perhaps, due to the old-fashioned curriculum and teaching methods, very few studies regarding differentiation have been conducted in the Lebanese context. The researcher was able to find limited articles published in the last two years as "Differentiated Instruction: A way of Rethinking Education" (Ramadan & Kawtharani, 2015), "Differentiation Instructions: The Effect on Learner's Achievement in Kindergarten" (Kotob & Arnouss, 2019) and "The Influence of Differentiated Instruction on Academic Achievement of Students in Mixed Ability Classrooms" (Kotob & Abadi, 2019).

Through this paper, the researcher is trying to familiarize people with the concept of differential instructions because of its progressive impact on students. The purpose of this paper thus is to examine the prominence of differentiating instructions in classrooms to motivate the learners helping them achieve better academic success rates.

A major research question will guide this study and to further investigate it, the researcher developed the following hypothesis:

- Question: Does implementing differentiation in the classroom affect the learners' academic progress?
- Null Hypothesis (H_0): Implementing differentiation in the classroom affect the learners' academic progress positively.
- Alternative Hypothesis (H_1): Implementing differentiation in the classroom doesn't affect the learners' academic progress.
  Variables: differentiation approach (independent); academic progress (dependent)

This study clarifies the importance of using differentiation in the 21st classrooms to optimize the learning experience for each learner. Moreover, this study can be regarded

as a guide for teachers willing to start implementing differentiation in their classrooms as it defines the concept of differentiation along with its types, approaches and examples.

The researcher in this study currently serves as a preschool homeroom teacher at Al Makassed Dawha School, and thus being in daily contact will learners, the researcher will be able to the examine the impact of implementing such an approach on students' academic progress. The researcher is a preschool teacher at the chosen school and thus observing and collecting data was easier and more accurate. Moreover, the researcher has been attending professional development sessions for differentiation for two years now and is capable of implementing it smoothly.

The unstable political and economic crisis that Lebanon is facing since 17 October directly affected the study because schools have been opening irregularly and thus the teachers and unfortunately the students are perplexed and demotivated to come to school and learn. Thus, differentiation was a bit hard to apply in the estimated duration. The researcher eventually had to modify chapter 3 and eliminate some activities and worksheets.

LITERATURE REVIEW

This chapter reviews literature related to differentiation instructions that teachers implement in their classrooms and its role in increasing the students' motivations and enhancing their achievements. Specifically, the literature review includes the following topics identifying its scope: (1) differentiated learning- definition, core approaches and components, related theories with a follow up reflection in the context of Al Makassed Dawha School (2) the impact of differentiation on students' achievement (3) review of different studies related to differentiated instructional and (4) a summary.

Theoretical Framework

In today's globally complex and hasty- changing world, teaching continues to be an extremely challenging and inspiring profession. Not only did the teachers' roles and responsibilities solely evolve in the twenty-one first century but also their teaching methods and strategies. Because teachers believe that students are the most important element in the educational system and that they are the heart of the classroom, they realize nowadays that each student possess different abilities and skills. This mindset and perspective have led consequently to the emerging of a new educational term that is "differentiated instructions" that according to Hart (1996) penetrated in teachers' professional language in late 1980s. In fact, the model of Carol Ann Tomlinson, an elementary school teacher of 21 years, has been undoubtedly regarded one of the most remarkable models of differentiated instructions due to the rational and feasible framework that Carol presented.

Differentiated instructions

Albeit differentiation is a wide term that encompasses numerous components and ideologies, numerous yet similar definitions have been used to define differentiation instructions since it appeared in the nineteenth century. Blaz (2006) argues that differentiation "is not really a method; it's a way of thinking about teaching and learning

and there are many ways a teacher can do that." Pollard (2002) defines that differentiation means "to use different strategies to meet the academic needs of the students." Ziebell (2002) adds that differentiated instruction is a "way of teaching in which the teacher provides multiple entries that meet the needs of each learner in the classroom, in order to maximize the students' potentialities." Similarly, Al Shokirat (2009) describes differentiated instruction as an instruction that takes into account the abilities and experiences of all categories of learners in the classroom.

In sum, differentiation instruction is a "philosophy of teaching that is based on premise that students learn best when their teachers accommodate the differences in their readiness levels, interests and learning profiles" (Tomlinson, 2005). Breaking down all of these definitions, there are basic components in the differentiation instructions. Differentiation learning thus is a (1) philosophy and a way of thinking, (2) involves different strategies, (3) respects the different abilities and (4) occurs in mixed-ability classes.

Differentiation for student characteristics

A cyclical phenomenon, differentiated instructions has become a crucial component in the education scene in this time and age. No longer is implementing differentiation a matter of choice but rather a compulsory act due to the diversity and variances in students in classrooms. Whether the differences are the result of the ethnic or social backgrounds that the students come from or the values and beliefs that they were raised on, or simply the different interests and capacities that they have, teachers can no longer deny the wide differences in students and thus the need to tailor their teaching methods and strategies to meet their learning needs. In fact, Stradling and Saunders (1993) emphasize that "educators no longer have a legitimate choice about whether to respond to the academically diverse populations in most classrooms; rather, they can only decide how to respond". It's worth mentioning however that its unquestionably crystal-clear that the learners with all their differences share undoubtedly many similarities as in hobbies, likeness, and to some extent personalities.

In a heterogeneous classroom, teachers planning differentiation that is student-centered should take into consideration three main differences in students that are "interests, readiness and learning profiles". As Tomlinson and Eidison (2003) assert "Taking these factors into account allows teachers to make sure that each student receives, and is able to demonstrate, learning in a way that fosters engagement and meets his or her unique learning needs, thereby increasing the chances of each student achieving success in learning."

Readiness or preparedness

As Hall (2009) defines it, "readiness is an evaluation of the student's prior knowledge, understanding, and current skill level." The learners' readiness is the result of several aspects as their cognitive proficiency, prior knowledge, life experiences and even their attitude towards the school – in precise towards the teachers. Hence, it's the teacher's role and even duty to know the readiness levels of the students and thus put a plan accordingly. John Dewey, an American educational reformer, was perhaps one of the first

few to argue that "education must begin with a psychological insight into the child's capacities, interests and habits." (Dewey, 1897) Moreover, the prominent psychologist Vygotsky (1986) proposed that an individual learns in his or her "zone of proximal development. In other words, each learner learns in his own pace and it's the teacher's job to create learning activities and experiences that match the learners' inputs and capabilities, in other terms, the zone of proximal development. In addition, the teacher should make sure that the students' tasks are neither too difficult nor too easy but challenging enough. In addition, the National Research Council (1999) study indicated that "Challenges…must be at the proper level of difficulty in order to be and remain motivating: tasks that are too easy become boring; tasks that are too difficult cause frustration". Perhaps, the concepts of "tiered assignments" and "scaffolding" are the most helpful in understanding the differentiation instructions based on readiness and hence the students' zone of proximal development.

Interest

Unquestionably, each learner has his/her own preferable topic that he/she would like to learn about. Student interest refers to "that which engages the attention, curiosity, and involvement of a student" (Tomlinson & Imbeau, 2010, p.16). Engaging the students in tasks and activities that meet their interests not only engage the learners more in the learning process but also help the learners find new interests. Tomlinson et al. (2003) point out how interest-based study is tied to motivation and appears to have a positive effect on learning. Likewise, Adami (2004) ensures that "differentiating by interest assures that students are afforded opportunities to use material that is relevant to their own experiences and is a good source of motivation."

Learning profiles

*"*Multiple intelligences, learning styles and student characteristics that are often used synonymously" (Bender, 2012) are perhaps the central features that influence the learners' learning profiles. Learning profile refers to the mode the student prefers to learn. This can be affected by numerous variables, for example learning style, gender and culture (Tomlinson et al., 2003). There is no doubt that not all the learners share the same learning preferences and it's the teachers' responsibility to accept and work according to the individual's own preference to enhance the learning experience. For instance, while some students prefer working alone, others prefer to interact in pairs or work in flexible groups. Consequently, although it definitely requires more work and preparation, teachers should try and provide equal opportunities through providing learning activities that covers all of these preferences. In addition, many researchers have investigated the learning styles by giving this issue of great importance to education, and more than 70 new learning style concepts [were] being verified (Coffield at al. 2004).

Unquestionably, Tomlinson's model of differentiation instruction is linked to Gardner's theory of multiple intelligence. According to Gardner (1983), "intelligence is the capability or talent to work with, apply or manipulate new information, to resolve an issue or to construct a new commodity." He (1993) introduced eight types of intelligences, that are: "verbal-linguistic, logical-mathematical, musical, spatial, bodily-

kinesthetic, naturalistic, interpersonal, and intrapersonal." While Armstrong (1994) explains that the learners possess all of these intelligences at a certain level, Gardner (1993) clarifies that "one tends to be the strongest and usually becomes the preferred learning style." Since the learners learn differently, once again, it's the teachers' responsibilities to plan and provide different learning centers that cover these intelligences frequently. Retting (2005) supports this idea by suggesting that "teachers should include at least few intelligences in lesson planning on daily basis." While students with logical mathematical intelligence learn through reasons and numerical patterns, a student with kinesthetic intelligence will learn through moving his body or physical objects, and so on. Finally, knowing the learners' learning needs and styles is a crucial step towards fulfilling these needs and as Brualdi (1998) frames it "Linking the multiple intelligences with a curriculum focused on understanding is an extremely powerful intellectual undertaking."

Differentiation for curriculum

Knowing the learners' learning characteristics is the first step towards implementing differentiation yet to ensure effective differentiation, teachers should modify or accommodate basic curriculum elements that are "content, process, and product" but can also include affect and learning environment. Differentiation of these elements in the classroom should be done in line with the students' "readiness, interest and learning profile" (Sousa & Tomlinson, 2011, p.13)

Content

As said earlier, differentiation doesn't change what is taught but the way the teaching process takes places. Differentiated instruction as Levy (2008) points, "allows for variation in content without losing sight of the curriculum to which all children are entitled," (p. 162). Accordingly, content is "the information students need to learn" (Hall, 2009). In other words, teachers can never differentiate the whole content given to each student but rather they can modify it "quantitatively or qualitatively".

Process

Accordingly, process thus includes how the teachers teach the learners based on their learning preferences and characteristics. It includes opportunities, "for learners to process the content or ideas and skills to which they have been introduced," (Tomlinson, 2001 p. 79) again based on their interests, abilities and aptitudes. In other words, process is the *instructional* methods and learning activities that the teachers implement through tiring activities to engage all of the learners despite their differences.

Product

Clearly, product is the outcome of what the learners' learned. As Hall (2009) clarifies, products are the " assessments or evaluation criteria used to determine what students have learned and understand." Since teachers differentiate the content and the process based on their students' interests, readiness, and even their learning styles and characteristics, it's clearly understandable that they should also differentiate the product and outcome of the learning experience. Hence, the teachers should allow the learners to

show their level of understanding in different methods instead of limiting the learners to a specific assessment. For instance, while tests were regarded as the only way of assessment in the traditional classrooms, discussions, projects, research, games are some of the new assessment forms that the teachers are using to measure the level of understanding of the learners.

Differentiateon in the context of Al Makassed Dawha School

Believing in the impact teachers have on their students and believing that "each student is unique is his/her own kind of way", Al Makassed Dawha School have been differentiating the teaching and learning process easily. Classroom management and the teacher-students' relationship are undoubtedly of extreme importance when it comes to differentiation. Ainslie (1994) emphasized the importance of creating a relaxed, positive atmosphere in the classroom. Thereby, responsive teachers who already know their learners and whom are trusted and loved face no difficulties in differentiating and planning various tiered tasks in different learning stations. In other words, "culturally responsive teachers implement practices of co-construction of knowledge, building on students' personal and cultural strengths, helping students examine curriculum from multiple perspectives, using varied assessment practices, which promote learning, making the culture of the classroom inclusive for all students" (Villegas & Lucas, 2002).

The teachers at Al Makassed Dawha School have been attending different workshops related to inclusive learning in order to be able to successfully implement differentiation given students equal opportunities to engage and enhance their learning process. As Haim Ginott says "teachers create the environment in their classrooms and possess the power to make a child's life miserable or happy but most importantly, teachers are part of a team that believes that all students are capable of learning" (Logan, 2011)

Student's academic achievement

Though might may use these three terms interchangeably, "academic achievement, performance and outcomes" are of different meanings. Due to the absence of a clear definition, various researchers as Richard (2000) actually used them interchangeably while others as Mark and Ainley (1999) didn't. Lawrence (1998) distinguished achievement from performance when he stated that academic achievement is a long-term ('end") while academic performance is measurable at any point in time (continual)" and thereby distinguishing between what's easily measured on daily basis and what not. There is no doubt however that performance influences achievement. Learning outcomes, determined by the vision and mission of each school, on the other hand, are measured by academic achievement and accountability (Steve, 2000).

The focus of this study is on the academic achievement that Rodrigues defines as "the student's school results" (Novo & Calixto, 2009) while Simpson and Weiner (1989) describe it as a "measurable behavior in a standardized series of tests. Similarly, Bruce and Neville (1979) believe that "educational achievement is measured by the standardized achievement test developed for school subjects." Accordingly, "achievement" is directly linked to the "attainment and fulfilment" of the learning goals.

Academic achievement levels

As the researcher mentioned before, no two students are alike. They differ in their readiness, learning styles, interests, personality traits, intelligences and hence their learning abilities and capabilities. In fact, the learners' academic achievements are affected by different factors as the teacher's pedagogical knowledge, peer influence and the classroom environment.

Since all of these differences affect the learners' achievements, learners are grouped differently under mainly two levels of achievements, high and low. Albeit they differ in various aspects, all of the learners certainly have a responsibility to exert efforts in their learning experiences. In addition, high and low achievers both use learning strategies and learning mechanisms although, according to researchers, "at different frequency rates".

High achievers

It's commonly known that the learners who show successive academic achievements by attaining high marks in assessments are referred to as "high achievers". These learners reveal, according to Sawar et al in 2009 "better study orientation, study habits and attitude towards study than low achievers (Jabeen & Ahmad, 2013). In this manner, high achievers are those proficient learners who not only exert enormous efforts to stay organized and active in the classroom but also work hard at their homes most of the time. Inaccurately, some educators and instructors use the terms "high achievers" and "gifted students" interchangeably. Gagne (1995) who proposed the "Differentiated Model of Giftedness and Talent" defined giftedness as the "possession and use of untrained and spontaneously expressed superior natural abilities or aptitudes at levels significantly above average in one or more of the following domains of human ability: intellectual, creative, social, and physical." By describing the meaning of "giftedness", Gagne highlighted the need to use the terms "gifted", "talented", and "high achiever" correctly. Thus, "gifted students are not necessarily high achievers; and, vice versa, there are many high achievers who are not necessarily gifted" (Bar-On & Maree, 2009).

Interestingly, differentiating through tiered learning activities is a must even with students of the same level of achievement. Researchers such as Freeman (1998) have shown that highly able students are not a homogeneous group whether in terms of learning style, creativity, speed of development, personality or social behavior". Undoubtedly, this implies for the moderate and low achieving groups as well.

Low achievers

Because a number of factors hinder the learning process, low achievers or underachievers are students who fail in reaching the expected level in a mixed ability classroom and thus they are considered unsuccessful and slow. Charabarty and Saha (2014) deduced that these "factors can be either psychological or physiological, which might be multidimensional in nature." Outlining characteristics, researchers such as Normazidah and Koo (2012) consider that low archivers are dependable, unmotivated and lack enough pre-knowledge. Having low self-perceptions in fact intensifies the negative attitude that the low achievers have towards school and learning. Here, another

evidence of the importance of implementing differentiated instructions to show value and worth to each learner, to improve the learners' self-confidence and to motivate them to engage in the learning process. By starting with the learners from where they are, the teacher can guide the low achievers and help them enhance their learning experience. In addition, giving students enough time to grasp and learn is a must in order to give equal chances and respect each learner's ability. While high achievers might grasp the concept through one activity, the low achievers might take more than that to fully understand the concept and this should be OKAY. In such situations, it's important that the teacher tiers the learning activities in resources, process or at least complexity.

Classrooms can never go back to being rote-learning or teacher-centered teaching because teachers, educators and even parents nowadays understand that each learner is a unique entity with different characteristics, preferences and beliefs. Consequently, teachers recognize that their heterogeneous or mixed-ability classrooms are full of high, moderate and low achievers that react differently to learning process and hence require differentiated instructions.

None should deny the importance, no, the necessity of implementing differentiated instructions that match the learners' abilities, capabilities and interests and thus motivate and instill within them a positive attitude towards learning. It's the teacher's challenge to know his/her learners' characteristics and plan her differentiated teaching strategies based on the learners' learning needs, keeping in mind that differentiation can be based not only on readiness, interest, learning styles but also on content, process and product.

Related Studies

Differentiated instructions (DI) undoubtedly is one of the most recent controversial issues in the education field. Accordingly, the researcher will be tackling differentiated instructions studies, books, and articles within a limited time period from 2014 to 2019.

Studies related to the different practices of differentiated instructions

Showing the importance of differentiated instructions within mixed ability classes in their review article, Pozas and Schneider (2019) offered not only a summary of the chief models of differentiation in history but also evaluated the diverse DI practices that teachers implement in their classrooms. Whether it's Tomlinson's, Halls or Lawrence-Brown's models, Pozas and Schneider through a descriptive design tackled differentiation through its most important practices: "Tiered Assignments and learning aids, students grouping and learning grouping, curriculum compacting and open education". Concluding, they urged teachers to not stick to one or two of these practices but rather combine all of them taking into consideration their learners' unique differences, abilities and thus learning needs. Likewise, the study piloted by Kamarulzaman et al. (2017) acted as a guide that teachers can refer to in order to know more about differentiation strategies in classrooms.

Aftab 's study (2015) which was based on quantitative method not only reviewed some of the theories that inspired or empowered the implementation of differentiated instructions as the theory of Multiple intelligence but as different other researchers as

Dijkstra et al. (2017) highlighted the importance of teachers' perspectives and roles in mixed ability classrooms. Through questionnaires and open-ended questions, the researchers concluded that teachers should have a positive mindset and attitude towards differentiation in order to plan efficiently giving students the chance to thrive. Similarly, both studies highlighted the challenges and factors that hinder the implementation of DI in classrooms. Dijkstra et al. (2017), while employing a quantitative and qualitative method, presented examples of teachers still clinging to the traditional methods of teaching and hence exhibiting a negative attitude towards implementing differentiation. In these cases, implementation was unsuccessful and the students' achievements didn't vary. Aftab however discussed another factor which is time because it delays the curriculum plan assuring that the more time the teachers are given, the better the results will be. According to Robinson et al (2014) teachers have a positive attitude towards implementing differentiation because it helps students achieve their goals. The study suggests that teachers need only professional development sessions and trainings in order to implement differentiation easily and smoothly.

Moreover, various studies as Khan and Jahan (2017) and Birnie (2015) asserted the effectiveness of using differentiation within classrooms assuring the teachers that implementing isn't easy yet not impossible. Arguing against the falsities teachers have regarding differentiated instructions, Birnie (2015) made a sold case that supports and even encourages teachers to differentiate in classrooms.

Lindner et al. (2019) investigated the significance of differentiated instructions and personalized teaching methods in inclusive classrooms also concluding that tailoring the learning to fit the learners' needs is the most beneficial teaching method.

Studies related to the effect of differentiated instruction on students' achievement

Whether differentiated instructions affect the students' academic achievements or not has become a arguable question in the educational field. Collecting data from descriptive surveys observations and questionnaires, Shareefa et al (2019) argued that differentiated instructions should be implemented by all teachers and not only special education teachers dealing with special cases or low achievers because the results in such learning environment are foreseeable. A queasy- experimental study conducted by Mavidou and Kakana (2019) investigated the impact of differentiation on kindergarten learners through individual interviews while teachers applied differentiated instructions whether on its readiness, interests, learning profile or content, process and product. In fact, the results revealed a positive relationship between DI and learners' success and achievements. On the other hand, the studies conducted by Kotob & Abadi (2019) and Iterbeke et al. (2019) explained that the implementation of differentiated instructions help the low achievers enhance their level of achievements but doesn't affect the high achievers' progress.

In addition, Pablico (2017) who interviewed six teachers implementing differentiated instructions concluded in her findings that the all of the teachers shared a positive perspective regarding DI insisting that the teaching strategy improved the learners'

learning achievements. Stavrou and Koutselini (2016) examined the positive impact differentiated instructions has on learning through comparing and contrasting pre and post interventions that showed a positive change.

Studies related to the effect of differentiated instruction motivation on academic achievements

Freedman 's (2015) qualitative study offered a guide to implementing differentiation since it showed the important strategies that teachers can follow as direct instruction and students grouping. What's more important, however, is the study's finding regarding the learners' response to these differentiated instructions. Freedman (2015) revealed that the learners are more engaged and energized to come to school and be active in the learning process because these instructions provided them with different tasks that fit their interests, abilities and learning styles. Similarly, Pablico (2017) and Hapsari et al. (2018) state in their studies that the students showed positive mindset and perspectives towards differentiated instructions since differentiated tasks reflect their own learning preferences and learning interests. Although researchers and educators believe that differentiation is basically for low achievers, Kamarudin et al. (2017) proved that differentiated instructions affects positively even gifted and high achievers. In fact, differentiating and tiring tasks and activities increases their level of motivations and accordingly, their achievement. Similarly, Meyad et al. (2014) collected data through a questionnaire revealing that implementing differentiated instructions within classrooms motivates the learners and thus enhances their learning abilities.

Based on the above, implementing differentiation can be extremely challenging if teachers aren't willing to change their rote-learning techniques. However, it's not that bewildering to teachers who believe in significant and constructive impact that differentiation have on students' learning experience. In fact, the studies and articles conducted in the last few years indicated the positive relationship between differentiation and students' achievement and motivation levels.

METHOD

This study is classified as quantitative experimental design as it analyzes data collected from experimental condition and classroom observations in a period ranging approximately between three weeks to evaluate the impact of differentiated instructions on students' progress in a mixed ability classroom. Applying experimental condition in the research, the researcher will divide the learners into a controlled condition and experimental group to compare-contrast the results.

The researcher selected Al Makassed Dawha School in Saida to conduct the research. Employed as a teacher in the school, the researcher's observation and data collecting will be easier and more accurate. As for the study participants, the researcher chose 28 kindergarten learners, mainly 16 boys and 12 girls, of the age of five in the school indicated above to conduct the study. Despite the fact that these twenty-eight learners share the same age and perhaps few similar hobbies, their learning experience is totally unique. Because these learners that are of different genders, race and perhaps physical abilities not only come from various social and economic background but also hold

different religious and political beliefs. Therefore, their readiness, learning styles and interests undoubtedly will vary requiring tailored instructions.

Because old fashioned teaching approaches are no longer effective, the researcher believed that differentiated instructions is one of the contemporary teaching and learning approaches that reflect positively on the learners. The researcher has attended various workshops that tackle the concept of differentiated instructions with public specialist speakers and instructors that helped guide the researcher's path in differentiation. Moreover, the researcher looked for various information regarding the tiered assignments and differentiated teaching practices that should be put into practice in the classrooms.

The researcher obtained approval from the school principal, the preschool coordinator and from the researcher's partner in the chosen classroom at Al Makassed Dawha School to conduct this study in the KG-3 section. Based on the kG-3's designed curriculum, the researcher planned a strategic instructional plan that modifies and differentiate lessons based on content, process, and product using flexible groups, tiered instruction, hands-on activities, games and other differentiated teaching practices, taking into consideration the learners' readiness.

Because phonics is an indispensable part in reading and writing skills, the researcher chose to evaluate the impact of differentiated instructions in the areas of phonics. Through direct instruction as lecturing, the controlled group will be limited to traditional teaching approaches and typical one-size learning activities. On the other hand, after the researcher assesses the learners' readiness and learning profile, the experimental group will be exposed to differentiated instructions and learning activities that tackle each learner's need.

Since the lesson plan that the researcher will follow in the experimental weeks aim to tailor the instructions to meet the learners' needs and thus, the lessons are differentiated based on content, process, and product with respect to the learner's readiness and learning styles. The teacher will be using pre-cards and exit cards, hands-on games and activities as well as worksheets to investigate whether implementing differentiated instruction affects or doesn't affect the learners' academic achievements. To record the results, the teacher will use a recording sheet (Appendix S) that includes pre and post results for both groups.

In order to differentiate the learners based on their readiness and respecting the learners' different learning styles, the researcher will be implementing the following plan which is based on the characteristics of differentiation mentioned earlier: tiered instructions, flexible seating and learning stations or centers (as circle time, reading, writing, discovery, technological).

Week 1: -at Family Words		
Strategy:	Target group	Learning Station/center
Morning Meeting: Letter sound-fluency practice	Whole class	Circle-time center

Game for -at family words Exit card: let's hunt for at family words (Appendix A)		-Discovery center -Writing center
Morning meeting: Play a game for letter-sound recognition (does this word start with letter….)	Whole class	Circle-time center
Game for –at family words: the teacher places large letter cards in the playground in hula-hoops and asks the learners to jump and read the word (kinetic)	Whole class	-Outside the classroom
Divided into two homogenous groups tiered in resources and process: Group A: solve worksheet: read and circle the correct picture of the word (Appendix B) Group B: guided reading (Appendix C) then solve worksheet, read and circle the correct picture	Group A: High achievers Group B: low achievers	-reading and writing (group A and B)
Morning meeting: letter- sound fluency Guided reading game (pick and read)		Circle-time center / Reading center
Divided into two homogenous groups tiered in complexity: Group A: A1: building words and/or completing words using letter cards, letter caps, magnetic letters…. A2: solve the worksheet, see the picture and complete by labeling the word (Appendix D) The two groups switch during the session Group B: building words through cut the first letter and paste it next to the word and picture (Appendix E) Then solving worksheet: see the picture and label the word	Whole class Group A: High achievers Group B: low achievers	A1: Discovery A2: reading and writing Writing and reading
Exit card: draw examples and not examples of at family words	Whole class	Writing
Morning meeting: - letter sound fluency Listen to a song for at family words		Circle-time Technological
Divided into two heterogeneous groups: Group A: A1: Read the readable for at family words (Appendix F) then make your own readable drawing pictures and writing the word A2 in centers: building and writing words. i.e. CVC ladder worksheet (they switch) Group B: use different objects to write CVC words (i.e. letter tiles /magnetic letters/caps/ cards) then complete the –at family house (Appendix G)	Whole class Group A: high achievers Group B: low achievers	A1: Reading Writing A2: Discovery Writing Discovery Writing

Morning meeting: - letter sound fluency Game: jump and read on the CVC board game		Circle-time
Divided into two groups tiered in product: Group A: A1: practice at family words: check the picture, write the word and use it in a sentence using familiar sight words. (Appendix H) A2: assessment for at family (they switch) Group B: B1: read the readable and make your own mini booklet writing the words. B2: assessment for at family	Whole class Group A: high achievers Group B: low achievers	A1 Writing (worksheet) A2: writing (paper-pencil assessment) Reading B1: writing B2: writing (paper-pencil assessment)
Week 2: -an family words		
Morning Meeting: - Letter sound-fluency practice / Revision of at family Game for -an family words Exit card: reflect on the journal an draw at least 2– an family words	Whole class	Circle-time center -Discovery center -Writing center (journal)
Morning Meeting: - Letter sound-fluency practice Group A: sort -at and -an family words Group B: solve worksheet: read and circle the correct picture of the word (They switch) Exit card: read and draw the words	Whole class A and B are heterogeneous groups Whole class	Circle time Writing Reading Writing
Morning Meeting: Letter sound-fluency practice Divided into two groups: Group A: building the words using letter cards and jotting them down. (Appendix I) (they switch) Group B: arranging the picture puzzle to form a word and jotting it down to practice writing Exit card: Listen to a story for an family words ad reflect by drawing on the journal the –an family words in the story.	Whole class A: high achievers B: low achievers Whole class	Circle-time center Discovery Writing Discovery writing reading writing
Morning meeting: - letter sound fluency Play a Game “I have, Who has” (Appendix J)	Whole class	Circle-time center

Divided into two heterogeneous groups: Group A: label pictures Group B: match the words to the picture on the pictures mat (Appendix K) One to one assessment in both groups	A: high achievers B: low achievers	Writing reading Paper-pencil assessment
Week 3: -am Family Words		
Morning Meeting: - Letter sound-fluency practice / Revision of at and an family Jump and read board game Then each learner will make a mini –am family readable. (Appendix L)	Whole class	Circle-time center -Writing - readable
Morning Meeting: letter sound-fluency practice Guided reading game Group A: building words using different materials before labeling the pictures Group B: arranging puzzle to form words (Appendix M) before trying to label the picture writing the –am family words (Appendix N) Exit card: label the picture and use the word in a sentence	Whole class High achievers Low achievers Whole class	Circle-time center Discovery Writing Writing Reading Writing
Morning Meeting: letter sound-fluency practice Group A: building and writing sentences with –am family words then completing the –am word ladder (appendix O). Group B: cut and paste to match the pictures to the am family words. Then solve the worksheet by labeling the pictures.	Whole class High achievers Low achievers	Circle-time center Discovery Writing Reading
Morning Meeting: letter sound-fluency practice Game for am family words Divided into two groups: Group A: read a short story for –am family words and circle am words. Group B: read sentences and match to the correct –am family word. Exit card: Read the sentences and match to the correct picture (Appendix P)	Whole class High achievers Low achievers Whole class	Circle-time center Reading Writing Reading Writing

The data collected from pre and post-assessments in both groups will be analyzed with the use of percentage and statistical tables. A t-test will be done to either validate or discard the proposed relationship between the variables.

Through applying the experimental condition in the kindergarten classroom, the researcher is investigating and seeking an answer to the research hypothesis mentioned above, "Does implementing differentiation in the classroom affect the learners' academic progress?"

RESULTS

In this chapter, the researcher reports the data collected for the purpose of examining the impact of differentiated instructions on students' achievements in phonics in a kindergarten classroom. The researcher divided the classroom into a controlled group which learned phonics without differentiated instructions and an experimental group which learned phonics with differentiated instruction and practices. In the three weeks of integrating differentiation in the classroom, the researcher was depending on different kinds of assessment to collect the data results. The results of both groups were collected in the recording sheets (Appendix R and S) based on the grading scale followed in the school which is: CA or 4: Distinguished Performance, A or 3: Competent Performance, P.A. or 2: Moderate Performance and N.A. or 1: Developing Performance (Appendix Q).

After recording the data, the researcher used a T-test to test the accountability of the hypotheses which states that implementing differentiation in the classroom affect the learners' academic progress positively.

Table 1. T-Test results for reading and writing –at family words

	Reading –at family words		Writing –at family words	
	Experimental	Control	Experimental	Control
Mean	3.285714	3.071429	3.571429	3
P- Value	0.19269		0.00712	

Table 1 shows that there isn't any significance difference between experimental and control groups regarding their achievement results in reading CVC –at family words as the p-value is 0.19269 > 0.05. The researcher notes that the students were already familiar with the –at family words. However, there is a significance difference between the groups regarding writing CVC words as the P. value 0.00712 < 0.05.

Table 2:. T-Test results for reading and writing –an family words

	Reading –an family words		Writing –an family words	
	Experimental	Control	Experimental	Control
Mean	3.785714	2.928571	3.714286	2.857143
P - Value	0.00056		0.00056	

Table 2 shows that there is a statistical significance difference between experimental and control groups regarding their achievement results in both reading and writing CVC –an family words as the p-values are 0.00056 < 0.05.

Table 3. T-Test results for reading and writing –am family words

	Reading –am family words		Writing –am family words	
	Experimental	Control	Experimental	Control
Mean	3.785714	2.857143	3.714286	2.785714
P - Value	0.00053		0.00019	

Table 3 shows that there is a significant difference between experimental and control groups regarding their achievement results in both reading and writing CVC –am family words as the p-value is 0.00053 or 0.00019 < 0.05.

Table 4.T-test results for the two skills (reading and writing)

		CVC Words					
		-at family	P-value	an family	P-value	am family	P-value
Mean	Experimental	3.42857		3.75		3.75	
	Control	3.035^{ns}	0.009^{ns}	2.892^{ns}	0.000011	2.821^{ns}	0.0000004

^{ns}: the rest is non-significant

The researcher studied the means of all the CVC families regarding reading and writing comparing between the experimental and control group. Thus the results 0.009, 0.00011 and 0.00004 are all > 0.05 and thus this shows significant difference between the results of the two groups. Furthermore, the researcher studied and compared the means of each skill alone to have more accurate results. The results are shown in table 5.

Table 5. T-test results for reading and writing of CVC family words

		CVC Words			
		Reading skills	P-value	Writing	P value
Mean	Experimental	3.61905		3.66^{ns}	0.000000016
	Control	2.90476	0.000003	2.880^{ns}	

The researcher calculated and compared the means of reading CVC words (at, an and am families) as well as the means of writing for both groups before calculating the p-value which showed significance between the results > 0.05.

When compared to the .05 value, all results except one showed that there is are significant differences in students' achievement results between the differentiated and non-differentiated groups. The alternative hypothesis thus is rejected and the null hypothesis is accepted as the results show that differentiated affects the students' achievements positively.

DISCUSSION

The results of the T-tests that the researcher done for the sake of analyzing the effect of differentiated instructions on student's academic achievements in the area of phonics showed that there is a statistically significant difference between the results of the experimental and control group. The p values were less than 0.5 which indicates that a significant difference does exist. Thus, the null hypothesis is accepted in this study which states that "(H1): Implementing differentiation in the classroom affects the learners' academic progress positively."

The results of this study that indicate a positive correlation between differentiated instructions and achievements is similar to the results of the previous studies mentioned in the related studies in chapter two as the studies of Mavidou and Kakana (2019), Stavrou and Koutselini (2016) and Pablico (2017).

The researcher thus concludes that teachers have higher chances to reach out of all the students and help them through implementing differentiated instructions in the classroom whether she/he differentiate the content, process and product or interest, learning styles and readiness. The researcher also concludes from the results that in the modern classrooms nowadays differentiation is a must, otherwise, a huge number of children will be left behind in the classrooms and consequently, they most probably will face social stigma and exploitation.

IMPLICATIONS AND RECOMMENDATIONS

The outcome of this study which showed that implementing differentiated instructions in the classrooms trigger positive impacts on the learners can be a reference to the educational parties willing to start implementing differentiated instructions in their classroom.

The researcher suggests several recommendations for future studies and inquiries regarding differentiated instructions. First, the researcher recommends that teachers attend professional development sessions and programs that target differentiated instructions as a first step. In fact, schools should plan a professional development program that ensures that all the teachers are getting the essential training to start implementing differentiation in the classrooms regardless of the subject. While implementing, the researcher suggests that the teachers start step by step to avoid feeling burnout or baffled by the complexity of differentiated instructions due to its various dimensions. While implementing differentiated instructions, teachers can either facilitate or hinder the learning of students based on her/his attitude towards this teaching process, which is also similar to the results of other studies mentioned before as the study of Dijkstra et al. (2017). But why do some teachers embrace a negative attitude towards this teaching strategy?

The study revealed that implementing differentiated instructions in the classrooms is beneficial and satisfactory. But why do some teachers enjoy implementing differentiated instructions while others don't? What are the difficulties or challenges that they encounter during execution? Who should support, guide and investigate to ensure that teaches are implementing with maximum effectiveness? Differentiated instruction studies are till now inadequate so these questions and undoubtedly many more unequivocally require future inquires and studies.

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