

Title Page

Differentiated Instruction: Principles and Techniques for the Elementary Grades

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Abstract

Differentiated instruction is an educational approach that adjusts instruction to accommodate individual students' needs, thereby increasing both student learning and motivation. Because traditional instruction tends to “teach to the middle,” or primarily focus on reaching average children, the needs of struggling and advanced learners are often not adequately addressed. This review explores the creation of a differentiated classroom by introducing the philosophy behind differentiated instruction. Because differentiated instruction assumes certain degrees of literacy and independence, some of these strategies are more appropriate for young children than others. This review synthesizes and presents a variety of strategies appropriate for use in elementary schools, particularly in the primary grades. Because few authors have written extensively on differentiation, the field would benefit from the addition of further viewpoints, as well as scientific studies on the efficacy of differentiated instruction.

Life as a teacher is more complicated than I ever thought it would be. While I was earning a credential, my professors made it clear that teaching was not a career for the faint of heart. Long hours, ever-rising demands, and low pay combine to create an environment that challenges even the most dedicated professionals. Even with this warning, during my first years of teaching I have realized that managing a classroom involves controlling more variables than I possibly could have foreseen. Juggling myriad responsibilities can take quite a toll – each day, I must balance the demands of the government, the administration, the parents, and the children who arrive in my classroom in various states of distress and readiness. Many teachers at my Title I elementary school are likewise overwhelmed by these demands, plus the unique pressures of managing a class filled with children who do not yet know how to behave in a classroom situation.

This local Oregon elementary school is unique in its district in that such a large percentage of its population is both poor and learning English for the first time. Eighty-six percent of our students come from families living in poverty. Typically, these children know a great deal about how to negotiate life and very little about how to function in a classroom. It can be a struggle just to get through the day without a fistfight, let alone to complete all of the lessons we have planned. Beginning the school year with the ideas at the beginning of the textbook is not usually appropriate or effective pedagogical practice, since so many of our students lack the schema that would enable them to make sense of these most basic concepts. Typically, our population enters school without many of the experiences and exposures that textbooks and educators assume are standard in America. Many of them begin school with so little background knowledge that as teachers, we cannot assume they will understand what we are introducing unless we add further supports and experiences. Children who confuse snakes with worms, who have never

touched Play-doh, and who have never seen the ocean can hardly be expected to comprehend standard texts that assume experience with all of these things.

Additionally, our population of special education students is rapidly rising, with a particular jump in students diagnosed with autism. These children need a variety of added educational supports, including specifically designed structures such as increased use of visual aids. For the sake of all of these students, from the students raised in poverty to the students with specific special education diagnoses, teachers need to teach in a way that accommodates unique learning styles and vastly differing abilities.

Language barriers add another impediment to traditional whole-class instruction. Sixty-three percent of our students speak English as a second language; many of these children enter school speaking only Spanish. Typically, these children have an entirely different set of life experiences and background knowledge than our English speakers; often, these experiences differ drastically from those of their middle-class, White teachers. This adds another hurdle to creating a classroom that effectively reaches all students.

The configuration of these classrooms adds yet another complication to teachers' lives. Our monolingual Spanish speakers initially receive literacy instruction in their primary language, as do English speakers. Later, Spanish speakers learn to read in English as well. In our dual immersion program, both English and Spanish speakers learn beginning literacy skills in their native language, but content such as science is taught in Spanish. In the immersion classes, students are taught math in Spanish. In the regular classes, math is only offered in English.

Although this school has a remarkable number of unique variables that make teaching there a distinct challenge, teachers at more homogenous schools face mounting

difficulties as well. The population of students in American schools is changing, perhaps more so than ever before. In large part, these changes are due to shifting societal expectations. Today, school attendance is compulsory for all children, but this has not always been the case. Historically, children with physical or mental disabilities were kept at home. Poor children worked to help support their families. Farm children attended school only when they were not needed to help on the farm. Girls were often excluded from the classroom because formal education was considered unnecessary for them.

School is now compulsory for all of these groups, which creates more classroom diversity than ever before. Additionally, our students are products of profound and continuing societal changes. They often come from single-parent homes and have less social and familial support available to them than previous generations. These children of the digital world have grown up in a world of ever-changing, ever-expanding technology. They are accustomed to a different way of learning than their teachers; they have shorter attention spans; and they know more things, but understand less of what they know (Tomlinson, 1999).

Statement of Problem

Often, teachers are already besieged by the challenge of maintaining the status quo in such a varied, evolving classroom. Add to this the concept of differentiation, or appropriate, targeted instruction for each learner, and many teachers feel too overwhelmed to even attempt such a massive re-conceptualization of their classroom structure and teaching styles. Older teachers, many of whom were trained years ago, may be especially unfamiliar or uncomfortable with newer instructional strategies. Many teachers today were trained in an era when schooling aimed for the educational middle; students were expected to sit in straight rows and complete the same worksheets,

regardless of interest or skill level. Differentiation seems like yet another ball to add to the many we are already juggling. First languages, second languages, special needs, ADHD, standardized testing, gifted students, increasing expectations and pressure from the government and administration, lowered school budgets, insufficient plan time, lack of resources, piles of paperwork, and more – all of these things combine to form mounting, daily pressures in teachers' lives. On top of all of these demands, differentiation can seem like just one more unnecessary stressor. As a result, teachers do not always adequately address the individual needs of our diverse learners.

Purpose Statement

This review explores the construction and composition of a differentiated classroom by researching the variety of strategies available for use in elementary school. Differentiation often assumes a certain degree of literacy and independence, which means that it can be particularly challenging to implement successfully in the primary grades. Therefore, this review focuses largely on the techniques and strategies appropriate for use with younger children.

Because implementation of a differentiated classroom is a lengthy and complex undertaking, I identify barriers to this process and ways that they may be surmounted, if possible. The purpose is to gain understanding of existing, appropriate differentiation techniques and to learn how teachers can improve their own practice by meeting children where they actually are, rather than where the textbook says they should be.

Research Questions

Today's teachers face an increasing number of challenges that make it difficult to address each student's readiness levels and distinctive learning style. Accommodating each student's unique capabilities and needs requires differentiated instruction, which can

be difficult to achieve. To provide support for this major, but worthwhile undertaking, this review addresses the following questions:

1. What are the principles and theories underlying the differentiated classroom?
2. What differentiation techniques are available and appropriate for use in the primary grades?
3. What barriers to differentiation do teachers typically experience, and how can they be overcome?

Theoretical Rationale

As the seminal researcher in this field, Tomlinson (1999, 2000, 2001) has identified a number of drawbacks to traditional instruction, as well as numerous benefits of differentiation. Homogenous instruction creates different problems for different groups of children. In the typical classroom, teaching assumes that all children arrive with the same understanding and amount of preparation, and that they all have the same skill levels and capabilities. However, any teacher could tell you that this is certainly not a realistic expectation. Teaching to the middle can result in a room full of bored advanced students and confused struggling learners, with only the students at grade level presented with an appropriate degree of challenge.

Without differentiated instruction, advanced learners can become mentally lazy because they are not challenged in school. Everything comes easily to them, so they do not develop a strong work ethic. Differentiation allows these students to challenge themselves and their abilities by working at higher levels than usual. Struggling learners, who may fall behind in a regular classroom, receive a unique boost from differentiation. These students are more likely to remain motivated when they can carry out relevant, empowering tasks. Rather than sitting lost in a large class, they can gain a sense of self-

efficacy from achieving something that they originally thought was too hard.

Differentiation allows teachers to provide high-quality learning opportunities while engaging each class member at his or her own level (Tomlinson, 2001). Differentiation is also validating for students. It presents curriculum in a way that is relevant to their lives and helps them make connections between concepts, which in turn helps them to retain new ideas (Association for Supervision and Curriculum Development, 1997).

Background and Need

Academic diversity is soaring in today's schools. Students enter school replete with differences in personality, background, and capabilities. In any one classroom, a teacher may be responsible for students with vastly differing home support systems and stressors; gifted students; students with physical disabilities; children with dissimilar learning styles and interests; and immigrants with varied degrees of experience in school. Teachers also increasingly encounter students with a diagnosis of learning disabled, as well as students from disparate cultures (Tomlinson, 2001). Classrooms include children with issues ranging from economic challenges at home to limited English proficiency to a diagnosis of emotionally disturbed (Tate & Debroux, 2001).

Pablo moved here from Mexico six months ago; he is rapidly learning playground English, but his academic language and skills are still very low. He struggles to pay attention and to understand what is happening in class. He has had very little schooling in his native language, but his migrant parents taught him to read and write Spanish at home. Shondra was born in Colorado and entered an exclusive private preschool at the age of 3. She taught herself to read at 4, and at the age of 7 reads at a fourth-grade level. Her ability to quickly make connections among what she is learning and retention of what she has learned are amazing. Michael is a bright child who struggles greatly in school. He

has trouble sitting still and paying attention for extended periods of time, so he is often in trouble for being disruptive. His greatest strength is his musicality; he is captivated and motivated by music in any form.

All three of these students, and many more, are part of the same second-grade classroom. All three clearly have different learning styles and needs. Presenting them with the same lesson taught in the same style and expecting them to learn the same skills and information not only seems questionable – it seems patently ridiculous.

Tomlinson (1999, 2001) has written extensively on the subject of differentiated classrooms designed to meet the requirements of a diverse population of learners. She posits that educators must reexamine how we “do school.” Children enter our classrooms with a wide variety of personalities, skills, interests, and educational experience. Rather than expecting such varied students to change themselves to fit the schools’ agenda, teachers must modify curriculum and presentation to meet the students’ needs.

Assumptions

I believe that whole-class, lecture-style instruction does not adequately support many of the students in our classrooms today. Individual children are simply too unique for us to assume that instruction targeted to the average learner will do a satisfactory job of educating our society. In an era of mounting accountability, as stakes increase based on individual test scores, schools must pay more attention to reaching each child who passes through our doors. Differentiated instruction is an ideal way to meet this goal. However, creating a differentiated classroom is a long and complicated process, best undertaken in small chunks over a period of years. Even teachers who are intensely interested in reworking their classrooms to include differentiation struggle with lack of plan time, training, and materials.

Review of the Literature

Differentiation is a complex and sometimes perplexing concept. Tomlinson (1999), the main authority in this field, defines this instructional orientation as follows:

Differentiated instruction is not an instructional strategy or a teaching model. It's a way of thinking about teaching and learning that advocates beginning where individuals are rather than with a prescribed plan of action, which ignores student readiness, interest, and learning profile. It is a way of thinking that challenges how educators typically envision assessment, teaching, learning, classroom roles, use of time, and curriculum. (p. 108)

Rather than providing a preplanned set of teaching strategies, differentiation requires that teachers reevaluate classroom structures and functions in their entirety. Differentiation changes the teacher's role from classroom commander to facilitator of time and space and assessor of students. The teacher's main role, rather than imparting knowledge that only she has access to, becomes helping students engage in and be responsible for their own learning.

"Differentiation" is a term often bandied about with little knowledge of its true definition. In order to fully understand the underlying concepts behind this approach to teaching, these misunderstandings must be clarified. First, differentiation is not providing a variety of different, unrelated activities for students. Rather, it is good teaching focused on key concepts and skills based on those concepts. All students, regardless of ability or readiness, should be challenged to make sense of these essential understandings (Association for Supervision and Curriculum Development, 1997). Another common misconception is that differentiated instruction means that a teacher must create a separate activity for each student. Not only is this unmanageable, but it also is not best

practice, because students need opportunities to work together as well as alone. Instead, educators must provide a variety of inter-related, well-planned instructional activities based on ongoing assessment of student strengths and weaknesses. Once teachers have a clear idea of what their students need, they can adjust curriculum based on student differences (Mitchell & Hobson, 2005).

To create a differentiated classroom, obviously teachers must understand what differentiation is and is not. This review focuses on some of the most salient points for educators beginning to consider embarking upon the challenge of restructuring their approach to accommodate a heterogeneous student population. Because differentiated instruction is often confused with the now-defunct, largely unmanageable concept of individualized instruction, this misconception is addressed first. Additionally, underlying principles and theories are presented, including the importance of assessment-based instruction, differentiation of curriculum, and differentiation by student differences. Because an entire body of literature is dedicated to differentiation for gifted students, this concept is briefly addressed as well; however, because so much information already exists, it is not the main focus of this review. Finally, the difficulties inherent in creating a differentiated classroom are discussed.

Differentiated Instruction, Not Individualized Instruction

On the surface, differentiated instruction is reminiscent of the individualized instruction that gained popularity in the 1970s. Both approaches recognize and support the individuality of each student, but differentiation is much more comprehensive and manageable than individualized instruction.

In the individualized instructional model, students learned based on their own ability levels and goals. They studied with their own style and pace, as active participants

in their own learning. Subject matter and skills were often divided into segments and taught at a self-paced level to each individual student. Because each student was solely responsible for his or her own work, there was a loss of whole-class instruction and group interaction (Betrus, 1995). Teachers often tried to provide different objectives, methods of learning, materials, and pacing for each and every student (Kitao, 1994). From a management standpoint, this type of teaching could quickly devolve into a nightmare for the instructor.

Differentiated instruction is more manageable because teachers do not attempt something different for each child in the classroom; rather, it “focuses on meaningful learning or powerful ideas for all students” (Tomlinson, 2001, p. 2). The instructor plans several activity options, not one for each student. Instead of generating isolated tasks, on any given day the teacher may work with the whole class, small groups, individual students, or a combination of all three.

Principles of the Differentiated Classroom

Differentiated classrooms share several common principles. First, the teacher sets clear learning goals and high expectations for all students. Second, the concepts of individual growth and personal best are central. Third, instruction is driven by assessment; that is, teachers base what they are teaching on what their students do and do not know, as identified before lessons begin. Last, differentiated instruction is proactive, not reactive. Teachers plan to address learners’ different needs, rather than planning one lesson for everyone and adjusting it when it does not work for some students (Mitchell & Hobson, 2005). “In a differentiated classroom, the teacher proactively plans and carries out varied approaches to content, process, and product in anticipation of and response to student differences in readiness, interest, and learning needs” (Tomlinson, 2001, p. 7).

Assessment-based Instruction

Whether a child is working alone or in a small group may often be a matter of student choice. However, the content and skills on which the student is working are based on the teacher's ongoing evaluation of that student's needs. Teachers must know students' ability levels in order to scaffold their learning with appropriate materials and placement (Tate & Debroux, 2001). This principle means that differentiated instruction must, by necessity, be assessment-based. Assessment becomes a part of the routine and allows the students' needs to be met during the unit, rather than finding out what is lacking after the unit is already completed (Tomlinson, 2001).

These ongoing assessments should measure both what students have learned and what weaknesses remain. That being said, there are an enormous number of ways that this can be accomplished. Little consensus exists as to precisely how students should be measured, but differentiation of assessments always should be directly based on how the curriculum is being taught to each child. "If the pace is different, evaluation is given at different times. If the content is different, the evaluation itself should be different. If the methods are different, students should be evaluated based on the method in which they learned" (Kitao, 1994, p. 185). When assessment is clearly rooted in what is happening in the classroom, the teacher is much more likely to gain a clear and accurate picture of each student's needs and successes.

Differentiation of Curriculum

Curriculum can be differentiated in three ways: by content, process, or product. Each method of differentiation is designed to address student needs in a different way. All methods, however, are tied to the teacher's knowledge of the students' needs and

abilities, which stems from appropriate, well-planned, and ongoing assessment.

Content.

When differentiating by content, teachers vary the materials with which students are working. This can include activities such as flip books, reading buddies, books on tape, note-taking organizers, different texts and supplementary materials, highlighted texts, or think-pair-share (Mitchell & Hobson, 2005). Differentiation of content exists on a continuum of difficulty, ranging from giving few directions to many directions and from concrete to abstract tasks. Teachers match the starting point in the content with the child's readiness level. The goal is to move children along the continuum as quickly and as deeply as they can (Association for Supervision and Curriculum Development, 1997).

Process.

Differentiation according to process is achieved using open-ended tasks, ranging on a continuum of simple to complex. These tasks are created by the teacher so that more than one correct response and way of approaching the problem exist. Worksheets are replaced with activities that encourage active thinking. For example, graphic organizers permit students to respond to the best of their abilities, which allows for the wide range of readiness in mixed-ability classrooms. Students then build on correct responses with additional activities. Generally, multiple formats are used to scaffold for students who need extra help (Kingore, 2004).

Because differentiation by process means that students are working on different activities at the same time, it is often challenging for teachers to envision precisely how this method will work. It is important to keep in mind that educators do not need to be present for all learning. While the teacher meets with individual students or small groups, it can be very effective for the other students to work at learning centers or study labs,

alone or in groups (Forsten, Grant, & Hollas, 2002).

Product.

Differentiation according to product means that students can choose among varied assignment options. Each student works with the same content and process as the others, but has an individual end point in mind. The students produce a different culminating learning experience demonstrating what they have learned over a period of time (Association for Supervision and Curriculum Development, 1997). For example, as a cumulative project students could choose between making a board game, charade, audiotape, or calendar, to name a few (Kingore, 2004). Differentiation by product is only limited by a teacher's time constraints and imagination. However, it is vital to clearly explain what is expected for each assignment by including the following guidelines: Show you understand and can do X by doing these steps, in this format, at this level of quality. Often, teachers use a rubric to make these expectations very clear (Mitchell & Hobson, 2005).

Differentiation by Student Differences

The previous examples of differentiation deal with ways that teachers can differentiate the learning process by varying physical, curricular activities. Curriculum can also be differentiated according to students' readiness, interests, and learning profiles.

Readiness.

When differentiating by readiness, teachers give more challenging assignments to advanced learners and more basic ones to struggling learners. All students must be engaged in respectful work which teaches essential understandings, rather than having higher-performing students doing interesting work and lower-performing students doing dull drills (Association for Supervision and Curriculum Development, 1997). Teachers

must be careful to adjust the actual nature of the assignment rather than merely giving more work to a student with mastery and less to a struggling student. Instead, assignments need to provide multiple approaches to process, content, and product – that is, how students learn, what they learn, and how they show what they have learned (Tomlinson, 2001).

Interest.

Differentiation based on student interest can also be very successful, particularly for struggling or unmotivated students. When textbooks and other materials are all teacher-selected, students lack control, which lowers motivation. When students have the opportunity to choose for themselves, they tend to enjoy work more and to be more motivated (Kitao, 1994). Differentiating by interest is very validating for students. It makes school lessons relevant to their lives and supports them in making connections between concepts, both of which increase student performance and retention of concepts (Association for Supervision and Curriculum Development, 1997). Thames and Reeves-Kazelskis (1992) found that allowing students to choose their own reading material helped to create a positive attitude toward reading through “a strong sense of personal involvement with the textual material” (p. 14). Additionally, the researchers found that after participating in an individualized instructional program with interest-based, self-selected materials, children increasingly viewed themselves as learners. This sense of self-efficacy is vital to students’ continued success in the classroom.

Allowing students to read and respond to self-selected materials is one of the simplest ways teachers can differentiate by interest. Other strategies include expert groups; author studies; individual learning goals; working alone or in groups; and allowing students choices in where to sit, in which order to complete tasks, roles in

cooperative learning, and different content for writing prompts (Tomlinson, 2001).

Learning profile.

Differentiating according to learning profile often means that teachers need to base assignments on students' differing rates of learning. Students who understand ideas at different speeds need time to work at their own pace. Slower learners, in particular, need extra time to comprehend the material and to explore ideas (Tate & Debroux, 2001). Students who work more quickly may benefit from curriculum compacting. This consists of compressing the regular curriculum into a shorter time for students with a faster rate of learning. These students then go on to alternative assignments. Tomlinson (2001) strongly emphasizes that these students need alternative activities, not activities in addition to the regular curriculum. Otherwise, faster learners may feel that they are being punished.

She also notes that in order to be successful, teachers need to remember that learning does not occur on a smooth trajectory. Rather, students may have stops and starts, with periods of faster and slower learning. Because rate of learning is not an area that can be tested, teachers must make decisions using their professional judgment, always being careful to collect evidence to support their opinions.

Teachers must also be careful to have an appropriate record-keeping system in place, because managing a differentiated classroom can be complicated. Some choose to have students use a daily log with categories appropriate to the goals for the unit of study (Leader, et al., 1994). Contracts can also be used as a convenient way to keep students on task while providing a way for the teacher to follow their progress. Before the unit begins, the student agrees on his or her goals in concert with the teacher. As the unit progresses, the teacher checks in with the students and tracks their progress, resetting

goals as necessary (Kitao, 1994).

Gifted students

Differentiated instruction is uniquely well-suited to providing appropriately challenging teaching to gifted students. Differentiated education and gifted education share a major philosophical tenet: the teacher needs to engage the child in a search for meaning through a content-rich curriculum. The focus is on thinking, not merely knowledge acquisition. In both approaches, a purely skills-based curriculum is supplanted by an emphasis on high standards, critical thinking, and meaning-centered curriculum. Gifted students are better served by participating in higher-level, challenging activities, not by merely doing more of the same work as the rest of the class (California Association for the Gifted, 1994). In order to pose an appropriate level of challenge for gifted students, techniques such as questioning and open-ended tasks must be matched with an advanced curriculum (Van Tassel-Baska, 2003).

Barriers to differentiation

Although many approaches and strategies are available for teachers to use, substantial barriers to high-quality differentiation exist as well. In a study of first-year teachers, Renick (1996) found that all of the teachers interviewed cited lack of materials, insufficient planning time, and inadequate administrative support as significant barriers to their ability to differentiate effectively. Although this study was conducted with special education teachers, the same problems exist in nearly every classroom situation. These obstacles include lack of staff development, lack of accessible materials, and lack of time to create and implement activities.

Teachers interested in differentiation need access to training and opportunities to network with colleagues. They can then update materials and strategies to improve their

practice and simplify the extensive preparation that is necessary for high-quality teaching. When creating a new program, teachers also need preparation time to update and develop new materials, opportunities to network, and regular meetings to review the program and to problem-solve (Leader, et al., 1994). Teachers and administrators whose time is already in short supply may not be willing or able to make such an investment. Extensive teacher preparation may seem overwhelming to professionals who are already bogged down by their workload. Additionally, teachers individuating by interest or readiness may not have enough appropriate materials for their entire class (Christensen, 1993).

Although there are numerous barriers to differentiation, it is still a worthwhile and achievable goal. In order to reach students who come from disparate backgrounds and have dissimilar needs, teachers must find ways to differentiate content and skills in their everyday practice. While many teachers have tackled this challenge to some degree, others lack the training, time, or materials necessary to differentiate effectively. The following findings explore how educators in a diverse learning environment can use differentiation techniques successfully, what problems arise in their implementation, and how these problems can be addressed.

Findings

Creating a Differentiated Classroom

Teachers can easily find themselves completely overwhelmed by the challenge of beginning to create a differentiated classroom. When starting out, it is vital to remember that teachers can adapt one or more curricular elements (content, process, or product) based on one or more student characteristics (readiness, interest, or learning profile) at any point. Teachers do not need to – and should not! – modify every lesson in every possible way. In effectively differentiated classrooms, the teacher can often use whole-

class, non-differentiated instruction. The key is to modify lessons when the teacher sees a student need and is convinced that modification increases the likelihood that students will acquire a thorough understanding of important ideas and skills (Tomlinson, 1999).

Teachers in the beginning stages of creating a differentiated classroom must begin with the individual levels of their students, accepting that children learn in different ways. This requires that teachers seriously rethink their professional roles, becoming diagnosticians and learning partners rather than dispensers of knowledge. These teachers then continue to cultivate their own knowledge and expertise. They hold universally high expectations and provide the support that students need to achieve their academic and personal goals (Tomlinson, 1999).

These educators share the teaching with their students, rather than viewing themselves as in charge of the entire learning process. In addition, they facilitate the vital conceptual connections that students are making. Research has determined that the human brain constantly seeks meaning and pattern; pedagogically, this means that we are much more likely to retain information that is “chunked,” or organized around categories and ideas that increase meaningfulness. Students learn by connecting new information to something that they already understand. This is a crucial concept to attend to when constructing a differentiated classroom. No one can learn everything about any given subject: the human brain is structured so that we forget much of what we learn. Because of this, it is crucial for teachers to distill the most essential things for learners to remember, understand, and do. To accomplish this goal, teachers must understand and utilize the major concepts in each subject, rather than presenting sets of disjointed facts for memorization. In differentiated classrooms, facts are used to cement key concepts, such as the idea of systems or the theme of change.

Practically speaking, this means that the teacher needs to follow three major steps to maximize students' retention of major concepts and themes. First, teachers need to identify essential concepts and outcomes of their curriculum, as well as the skills needed to learn these subjects. Second, teachers must become familiar with students' learning needs. Third, they must use this information to provide differentiation opportunities for the students to create their own understanding by connecting prior knowledge with the new information (Tomlinson, 1999). Additionally, to be successful, teachers must reflect on the quality of what is being differentiated. The curriculum must be clearly focused on essential ideas. Activities and lessons cannot be "busywork;" rather, they must help students grapple with significant skills and concepts (Tomlinson, 2000).

The supportive teacher can make all the difference in creating a healthy environment where the individuality of each child is appreciated, which is crucial to the success of a differentiated classroom. Rather than setting a tone of competition against other students, the goal should be to create an atmosphere in which students compete against their own personal bests. Positive energy and humor are important. Discipline must be positive as well, ensuring that students have a chance to use their power, rather than relying on the teacher to make all decisions for them. Although difficult in the current educational environment, the teacher must not focus on standardized, mass-produced instruction. Rather, he or she teaches whole children, including their physical, emotional, and intellectual needs. In stark contrast to the traditional pedagogical model, these teachers' goal is to make themselves increasingly obsolete by supporting students' burgeoning independence (Tomlinson, 1999).

Not only does the philosophy of the differentiated classroom radically differ from the prevailing educational model, but the physical set-up is different as well. The manner

in which the classroom is arranged physically supports differentiation in a variety of ways. Ideally, it should include a combination of work and study areas, computer stations, interest and learning centers, and an area for artistic and scientific endeavors. This arrangement supports the instructor in becoming part of learning exploration through a variety of differentiation strategies (Dinnocenti, 1998).

Because both the philosophical orientation and physical arrangement of differentiated classrooms tend to differ greatly from what children and parents have previously experienced, it is always a good idea to freely share how the classroom works and the reasoning behind these differences. Parents are often completely unfamiliar with the concept of differentiation, and without explanation may be confused by what is happening in their child's classroom. Every parent wants to feel that their child's needs are being met; with appropriate explanation from the teacher, parents tend to be extremely supportive of the concept of differentiation. Because differentiated classrooms are something of a rarity in today's schools, students, too, tend to be unfamiliar with the workings of this type of classroom. With students in particular, it can help to include them in discussion about how the classroom is working, why it is the way it is, and what students can do to help the classroom run successfully (Tomlinson, 2000).

Strategies for Differentiation

While an enormous range of differentiation strategies exist, some are more crucial and more common than others. Whether accommodating differing levels of readiness, interests, or learning profiles, flexible grouping is a hallmark of differentiated instruction. Flexible grouping differs dramatically from the old educational concept of homogenous, tracked groups. Rather, this approach uses different configurations to accommodate student strengths and provide support in the areas of student weakness (Tomlinson,

2001). “It is the purposeful reordering of students into working groups to ensure that all students work with a wide variety of classmates in a wide range of contexts during a relatively short span of classroom time” (Mitchell & Hobson, 2005, p. 8). The teacher regularly groups and regroups students to give them opportunities to meaningfully interact with their peers. This may include some time spent working in a whole-class setting, some time in heterogeneous and homogeneous small groups, and some in individual work. In order to be successful in this varied environment, all students need clear directions and good training and support to work well in a group setting (Mitchell & Hobson, 2005). Once they have this training, however, students working in group settings can be challenged to move far beyond traditional, rote learning.

Higher-level thinking can be sparked by exposure to others’ work (Christensen, 1993). Regardless of group size, type, or purpose, flexible grouping allows students to respond both to content and to others’ ideas. Differentiation is an ideal way to support this higher-level thinking. Many teachers choose to use problem-based learning for this purpose. This strategy provides the group with opportunities to brainstorm, research, identify an underlying problem and develop an action plan, which allows students to apply their skills in a real-world setting. Simulations, the Socratic method, and independent study are also frequently used to ensure that learning moves beyond rote learning and regurgitation (Dinnocenti, 1998).

Although flexible grouping is fairly simple to use, other differentiation strategies exist on a continuum of difficulty to implement. Low-preparation activities take less time to create and carry out, while high-preparation activities can be very time and labor-intensive to generate and maintain. Mitchell and Hobson (2005) provide a wealth of differentiation ideas from which to choose, ranging from simple to complicated (see

Table 1).

Table 1

Differentiation Strategies by Intensity of Preparation

Low	Medium	High
Flexible grouping	Learning centers and games	Tiered activities, products,
Open-ended tasks	(teacher- or student-	and centers
Reading buddies	developed)	Multiple texts
Varied pacing	Pre-assessment	Alternative assessments
Options for books,	Product options	Learning contracts
homework, and journal	Independent research	Multiple intelligence
prompts	Student self-assessment	options
Student-teacher goal setting	Independent study	Curriculum compacting
Working in pairs, groups, or	Small-group instruction	Varying organizers
alone	Explorations by interest	Interest groups and centers
Flexible seating		Literature circles
Varying scaffolding on the		Simulations
same organizer		Problem-based learning
Think-pair-share		Tape-recorded materials
Jigsaw		Lectures with graphic
Varied questioning		organizers
strategies		

Each strategy provides a different way of reaching students. However, because teachers' time, energy, and materials are clearly limited, it is wise to choose a mix of low-, medium-, and high-intensity activities.

Tiered assignments are one way to provide tasks at various levels. Students work on tasks with differing degrees of difficulty, but all work with the main ideas and at higher levels of thought. Assignments are not "dumbed down" for less able students. Rather, all students must use their skills to continue learning by building on prior knowledge (Tomlinson, 2001). This type of lesson allows several pathways for students to reach understanding of key concepts. Many lessons have three tiers – one below grade level, one at grade level, and one above grade level. Creating a tiered lesson takes several steps. First, identify both the standard that the students need to achieve and the lesson's key concepts. Be sure that students have the necessary prior knowledge and skills to be

successful. Decide which of part of the lesson (content, process, or product) will be tiered, and then decide which type of tier you will use (readiness, interest, or learning profile). Based on these choices, determine how many tiers are needed and develop a respectful, challenging lesson for each tier, followed by an assessment component to the lesson (Pierce & Adams, 2004).

Assessment is a vital component of differentiation. Obviously, teachers cannot meet students at their own levels if they do not know where those levels are. Traditionally, assessment is summative, or given at the end of a unit to find out what the students have and have not learned. In a differentiated classroom, assessment is also formative, or ongoing and diagnostic. This type of assessment gives data on readiness, interests, and learning profiles, allowing the teacher to modify ongoing instruction. This data can come from small group discussions; journal and portfolio entries; interest surveys; skill inventories; pre-tests; and exit cards, to name a few. Summative assessment is still used at benchmark points, such as the end of a unit, to formally record student growth. Even with this more traditional application, assessment can be performed in varied ways so that students can show their full range of knowledge (Tomlinson, 1999). Teachers may gauge student achievement based on how well they have done their work and how much they have improved since the beginning of the unit of study. Many educators use contracts for this purpose. Before the unit begins, the student and teacher choose goals and create a contract together. Evaluation and grades are based on how well the student fulfills the contract (Kitao, 1994).

Overcoming Barriers to Differentiation

Creating a differentiated classroom can be a significant challenge. Common issues are lack of planning and collaboration time, lack of administrative support, and

lack of appropriate materials. Teachers new to differentiation often face challenges in two major areas: within their own practice and within the larger structure of the school system itself. They often feel overwhelmed on an individual level, because they are unsure how best to begin this extensive process. They also often feel overwhelmed by the need for assistance in this undertaking, because they are unsure how best to recruit support from administrators, colleagues, and parents. Implementing an entirely new classroom structure is an enormous task, but can be managed with attention both to the educator's individual approach and to his or her interaction with the school as a whole.

Within the classroom, teachers beginning the differentiation process need time, energy, and patience. Before they begin differentiating, they must examine their own teaching philosophy. What is most important to them? How can they incorporate these values in this new undertaking?

After solidifying these core educational values, it is tempting to jump right in, trying to apply every bit of recently acquired knowledge. Rather than trying to do everything at once, it is wise to start small, perhaps with one differentiated activity. Begin by teaching an anchor activity, such as journal writing, that students can return to as necessary throughout the day. After this process is clear in their minds, it will be easier to slowly branch out to simultaneous, differentiated tasks. As the instructor slowly masters challenges and routines, the students will learn to do so as well. When the teacher is confident that he or she is doing a few things well, it is time to slowly begin branching out by adding activities to his or her repertoire. Good starting points could include beginning to use pre-assessment or formative assessment; adding one differentiated lesson per unit and/or one differentiated product per semester; using multiple resources for key parts of the unit; creating and providing class rubrics; adding more student

choices, beginning with a great deal of structure; and using learning contracts that gradually increase in duration (Tomlinson, 1999).

Outside the classroom, teachers need professional development and support from their peers, administrators, and parents. Developing this support system will make an enormous undertaking feel much more manageable. It is very helpful to work with colleagues who already differentiate to some degree, as many teachers do. Planning and working together allows opportunities for peer coaching, troubleshooting, and sharing of lessons and materials. Because of budgetary constraints, materials sharing can be an invaluable way to ensure that sufficient resources are available for use in the differentiated classroom.

Many principals are already familiar with differentiation and can be excellent resources; those that are less familiar with this concept can benefit from some education from their staff. Invite the principal into the classroom to observe what is happening. Targeted observations can be very helpful to the teacher just beginning to differentiate. Also, principals who clearly understand the principle behind and value of differentiation are more likely to provide collaboration time and professional development for their staff.

Parents are an excellent resource as well. Enlist parent volunteers to work in the classroom, perhaps with strugglers or advanced students. Often, parents have skills, knowledge, and resources that can prove very useful in a differentiated classroom. Use parent expertise and materials whenever possible (Tomlinson, 1999).

Creation of a differentiation classroom is best understood as a gradual process, rather than something to be undertaken in one fell swoop. Because it can be such a tremendous task, a teacher just beginning this process is well-served by enlisting the help of others, whether they are teachers, administrators, or parents. While some obstacles,

such as budgetary constraints, will always be outside teachers' control, educators are well-served by accessing resources that are currently and consistently available.

Discussion

Summary of Major Findings

Differentiated instruction is an enormous topic, ranging from the theoretical concepts that support creation of a differentiated classroom to the very practical techniques used to do so. The research questions asked what principles and theories underlie the differentiated classroom, as well as what techniques are most appropriate for use in the primary grades and what impediments exist to this educational approach. Available literature suggests that differentiation is an outstanding way to help individual students learn; additionally, numerous strategies exist that are suitable for modification and use in early elementary school. While differentiated instruction is an excellent way to ensure that all children are learning in a manner commensurate with their knowledge and skill levels, creation of a differentiated classroom is a complex process. Teachers must keep in mind that this is a slow evolution, best undertaken with the support of parents, colleagues, and administrators.

Despite the inherent challenges, differentiation is a worthwhile endeavor. Although many differentiation strategies assume that the students are able to read and work independently, there are many techniques that are appropriate for use for younger children who are still developing these skills. These strategies exist on an implementation continuum of simple to complex. Implementation works best when teachers begin with applying simpler strategies, working their way down the continuum as their skills and comfort levels increase.

Limitations of the Review of the Literature

This review is limited in scope; it primarily focuses on differentiation strategies that are appropriate for use with younger elementary children. An enormous range of techniques and strategies exist, including those that are more appropriate for older students. Additionally, this review does not thoroughly explore differentiation techniques for use with specific populations (English language learners, gifted students, etc.).

Implications for Future Research

Most literature in this field has been produced by one researcher (e.g. Tomlinson, 1999, 2000, 2001). Although her experience and expertise are undeniable, the fact remains that this single viewpoint is the basis of much of the available differentiation literature. Clearly, the field would be expanded by the input of additional researchers.

Also, little research is available that specifically tailors differentiation strategies to different age ranges. In terms of practical application, it would be a great boon for teachers to have access to literature detailing techniques specifically suited to particular grade levels.

Additionally, few experimental studies exist regarding the efficacy of differentiation. Although it seems logical to assume that greater scholastic gains would be made by students in a class tailored to their needs, controlled studies have not been performed to verify this idea. Particularly in this era of emphasis on quantifiable, verifiable data, having results that demonstrate the effectiveness of differentiation would likely increase its widespread acceptance as an educational strategy.

Overall Significance of the Review of the Literature

This review adds to the body of available literature regarding the philosophy behind and creation of a differentiated classroom. Very little has been written about techniques that are specifically suited to the needs of pre-literate, less-independent

primary students. This review attempts to address some of the specific needs that exist when working with a younger population, as well as to address some of the inherent difficulties in creating an entirely new, differentiated classroom. Although there are many challenges that exist in this approach to teaching, it is absolutely a worthwhile endeavor.

“In the end, it is not standardization that makes a classroom work. It is a deep respect for the identity of the individual” (Tomlinson, 1999, p. 12). Differentiation provides a practical, achievable way for educators to teach in a way that reaches each student in their charge.

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