Differentiated Instruction

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Abstract

This article presents an overview of differentiated instruction, an instructional philosophy that respects and celebrates the varied ways in which individuals learn. Differentiated instruction embraces years of brain research regarding ways in which we learn best and utilizes this data to inform every day instructional practice in K-12 classrooms. The central tenet of differentiated instruction is that each individual's learning map is unique and therefore, a "one size fits all" curriculum and instructional practice will not reach every learner. By differentiating the curriculum elements of content, process and product according to the unique characteristics of each student including readiness level, learning profile and interest, teachers work to ensure success for every learner. Although many differentiated instructional techniques exist, this article directly discusses learning contracts, Role/Audience/ Format/Topic (RAFT), stations, centers, tiered activities and curriculum compacting.

Overview

Differentiated instruction is a philosophy of teaching that stems from the belief that all students are different. Students differ with regards to how they learn best, their strengths and weaknesses, their cultural and family backgrounds, what they are interested in learning about, etc. Differentiated instruction embraces these differences and creates learning opportunities that are respectful of student individuality and uniqueness. Carol Ann Tomlinson, the leading researcher in the field of differentiated instruction, asserts that differentiated instruction integrates what we know about constructivist learning theory, learning styles, and brain development with empirical research on influencing factors of learner readiness, interest, and intelligence preferences (Tomlinson & Allan, 2000).

When differentiating instruction, teachers may choose to differentiate one or more curriculum elements including content, process, and product. Content refers to the actual curriculum objectives for a unit of study or specifically, what teachers expect students to know and be able to do by the end of the unit. Pro-

cess encompasses the variety of ways that students make sense of key ideas and use essential skills. Products include all vehicles through which students demonstrate and extend what they have learned (Tomlinson & Dockterman, 2002). When differentiating, teachers adapt these core curriculum elements based on one or more student characteristics including readiness, interest, and learning profile at any time in a lesson or unit.

Readiness

Readiness refers to a student's entry point relative to a particular

Keywords

Anchor Activity

Curriculum Compacting

Flexible Grouping

Formative Assessments

Learning Center

Learning Contract

Learning Profile

Multiple Intelligences

Ongoing Assessment

Readiness

Role/Audience/Format/Topic (RAFT)

Pre-Assessment

Stations

Summative Assessments

Tiered Instruction

understanding or skill (Tomlinson, 1999). In any given classroom, there always exists a range of readiness levels. Students who are not quite ready to learn a given concept may need more one-on-one time with a teacher, more deliberate step-by-step instructions, varied activities and final products requiring different skill sets, and more opportunities for direct instruction. Conversely, advanced students might be able to move ahead at a faster pace, follow more complex directions, or even slow down to explore a topic in greater depth (Tomlinson, 1999). When considering readiness levels, teachers ensure that students are successfully and appropriately challenged at a level commensurate with their ability to understand a particular concept at a specific time.

Learning Profile

A student's learning profile is a preferred way of learning which may be influenced by learning style, intelligence preference, gender and culture (Tomlinson & Eidson, 2003). Howard Gardner's research (1983) regarding multiple intelligences serves as a primary driving force behind helping to differentiate according to the variety of learning styles and intelligences in a classroom.

Gardner discusses eight major intelligences including:

- Verbal/Linguistic
- Logical/Mathematical
- Visual/Spatial
- Bodily/Kinesthetic
- Musical/Rhythmical
- Naturalist/Environmental
- Interpersonal
- Intrapersonal

Sternberg (1988, 1997) added another element for teachers to consider with research related to analytical, creative, and practical intelligences. When differentiating by learning profile, teachers ensure that students learn through a modality that best matches their strengths.

Interest

Teachers may also differentiate content, process or product according to student interest. When students are interested in learning about a topic, they are motivated, eager and enthusiastic about taking advantage of opportunities to explore and add to their knowledge base. By skillfully connecting curriculum to student interest, teachers are able to capitalize on motivation and enthusiasm that may not otherwise be present if a student has little or no interest in a particular topic.

Traditional vs. Differentiated Classrooms

Traditional classrooms tend to "teach to the middle" and utilize a "one size fits all" model of instruction. When confronted with large class sizes, whole class instruction often seems the easiest methodology to employ and the one type of instruction that most teachers feel comfortable using as it mirrors how they were taught when younger. When teaching in a "one size fits all" model, teachers pay little attention to individual differences and aim to utilize as much of the text as possible to ensure coverage of the curriculum. Traditional classrooms employ assessment at the end of the unit and rarely use assessment data to drive instruction on a day to day basis (Tomlinson & Dockterman, 2002). If grouping strategies are used, most often homogeneous ability groups are created with the intention of providing remedial instruction for those students who need extra help and providing challenge for those who need an extra "push." This is most apparent in traditional high school environments where tracking is used for curriculum delivery and students are divided into

remedial, regular and honors courses. As Fahey (2000) indicates, this model greatly impacts the quality of instruction provided, creates quite an inequitable structure, and sends a negative message to students regarding expectations for performance.

The differentiated classroom, on the contrary, greatly emphasizes and values student differences. Teachers are sensitive to student learning differences and develop curriculum opportunities that are responsive and appropriately challenging for each individual student. After careful examination of readiness levels, learning profiles and interest, teachers focus on a variety of instructional methodologies that reach each learner and create opportunities for students to make intelligent choices regarding the learning process. Ongoing assessment plays a crucial role and provides invaluable information to teachers as they work from day to day to develop lessons that best meet student needs. The differentiated classroom is responsive (as opposed to reactive) and truly emphasizes and celebrates diversity of learning styles. It does not assume that one student's road map for learning is identical to anyone else's (Tomlinson & Dockterman, 2002).

As American public education moves steadily into the future, students continue to enter classrooms with ever more diverse backgrounds, learning styles, and interests. Orfield and Kurlaender (2001) remind us that our schools are bursting with diversity and our awareness of this diversity continues to increase rapidly. Although educators recognize this reality, traditional classroom practices dominate and as Kohn (2004) states, many educators are becoming increasingly uncomfortable with the perceived disconnect between the traditional classroom experience and the expectations of our future citizens.

Marx (2000) clearly identified ten trends in education for the 21st Century. Among these trends, Marx discusses the need for educators to realize that we will soon be a nation of minorities with widely different backgrounds and perspectives, that the "one size fits all" classroom does not address the increasing diversity reflected in society, and that we must hold all students to high expectations once reserved for only a select few. Differentiated instruction may just be the model that holds the key to enable educators to respond to increasing diversity in classrooms and to ensure that all children are appropriately challenged through modalities best suited for optimal learning potential.

Application: Differentiated Instruction Applied in the K-12 Classroom

Strong Curriculum Foundation

A powerful and clearly articulated curriculum is an absolute requirement for differentiating instruction. Differentiated instruction does not work if clearly defined learning objectives are not in place. In order to successfully differentiate content, process or product, teachers need to know exactly what they expect students to be able to do and understand by the end of a unit of study. Often, it is quite useful to begin with the end-goal(s) in mind and work backwards to define the different processes and

products that can be used to achieve the objective(s) (Wiggins & McTighe, 1998). Tomlinson & Dockterman (2002) indicate that once a teacher has a strong curriculum in place, s/he can then modify instructional methodologies according to readiness, learning profile and interest so that each learner comes away with the understandings and skills necessary to move to the next level of learning.

Respectful Tasks

Tomlinson (1999, 2003) discusses the critical importance of developing tasks that are respectful of each learner in a classroom. When teachers take the time to assess student readiness, learning profile and interest, they, in turn, respect the uniqueness and individuality of each learner. By respecting readiness levels, holding high expectations for student growth, increasing degrees of difficulty as students develop understandings and skills, and developing tasks that are equally interesting, important and engaging, Tomlinson (1999) asserts that teachers deeply respect the identity of each individual in the classroom.

When teachers create tasks respectful of different readiness levels, learning profiles and interests, all students benefit including those with significant learning differences and those who are gifted. Lawrence-Brown (2004) discusses the impact of differentiated instruction on the learning outcomes for students with disabilities and concludes that classrooms employing differentiated instruction with appropriate supports benefit both students with and without disabilities. Reis & McCoach (2000) studied the effects on gifted children and further indicate that in classrooms where instruction is appropriately differentiated for learners, gifted students feel challenged, encounter both struggles and successes, are called on to develop advanced study and production skills, and are able to develop their particular interests.

Assessment

In a traditional classroom, assessment is typically summative and designed to collect data regarding those students who mastered major concepts and those who did not at the end of a unit of study. This type of assessment is of little use when aiming to maximize student potential throughout the learning process because it provides relatively no information regarding how best to "reach" students through different modalities. The information obtained is typically used to assign grades and to evaluate student performance once the unit is complete. Should a student misunderstand a concept or need re-teaching at some point, teachers are unable to detect these needs when utilizing one culminating assessment.

In a differentiated classroom, assessment takes on a variety of forms. Benjamin (2006) asserts that "students are more likely to be successful if the assessment system encompasses a broad spectrum of abilities and modes of expression" (pg. 59). When differentiating instruction, assessments are both summative and formative in nature. Summative assessments provide meaningful data regarding student understanding of core concepts while formative assessments provide information that assists teachers

to formulate and modify their instruction to meet the needs of a diverse student population. Pre-, ongoing, and final assessments are all major components of a differentiated classroom.

Pre-assessments play a crucial role as they provide the necessary information for teachers to skillfully create flexible groups for different learning purposes. Such assessments may take the form of interest surveys/inventories, parent questionnaires with younger students, or quick pre-tests as well as a variety of other options. Pre-assessments help teachers determine student readiness for a particular concept, preferred learning styles and/or levels of interest in a particular component of a unit of study (Tomlinson, 1999).

Ongoing assessments are used throughout the unit of study to best meet the needs of individual students. Both formal and informal assessments help teachers to regroup students for a particular concept, recognize when re-teaching is necessary, and successfully determine optimal instructional methodologies to reach all learners (Tomlinson, 1999). Ongoing assessments may take the form of homework assignments, performance tasks, mini-projects, or student presentations as well as other options. Once a unit of study is complete, a final assessment may be given to evaluate overall student performance and understanding of core learning objectives. Final assessments can be varied to provide opportunities for students to demonstrate understanding through many different modes of expression.

Flexible Grouping

Flexible grouping strategies are a hallmark of differentiated instruction and are of critical importance when aiming to meet the needs of a diverse student population. Traditional grouping practices tend to focus on ability and "pigeon hole" students into a particular group level. High performing students are grouped with other high performing students and low performing students are partnered with others of the same ability. There is little movement from group to group and students tend to stay with the same groups throughout the year.

To the contrary, flexible grouping requires a more holistic perspective with regards to ability, learning profile and interest. Lewis & Batt (2005) indicate that the most important aspect of flexible grouping is that the groups are not static. Rather, they change frequently. Teachers conduct formal and informal assessments to move students from group to group as often as necessary. Pettig (2000) further claims that "the dynamic flow of grouping and regrouping is one of the foundations of differentiated instruction" (pg. 16). Flexible grouping strategies provide opportunities for students to work with different people throughout the year and to more deeply appreciate the richness and complexity of diverse learning styles, abilities, and interests among their peers.

Student Choice

Student choice is another essential element of a differentiated classroom. Students are empowered to make intelligent choices aligned with their readiness, learning style and/or interest. As Benjamin (2006) indicates, when students have choice, it provides them with a sense of self-determination that translates into increased commitment. A central tenet of differentiated instruction asserts that students feel empowered, are more motivated and enthusiastic about learning, take on more responsibility, and make more meaningful connections during the learning process when they are provided with an opportunity for choice.

For example, a student may choose a specific final product from a learning contract that best matches his/her learning style or interest. He/she may choose to work alone on a project, with a partner, or in a group. He/she may choose to work while listening to music or, alternatively, work in complete silence. Pettig (2000) states that "choice validates student's opinion and promotes self-efficacy," and therefore plays a crucial role in the differentiated classroom (pg. 17).

Classroom Management

Classroom management takes on quite a different meaning in a differentiated classroom as teachers need to be adept at facilitating multiple groups, all working on varied activities at one time. This can be especially difficult in a classroom with a large student-teacher ratio and space limitations. Teachers need to configure classroom furniture to create multiple spaces for differentiated learning opportunities as well as facilitation of both small and large group instructional methodologies. Furthermore, teachers need to think critically about materials, supplies and the best ways to maximize time.

An anchor activity is one management strategy used in differentiated classrooms to "anchor" a group of students, engaging them in a meaningful task directly related to the unit of study, while the teacher meets with a small group of students to introduce, re-teach, or assess a particular skill or understanding. Anchor activities are not "busy work" and therefore must be designed with a purposeful connection to what students are currently studying in class. Anchor activities provide the means necessary to ensure that all students are purposefully working on curriculum related tasks and they free the teacher to appropriately allot time to those students who may need further clarification, guidance, or challenge.

Differentiated Learning Models (K-12)

There are a variety of learning models used in a differentiated classroom to reach all learners at different levels. A few of the more common methodologies are discussed below.

Learning Contracts – A learning contract is one differentiated instructional technique used by teachers primarily to provide an element of choice in an assignment. Starting with the main objective or skill for a particular lesson, teachers work backwards and create a minimum of two options on a contract for students to choose in order to demonstrate understanding. Options are differentiated according to learning style. For example, when studying conflict and resolution in literature, a teacher may develop a contract that allows students to choose between writing a song, creating a short skit, writing a three-paragraph essay,

or painting a picture to depict the central conflict and the resolution. Alternatively, contracts can be differentiated according to interest. For example, when studying colonization, a teacher may develop a contract including options related to economy, government, roles of women/men/children, and relations with Native Americans. Students choose which option best matches their interest. When developing a learning contract for a particular unit of study, the options are essentially limitless and depend greatly on the creativity and ingenuity of the teacher.

Role / Audience / Format / Topic (RAFT) - A RAFT is a differentiated activity used primarily to encourage writing across the curriculum. In a RAFT, students take on a specific role and develop a final product for a target audience related to a core concept or topic from a unit of study (Billmeyer & Barton, 1998). For example, when studying fractions and decimals, students may take on the role of a fraction and write a letter to a decimal explaining how the two are related to each other. When working on concepts related to persuasive writing, students may take on the role of advertisers producing an ad campaign for children illustrating why their cereal product is the healthiest option for a nutritional breakfast. No matter what type of RAFT a teacher creates, he/she begins with the major skills or concepts that students should be able to do or understand and then works backwards to differentiate multiple options that can either be assigned or chosen by interest.

Stations – Stations refer to different locations in a classroom where a teacher organizes materials for students to work on specific tasks related to a curriculum objective. When stations are used, multiple locations are required as students generally rotate from station to station individually or in groups. Stations work well in a differentiated classroom because they provide for a strong balance between student choice and teacher choice. Furthermore, stations lend themselves easily to flexible grouping as every student does not need to visit every station, but can rather spend more time studying a concept in depth or even work in a small group or one-on-one with the teacher (Tomlinson, 1999).

Learning Centers – Centers are often easily confused with stations because, in principle, they are very similar. However, Kaplan et al. (1980) defines a learning center as an area in the classroom containing a variety of activities or materials developed specifically to teach, reinforce, or extend a skill or concept. Centers require students to take on a high degree of responsibility for their own learning as the tasks are independent of teacher direction and students need to be self-motivated to explore and work on their own or with a partner. Centers generally contain a variety of activities that are differentiated for varying degrees of complexity and depth. Tomlinson (1999) also indicates that interest centers further enhance the differentiated classroom as they provide opportunities for students to explore concepts they are particularly interested in learning about.

Tiered Activities - Lewis & Batts (2005) describe tiered activities as a collection of assignments designed at different levels of complexity and depth according to student readiness levels.

Teachers employ tiered activities when aiming to create opportunities for students to focus on the same concepts, but at varying levels of complexity (Tomlinson, 1999). This type of instruction directly addresses the differing needs of both struggling students and advanced students and offers a direct alternative to the "one size fits all" model employed in most traditional classrooms. A typical tiered activity is guided by one overarching skill that a teacher expects all students to know, understand and be able to do (i.e. identify the characteristics of a triangle). Tier one may require students to write or draw a description of the main characteristics of a triangle. Tier two may require students to compare and contrast the main characteristics of a triangle with another figure. Finally, tier three may require students to identify the main characteristics of a triangle and discuss the implications these characteristics have for the use of the triangle in society.

Curriculum Compacting – Curriculum compacting is a methodology employed for those students who can demonstrate they have already mastered a particular skill or understanding. Rather than repeat mastered material, students are provided with the opportunity to work on alternative, more challenging assignments. By using the results from a pre-assessment, teachers can easily determine level of mastery and appropriately assign students to a compacted activity, thus carving time for the teacher to meet directly with those students who need extra support. As Lewis and Batts (2005) claim, accurate records are extremely important when compacting the curriculum as teachers need to be sure to provide accountability and a rationale for creating an opportunity for students to work on alternative assignments.

Viewpoints

Two conflicts that teachers often struggle to resolve are the perceived mismatches between differentiated instruction and grading systems as well as differentiated instruction and standards. The traditional box that most grading systems operate within does not quite match with the reality of what takes place in a differentiated classroom. When different students are working on different activities at different times, teachers often grapple with how to grade student performance. Tomlinson (2005) demonstrates that the barrier is more imagined than real and that the ultimate goal of grading systems is to be accurate, reflective of student performance, and useful for growth and development.

Similarly, teachers grapple with how to reconcile the perceived mismatch between increasing standards based accountability and differentiated instruction. They worry that if they are required to address all of the content and performance standards in order to ensure success on standardized tests, it is even more difficult to be responsive to all of the diverse learning needs and styles in a classroom. McTighe and Brown (2005) assert, however, that differentiation and standards can not only peacefully coexist, they must coexist if we seek to continually improve our schools. All students can and must be held to the same high expectations and standards for learning. It is the teaching methodologies, however, that must be differentiated to ensure that each student successfully meets the standards.

It is difficult to challenge the underpinnings of differentiated instruction, as every classroom includes a range of learners with varying abilities, learning styles and interests. Although there still exists many traditional classrooms and many teachers continue to employ "one size fits all" instructional techniques, these teachers are not intentionally negatively impacting student learning outcomes. The real issue at stake is the level of time, support, and energy necessary to change (George, 2005). There is no doubt that creating a highly differentiated classroom environment can be very difficult for some teachers as they need to consider many different facets of teaching and learning in order to reach each individual student. Moreover, most teachers have been exposed to very few models of differentiated instruction throughout their own education and therefore find it difficult to transfer these instructional methodologies into their own classrooms. As Tomlinson (2005) states, "one reason responsive teaching is scarce is that teachers lack images of such classrooms. We teach as we were taught. Furthermore, most educators have had little opportunity to study in depth the need for differentiation" (p. 183).

School leaders need to support teachers in their endeavors to adapt teaching methodologies to incorporate differentiation. They need to provide time and exercise much patience. Furthermore, teachers need extensive professional development opportunities to hone their craft and study differentiation and how it applies in the classroom setting. Moreover, Holloway (2000) discusses the need for Universities to develop pre-service programs that help teachers understand differentiated instruction. We need to prepare the next cadre of teacher leaders with the skills necessary to employ these instructional techniques. Once these teachers are in our schools, we need to support, encourage, and nurture them (Holloway, 2000). Tomlinson reminds us that substantial change is slow. When aiming to employ differentiated instructional methodologies in the classroom, schools need to start small, avoid overload and prepare for the long haul (Tomlinson, 1999).

Terms & Concepts

Anchor Activity: An anchor activity is a management strategy used in differentiated classrooms to "anchor" a group of students, engaging them in a meaningful task directly related to the unit of study, while the teacher meets with a small group of students to introduce, re-teach, or assess a particular skill or understanding.

Curriculum Compacting: Curriculum compacting is a methodology employed for students who demonstrate they have already mastered a particular skill or understanding. Rather than repeat mastered material, students are provided with the opportunity to work on alternative, more challenging assignments.

Flexible Grouping: Flexible groups are not static, but rather "fluid" in terms of students consistently moving in and out of different groups according to a holistic perspective with regards to readiness level, learning profile, and interest.

Formative Assessments: Formative assessments provide information that assists teachers to formulate and modify their instruction to meet the needs of a diverse student population on an ongoing basis.

Learning Center: A learning center is an area in the classroom containing a variety of activities or materials developed specifically to teach, reinforce, or extend a skill or concept.

Learning Contract: A learning contract is a differentiated instructional technique used by teachers primarily to provide an element of choice in an assignment. Contracts can be differentiated according to readiness level, learning style, or interest.

Learning Profile: A students learning profile is a preferred way of learning that may be influenced by learning style, intelligence preference, gender and culture.

Multiple Intelligences: Gardner (1983) discusses eight major intelligences including verbal / linguistic, logical / mathematical, visual / spatial, bodily / kinesthetic, musical / rhythmical, naturalist / environmental, interpersonal and intrapersonal. These intelligences serve as indicators to help assess learning preferences and styles.

Ongoing Assessment: Ongoing assessments are used throughout a unit of study to best meet the needs of individual students. They may take the form of homework assignments, performance tasks, mini-projects, or student presentations as well as other options.

Readiness: Readiness refers to a student's entry point relative to a particular understanding or skill. In any given classroom, there always exists a range of different readiness levels.

Role/Audience/Format/Topic (RAFT): A RAFT is a differentiated activity used primarily to encourage writing across the curriculum. In a RAFT, students take on a specific role and develop a final product for a target audience related to a core concept or topic from a unit of study.

Pre-Assessment: Pre-assessments help teachers determine student readiness for a particular concept, preferred learning styles and/or levels of interest in a particular component of a unit of study. They may take the form of interest surveys/inventories, parent questionnaires with younger students, or quick pre-tests as well as a variety of other options.

Stations: Stations refer to different locations in a classroom where a teacher organizes materials for students to work on specific tasks related to a curriculum objective. When stations are used, multiple locations are required as students generally rotate from station to station individually or in groups.

Summative Assessments: Summative assessments are given at the end of a unit of study to provide meaningful data regarding mastery and student understanding of core concepts.

Tiered Activities: Tiered activities are a collection of assignments designed at different levels of complexity and depth according to student readiness levels.

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Essay by John W. Loeser, M.Ed.

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