

Curriculum and Advanced Instructional Design: Differentiated Instruction in Terms of Process and Product

Literature Review

Zahra Abdulelah Al Khamis

مبدأ التعليم المتميز في ضوء التطبيق والانتاج

اسم الباحثة

زهراء بنت عبد الاله الخميس

محاضر بجامعة الملك خالد

ماجستير في التربية الخاصة من جامعة انديانا بولاية بنسلفانيا الامريكية

الملخص

تحتوي الفصول الدراسية على مجموعة من الطلاب من خلفيات وثقافات وبيئات مختلفة ومتنوعة . كل طالب من هؤلاء الطلاب يتمتع بقدرات وامكانيات مختلفة .ايضا يستخدم هؤلاء الطلاب طرقًا واستراتيجيات مختلفة للتعلم، لذلك يجب أن يدرك المعلمون أن الإستراتيجيات التي تعمل لطالب واحد قد لا تفيد طالبًا آخر .وفقا لذلك يجب تصميم المواد التعليمية والطرق المستخدمة للتدريس بالاضافة الى وسائل التقييم بطريقة تخدم جميع هؤلاء الطلاب دون اي استثناء وذلك من أجل منحهم فرص متساوية للتعلم .هدفت هذه الورقة لمراجعة الاداب التربوية ومناقشة اهم الخطوات المختلفة التي يمكن اتباعها من أجل إعداد الفصول الدراسية التعليمية والمناهج التدريسية ووسائل التقييم تحت مسمى مبدأ التعليم المتميز والذي يهدف الى مراعاة احتياج كل طالب من طلاب الفصل الدراسي من خلال مبدائه التي تهدف الى تعديل محتوى المنهج الدراسي بالاضافة الى تعديل طرق التدريس ووسائل التقييم لجعلها تتوافق مع تعليم الطلاب المتعددين ذوي القدرات المختلفة في أي صف تعليمي.

Abstract:

Differentiated instruction plays a significant role in instructional design by requiring teachers to get to know their students, identify areas of the curriculum that can be differentiated, and examine their roles in the differentiated classrooms. In this paper, different tips will be discussed in order to prepare the educational classrooms and lessons to accommodate differentiated process and product strategies for teaching diverse students with different abilities in any educational class, such as the writing and social studies classes

Classrooms have students from different backgrounds, cultures, and environments with different abilities and potentials. These students use different ways and strategies to learn, so teachers must be aware that a strategy that works for one student may not benefit another student. Therefore, materials, methods, and assessments must be designed to target all students in order to give them an equal chance to learn as instructional design states (Hall, Strangman, & Merey, 2003).

Differentiated instruction plays a significant role in instructional design by requiring teachers to get to know their students, identify areas of the curriculum that can be differentiated, and examine their roles in the differentiated classrooms. Teachers must first know their students' academic level by using standardized assessments or by reviewing the students' past records. Also, they must identify the ways the students learn in addition to their students' interests (Willoughby, 2005). Knowing the students' abilities will help teachers use the differentiated instruction successfully.

Differentiated instruction asks the teachers to identify instructional areas that can be modified. In this requirement, teachers have to study the objectives and goals of the subjects they will teach. Teachers must also understand all their state curricula goals. In addition, identifying two concepts that can be differentiated in different complexity is required from the teachers to make students feel challenged while learning. Teachers are expected to brainstorm activities, tasks, and assessments that can be used during the instructional classrooms (Willoughby, 2005).

To have successful differentiated classrooms, teachers also need to examine their roles as teachers. They must brainstorm different strategies which deliver content in a way that will help students engage in learning. Teachers must also develop lessons facilitating with the class time, so teachers will ask students to work on the multiple activates during the class time. In addition, instructional design asks teachers to explore alternative methods to assess the students (Willoughby, 2005).

To minimize barriers and maximize flexibility to learn, there are four elements that can be differentiated in the educational classrooms, especially the classes that have students with disabilities. These elements are the content of the instruction, the process that is used to make sense of a given topic, the product that is produced by students, and the environment on the way the classroom feels and works (Tomlinson, 2000). In this paper, different tips will be discussed in order to prepare the educational classrooms and lessons to accommodate differentiated process and product strategies for teaching diverse students with different abilities in any educational class, such as the writing and social studies classes.

Preparing the Classrooms and the Lessons:

Before delivering the content, teachers must prepare the classrooms and plan the lessons based on the subjects, grade levels, and teaching styles. Also, the lessons have to be based on the students' interests and abilities (Campbell, 2008). Campbell (2008) introduced seven ideas preparing classrooms for differentiated multiple intelligences program. First, teachers must identify the students who benefit from current instruction to determine the students who need differentiated instruction. Second, to meet the students' needs, teachers should put the students in a small group and rearrange the classroom, such as exchanging a desk for a table to encourage the students to work in small groups. Third, based on state and national standards, the teachers need to determine themed units or disciplinary areas

to teach. Once these concepts are identified, planning differentiated instruction can begin. Fourth, Teachers must determine the learning outcomes, what students will have learned after instruction. Fifth, teachers must provide differentiated instruction by presenting materials in various ways. For example, if teaching journal writing, students can practice in various ways such as learning logs, personal journals, reading journals, and class journals. This practice can be incorporated into various subjects throughout the day. During the instruction, teachers should also note activities which students enjoy or dislike. This information can be used to structure future lessons that will benefit the students. Sixth, content should be assessed differentially. Assessment can include things such as portfolios, art works, and songs. Students can be involved in deciding appropriate forms of assessments. Seventh, students should be aware of how the assessment will be graded. For example, students can be provided with a rubric prior to the assessment (Campbell, 2008).

Teachers must plan the academic lessons in order to gain the students' attentions. Thus, teachers must inform the students about the lesson content. For this reason, teachers have to introduce the lesson topics by using attractive ways, such as reading a book. Teachers could also inform their students about the sequences of the lessons via using physical objectives, such as toy truck or presenting transportable pictures. Using materials that can be seen or touched is better than disclosing the topic orally because it is more effective to draw the students' attention, particularly the Autism students. For example, telling the students about the daily educational class activities via written or drawn schedules is more powerful than telling them simply via oral words (Lynch & Warner, 2008).

Teachers also must instruct the body of the lessons based on their creativity with taking their students' ages into account. They need to support the body with various activities, such as including class discussions, dramatic presentations, singing, or playing games. Using multiple activities could help to maintain the students' concentration. This is especially helpful for students whose attention span is limited. Additionally, teachers are required to close their lesson before moving to another lesson. Closing the lesson through reviewing the content of the lesson is significant. The advantages of reviewing the content are making sure that the students are able to recall the lesson ideas and preparing them for assessment. Helping the students to

remember the lesson contents should also be extended via giving the students some information about the next lesson (Lynch & Warner, 2008).

The process of Differentiated Instruction:

Because each student has his or her own way to learn or to understand a given topic, the instruction must be differentiated in the educational classrooms (Hall & Meyer, 2003). The process of differentiated instruction helps students to master content and make sense of the content factual information (Tomlinson, 2001). Therefore, it is recommended that teachers should assess the students to know what way each student prefers to use (Hall & Meyer, 2003). After assessing the students, teachers will be able to understand which ways should be used to deliver the contents to help the students to realize, comprehend, and apply.

There are different strategies to use in the general educational classrooms, especially the classrooms that have at-risk students. These strategies must increase the students' interest and thinking in addition to encourage them to use the appropriate skills to understand particular ideas (Tomlinson, 2001). Teachers can use multiple ways to show the instructional contents to their students, such as digital texts, texts on CDs, films, and PowerPoint presentations. Therefore, if there is a student with a reading difficulty, he/she can understand the content by watching a film instead of reading a book. Also, multiple examples must be provided because some students might understand an example that was not understood by other students. For instance, to teach students to understand a state location on the map, teachers can provide small and large maps or sample and complex maps. Tactile maps can be used also if there is a student with a visual impairment in the classroom just to make this student engaged in the class (Hall & Meyer, 2003).

Differentiated materials and formats must be used in the differentiated classrooms to help students to learn well. Providing digital materials can work for this point due to its access to manipulate size, color, and shape, so students will learn by using different formats (Hall & Meyer, 2003). Also, materials should target visual, auditory, and kinesthetic students in the differentiated classrooms (Willoughby, 2005). For example, to teach students about the national holiday, teachers can ask visual students to watch a movie about the national holiday while auditory students listen to a story and kinesthetic students handle the national costume (Willingham, 2005).

To help the students to remember the content of the instruction, teachers could use pictures to demonstrate material. This will help students recall the material by having a meaningful visual picture about the contents. For example, when teachers want to teach students about the death toll during World War 1, they could display a picture containing deceased soldiers in trenches. Using the picture will help students to deeply understand and visualize the content due to its power to increase the amount of imagination (Bender, 2002).

Highlighting critical features and avoiding focusing on the additional details is an essential way to teach students based on differentiated process.

Actually, it can help to make students able to identify the class objectives and focus on the important contents. This strategy is helpful to teach a classroom that has students with attention deficiency (Hall & Meyer, 2003).

Another way to teach differentiated instruction is providing an interest center where students explore the content and make sense of the instruction. Interest center works well for kindergarten and preschool students. Also, providing hands-on support to the students in the class is required. Hands-on support can be provided by differentiating the time, for example, via giving more time to the students who need it (Tomlinson, 2000).

Flexible grouping is a significant way to use in the diverse classrooms.

Students work and interact together while learning. Using flexible grouping is based on various requirements including students' abilities and class content, so flexible grouping is not fixed. It changes with the content and student's results (Tomlinson, 2001). For example, students could be signed in a group depending upon their interest or their IQ rating level. Flexible grouping can be implemented via different ways, such as peer-tutors, guided research studies, and cooperative learning groups (Schlemmer & Schlemmer, 2008).

To have a successful group, the group members should have a comfortable place to work on. Also, the students should be controlled by the teacher via a clear direction and a given time. Each member should have a role that he/she is responsible to do. Also, giving each group different tasks with different complexity can be recommended in order to meet the needs of each group (Schlemmer & Schlemmer, 2008). Assigning the students small groups is an enjoyable and useful strategy that helps teachers to give the instructions directly to the students instead of providing the information in general to the whole-class (Tomlinson, 2001).

The disadvantage of flexible grouping strategy is some students do not collaborate with the other students, so they rely on their peers. To solve this problem, teachers could use bring-something-to-the-group strategy. This strategy was designed in order to encourage the students' contributions by asking each student to provide a useful thing that helps him/her to join the group. For example, teachers might ask each member of the group to fill in a graphic organizer individually explaining specific information about the group topic (Schlemmer & Schlemmer, 2008). Bring-something-to-the-group strategy works with flexible grouping strategy in effective way in order to help the students to process the content.

In addition, teachers can apply classroom management strategies that help in maintaining the student's attention, organization, and focus. Therefore, utilizing classroom management in the diverse classroom prevents the misbehaviors and maximizes the students' opportunities to learn. If a classroom has students with Attention Deficient Hyperactivity Disorder who struggle to focus during instruction, using classroom management will play a great role in the classrooms (Tomlinson, 2000). Compacting technique is such example of the classroom management strategies.

Compacting strategy contains of three steps that support differentiating instruction and maximize the students' abilities. These steps determine what the students know and need to know about the instructional content, developing a plan to teach students what they do not know, and planning how many minutes should be spent in studying the new information. To implement the compacting strategy, teachers are required to inform the students and their parents of the process that is used to master the new information. Also, it is significant to assess the students' knowledge before developing the instruction in attempt to recognize what the students are familiar with. Teachers should also use a time-line or written-plan that helps in organizing the class time in addition to accelerate study (Tomlinson, 2001). Implementing the compacting technique as a classroom management strategy in the classroom is considered as a successful way to differentiate the instructional process.

Furthermore, using tiered activities is very important to make students learn via different levels of support or flexibility. It aims to involve the students in multiple activities that have different levels of difficulty (Tomlinson, 2001). Tiered activities are designed to differentiate the instruction based on the students' readiness. It aims to help three types of students: the students who

are below the average, the students who are at the average, and the students who are above the average. Therefore, teachers should conduct a pre-assessment to determine which level of the activities is appropriate for a specific student. Tiered activities strategy can be implemented by asking the struggling students to do least complex activities, such as using available resources to answer a question, and asking the students who at the class average to do more complex activities, such as finding an recourse and using the available resources to answer the same question. Also, the advanced students will be asked to do most complex activities, such as finding new resources to answer the same question (Schlemmer & Schlemmer, 2008). This means tiered activities strategy is effective to differentiate the instruction because of its ability to meet each student's needs individually.

Students with learning difficulties need more assistance to overcome their academic struggles, such as their weak attention skills. On the other hand, teachers might not have enough time to assist each student independently. Therefore, teachers need someone that can help to work with the students who have learning disabilities. The recent studies emphasize peer tutoring is a great method that could help teachers to provide equal educational opportunities for all students. Because students like to learn from each other, using the peer tutoring strategy helps in saving the interactional time as well as integrating all students in the differentiated classroom. To implement this strategy, teachers should determine the part of the task that the students with learning disabilities need help with, the students who can be trained to be tutors, and what the tutors can do. The responsibility of the peer-tutors could be shown as checking how the student the tutor works with did an assignment, reviewing the student self-assessment, and listening and correcting the student reading (Bender, 2002). Teachers should select the students who would like to be tutors. For example, teachers might ask the students to register their names with the appropriate time if they would like to help their peers. Also, teachers must allow the students with learning disabilities to be tutors as well because being tutors improves self-concept and social skills. In addition, the peer tutors must be trained well to make sure they understand the material's contents and know how to use the instructional methods. Using peer tutoring is effective in the differentiated inclusive classrooms due to its efficiency to

increase the students' performances, improve the students' social interactions, and teach the student tutors teaching skills (Bender, 2002). Teachers can also implement kids-teaching-kids strategy in the regular classrooms by asking the students to explain directly what they had learned. For example, after presenting the introduction of a lesson, teachers might ask a student to explain the introduction to his/her neighbor. Then, teachers might also ask the neighbor to explain what his/her peer said by using different words (Schlemmer & Schlemmer, 2008). Kids-teaching-kids strategy is a good strategy that can be used to differentiate the instructional process because it encourages the students to learn from each other and increases their social skills.

Bender (2002) stated that it is important to differentiate instruction in an attempt to give the students with learning disabilities equal learning opportunities to their normal peers. Therefore, Bender focused on two techniques dealing with differentiating the instructional process; metacognitive instruction and scaffolded instruction. Metacognitive instruction is recently accounted as a hot topic in education. It focuses on encouraging the students to process the factual knowledge by increasing their organization abilities in order to demonstrate a complete task. It is defined as having an opinion about a person's thinking. It is based on three elements; having an idea about how to plan steps to do a task, understanding how to follow these steps correctly, and watching how these steps are done. Because the students with organization problems or difficulties to transfer from one activity to another need support while working on their tasks, it can be said that the metacognitive instruction can work successfully for them (Bender, 2002). Therefore, these students will get support by helping them to plan appropriate steps, order their steps respectively, and watch how they are dealing with each step.

Because the metacognitive instruction is based on silent language, teachers could understand how the students deal with a task by watching how the students are instructing themselves. For instance, to teach students how to demonstrate a math problem solving task, teachers should firstly present the steps that are used to solve the math problem in order to motivate the students to imitate the steps. Then, students should collaborate with their teachers in solving the math problem in addition to repeating the steps aloud. After that, students should solve the math problem by themselves with keeping repeating the steps aloud. The next step is asking the students

to solve the math problem also independently but without repeating the steps aloud; they would repeat them whisperingly. Finally, the students should solve the problem independently with repeating the steps silently where the silent language is used. To support this technique, teachers need to provide their classes with a range of metacognitive ideas to encourage their students to practice the metacognitive instruction repeatedly and generalize it over time (Bender, 2002). Thus, with utilizing the metacognitive instruction, the students' organizing, planning, and completing task problems would be remedied.

An advanced organizer is an example of a metacognitive technique, which facilitates the lesson contents. It aims to help students to have an organized thought pattern about the past knowledge they know and the new knowledge they will learn. The effects of advanced organizers can be shown when it is used for interactive lessons, group projects, and lessons (Bender, 2002). Darch and Carnine (1986) conducted a study to compare the effectiveness of using advanced organizers and traditional texts on students with learning disabilities' achievements. The result of this study confirms that advanced organizers have the ability to help students to understand the materials, demonstrate the content well, and achieve high scores (Bender, 2002). With these advantages, it can be said that the advanced organizer is one of the successful strategies that helps the students, especially the students with learning difficulties, to process the instructional content in an organized way.

Teachers could help the students to organize their thoughts during the process level by providing graphic organizers and study guides. Teachers might ask the students to complete a sample study guide during the traditional instruction. This method can help students who have learning difficulties, particularly the high grade students, to organize their knowledge in order to increase the amount of their achievements. Because graphic organizers and study guides can be provided in different shapes, texts, charts, or pictures, using them was approved as a successful strategy in the differentiated educational classrooms. Therefore, due to graphic organizer and study guide benefits, it is recommended to use them in the diverse classes for all the students, normal students and students with learning difficulties (Bender, 2002).

Scaffolded instruction is a new technique in the educational field (Bender, 2002). With this strategy, teachers give all students the same task with the

same level of difficulty. However, teachers must provide the supports differently to the students (Schlemmer & Schlemmer, 2008). The level of the assistance must be determined depending upon the students' needs, while taking the importance of encouraging the students to master the task independently into account. The assistance will be removed gradually when the students' progress toward independence (Bender, 2002).

Because most students with learning difficulties struggle with organization skills, they have difficulties understanding the content. For example, many of these students suffer with reading comprehension due to their difficulties to organize the components of a story. Thus, providing a scaffold in the reading comprehension instruction, such as a reading map activity, could help the students to explore the story's components, such as the story characters, story problem, and story conclusion (Bender, 2002). This scaffolding reading instruction does not help just the students with learning difficulties to organize their thinking, but it also helps the normal students to improve their skills and abilities to deal with the advanced knowledge and skills (Schlemmer & Schlemmer, 2008).

To use scaffolded instruction successfully in the diverse classrooms, teachers should achieve six requirements. First, teachers should recognize the current levels of the students. What the students know and what they are able to perform are significant factors to determine the students' strengths and current levels. Second, teachers should start their lessons with things that the students know or have idea about. For example, teachers should start the reading instruction with words that the students are able to read independently. Third, teachers should help their students to succeed and avoid their difficulties. For instance, teachers could help the students who have difficulties with written expression by allowing them to dictate their thoughts. Fourth, teachers should help their students to feel they are similar. Therefore, the students who were placed in the same grade should study the same book despite their difficulties. Teachers must inform the students who are struggling that it is alright that they have to work hard, but they also will receive assistance. Fifth, teachers should know in which time they should stop practicing the tasks. It is usually when the students mastered the factual knowledge. If the teachers continue giving the students tasks that were mastered, they will refuse to demonstrate or will demonstrate wrongly. Sixth, teachers should give the students opportunities to work independently. Thus, teachers must listen to and watch their students work,

and help them just when they are in desperate need (Bender, 2002).

Obtaining these six requirements during the utilization of the scaffolded instruction strategy helps the students to pass their obstacles to understand and process the content.

Teachers could adapt the scaffolded instruction by utilizing the reciprocal teaching technique. Reciprocal teaching relies on formatting the meaning of the instructional content via conducting a discussion between the teachers and the students. It requires teachers to give the students their roles of teaching by following four procedures, which are: predicting hypothesis, asking general questions, summarizing the important ideas, and clarifying the new vocabularies and the vague ideas. Implementing this technique is confirmed to be effective for teaching reading classes, especially for small groups of students. Because most of the students with learning difficulties feel awkward to ask a question, utilizing reciprocal teaching in the diverse educational class for small groups could promote their responsibilities to ask questions during the discussion (Bender, 2002).

All of these strategies are helpful if they are used in diverse classrooms, so the students will have a chance to master the content by using their preferred way(s) without feeling frustrated. However, the power of these strategies could not be obtained if the teacher applied them randomly. For this reason, teachers should understand the steps that are used to implement a new strategy that matches a specific task successfully. First, teachers need to assess the students and determine their needs for a strategy which could help the students to demonstrate the task. Second, teachers should explain the new strategy to the students by informing them how, when, and where it should be used. Third, while explaining how to implement the new strategy, teachers should model each part of it to the students with motivating them to ask questions about the strategy. Fourth, teachers should ask the students to explain the importance of the strategy and how to use it verbally before practicing it. Fifth, teachers should help the students to practice the new strategies on simple tasks. If they mastered the strategy, they could generalize it to the complex tasks. Sixth, teachers must increase the complexity of the task gradually until the difficulty approaches the appropriate level for the students' grades. Seventh, teachers should encourage the students to generalize the strategy to the identical tasks. Eighth, teachers should not just teach the students how to use a new

strategy, they should also make sure that the students generalize and maintain it (Bender, 2002).

The Product of Differentiated Instruction:

Teachers need to make sure that the class was effective or not, so teachers need to assess their students' progresses by monitoring their academic performances. As was discussed above, the students with learning difficulties need support during the instructional process; they also need intensive efforts of support during monitoring and assessing their performances (Bender, 2002). Thus, teachers should differentiate the instructional products which are used to identify the students' performances, what the students produce to show their understanding. The product is important "because they are the element of curriculum students can most directly own," (Tomlinson, 2001, p. 85). Therefore, teachers should motivate their students by differentiating the assignment's products.

According to Tomlinson (2001), teachers should maximize the opportunities for students to demonstrate their learning by utilizing high quality assignments which are considered as successful ways to assess the student's performance. For example, a student might perform well with a product although he/she performed low in a written test that assesses the same subject. Therefore, teachers are required to develop high quality assignments to meet the students' needs. The students must feel pleasure and challenged when they are coping with the products. Also, the products should be designed to motivate the students to think about their knowledge and demonstrate it well (Tomlinson, 2001).

Products can be formed depending upon the curriculum requirements. For instance, the product of the writing class could be writing an essay. However, teachers have the ability to form the products in a way that meets the curriculum requirements as well as students' interests. To clarify teachers could offer a picture that could inspire the students to write an essay in the writing class. Also, teachers should form the product depending upon the student's intelligence type. The students who have musical intelligence could be asked to write music to demonstrate their learning, for example (Tomlinson, 2001).

Teachers also should vary their expectations of the students' performances. Therefore, teachers should not expect that the students will use a particular way to demonstrate their learning or produce the same information. For this reason, teachers should understand each student's needs, interests, and

readiness in order to motivate the students to produce what they had learned by themselves. Furthermore, as the instructional content becomes more complex with the students' progress, the product also becomes more complex. Thus, teachers should use ways that help the students to interact with the new level of product difficulty (Tomlinson, 2001).

When teachers need to develop assignment products, they must balance the objectives of the products with the students' interests and modes. Thus, teachers must ensure the products are clear for the students, so the students understand how they will express their learning, which knowledge they need to demonstrate, and which skills they should use. Also, teachers should take into account the students' preferred way to work and demonstrate. With taking care of this point, teachers could provide the instructional classroom with differentiated product assignments (Tomlinson, 2001). Furthermore, teacher-assigned and student-selected tasks must be balanced, so students have choices to select how they would like to be assessed (Willoughby, 2005). Therefore, teachers should ask the students about their ideas and advices. For example, teachers could ask the students about which way they prefer to use to demonstrate their successful learning, individually or with a group (Tomlinson, 2001).

The "choice boards" strategy can offer an opportunity for students to select their assignments. Teachers should list different assignment activities on a board, at least two options for each student. These options should be given for any student depending upon his/her readiness or intelligence type. Then, each student will choose from this list the activity that he/she preferred. In fact, giving the students the right to select their preferred way to produce their learning could motivate the students to demonstrate better than forcing them to use a particular way (Schlemmer & Schlemmer, 2008).

Different strategies can be used in the educational classroom in attempt to differentiate the assignment products, which helps to assess and evaluate fairly the learning and skills of the normal students as well as those with disabilities. This differentiation will not help just in improving the students' abilities to respond or encouraging them to demonstrate successfully, it will also help in accelerating the students' speeds to produce their knowledge, in addition to keeping them engaged in the content tasks. To obtain these advantages of differentiating the products, it is advised to use different effective strategies and assessments in the inclusive classrooms (Schlemmer & Schlemmer, 2008).

Teachers should use initial and on-going assessments to assess their students' performance outcomes. Pre-assessment is important because it allows teachers to know the students' academic levels and their preferred ways to demonstrate their learning. Teachers can use formal and informal assessments including criterion-referenced test, interviews, and discussions. Also, teachers must vary the expectations and requirements of the students (Tomlinson, 2000). For example, if there is a student with a writing difficulty, the teacher can assess this student orally instead of using a written exam.

The recent trend of assessment does not focus on assessing the students' cognitive ability deficits such as the students' visual memory deficits. It concentrates on assessing the students' academic skills directly via curriculum-based measurement, which is a formative assessment that helps teachers to monitor their students' progresses. Using curriculum-based measurement works well for assessing the students' skills that were listed in the curriculum while paying attention to monitor these skills frequently and regularly. The educational decision about the students' performance must be a result of these frequent and regular assessments. In fact, the curriculum-based measurement has a great influence on differentiating the educational classroom products in order to serve all the students, particularly the students with learning disabilities (Bender, 2002).

The foundation of the curriculum-based measurement theory is the criterion-referenced test, which compares the students' performances with the appropriate academic skills of the students' grade levels. Teachers should use the criterion-referenced test to measure the students' products by monitoring whether the students performances are identical to the skills that are expected of any student of their age; thus, facilitating the teachers' determination of the students' deficiency with any area of any educational subject. For example, when a student answered two of three rows of questions that were arranged in order of their difficulty, the teacher can understand the student is struggling with the third row where the student's performance was low. The objectives of any test that was supported with the criterion-based measurement should be printed in the test manual. For instance, the objectives of the informal tests that were created by teachers should be attached to the students' individualized educational program (Bender, 2002). Repeating use the criterion-based measurement more than

one time through the educational year gives the students different opportunities to demonstrate their learning in the diverse class.

Precision teaching is another assessment strategy that the curriculum-based measurement is based on. Precision teaching emphasizes monitoring the students' observable behavioral and academic skills constantly. It requests monitoring the frequency of the students' observable performances before and during the educational interventions. This monitoring aims to explain the influence of the environmental condition on the students' outcomes. To use this strategy, teachers need to chart the students' performance rates in order to follow their progress. Therefore, teachers would be able to individually monitor any students' progresses and determine whether the student reached the mastery level or not.

Because most of the students with learning disabilities take a long time to recall and respond, teachers should focus on the students' performance speeds alongside the performance accuracy. To solve the students' performance speed problems, the precision teaching technique was developed with requiring specifying a particular speed of the performance in the educational objectives. Therefore, teachers should state the maximum time the students could take to answer a question. Precision teaching is a useful differentiation strategy that differentiates the products and helps in monitoring and assessing the students' skills accurately due to its sensitivity to the students' needs. Clearly, teachers can understand if there is no benefit of the instructional intervention from the performance chart. When the students' performance is stable or goes in an undesired direction for three consecutive days, this means the intervention should be modified in order to meet the students' needs (Bender, 2002).

Teachers should use a rubric as a product assessment. Using the rubric is significant because it helps to identify what the students understand and what they need (Tomlinson, 2000). From the rubric, it can be understood what the students should demonstrate in the end of the instructions, so it provides the students with feedback which helps them to reach the mastery level. Teachers should create the rubric based on the different expectations of the students' performance with including three components. These components are the items that are required of the students, the levels of performance expectation, and the descriptions of the expectations of the students' performance for each item under each level (Schlemmer & Schlemmer, 2008).

Using a rubric influences the students' learning because it explains what the students should produce and demonstrate before giving the instruction. Thus, the students should understand why they got low scores and what to do to change their result to the higher scores from the rubric. Also, it helps teachers to determine what the students are required to demonstrate or to include in their assignments by circling the area of the required item and its description (Schlemmer & Schlemmer, 2008). Furthermore, differentiating the product assignments should rely on the students' readiness levels, which can be served by the rubric that could work with different learning readiness (Tomlinson, 2001). For these advantages, teachers should give the students a rubric that guides them to understand what to do to achieve the objectives of the instructions.

Performance assessment is a differentiated product method that was designed to assess the students' mastered skills by looking at the students' actual products, such as developing news stories, creating a costume dress, and sampling water from rivers. This means the performance assessment requires enriching the instruction with multiple learning experiences, so the students would be able to apply these experiences to the instructional projects. To implement the performance assessment, teachers are required to create and develop multiple projects with understanding how to evaluate them. For example, teachers can ask the students to draw a picture or to write a poem about a particular subject with developing rubrics that explain the expectations of the student performances (Bender, 2002).

Another great strategy to differentiate the instructional products is anchor activities which are considered as ongoing product assignments. Anchor activities are a fixable strategy due to its ability to be short and complex. For instance, teachers can apply this strategy in different lengths of time; in a short period of the class time by asking the students to solve a math problem or in a longer period of time by asking the students to respond to an advanced task such as composing a story. Teachers are required to control the instructional class by helping the students to move from the class task to an anchor activity while maintaining the students' attention and saving the class time (Schlemmer & Schlemmer, 2008).

To implement the anchor activities in successful ways, teachers must explain to the students the desired results of any assignment, so the students will understand that they are not able to move to another activity without completing their assignments correctly. Teachers could use a rubric to

support this point. Also, teachers should ensure that each student signed his/her name before turning in his/her assignment, so the students will prove that they completed their assignment, and they are willing to move to an advanced assignment. Teachers also are required to set up multiple anchor activities which should be ready and available in the classroom. For example, teachers could list the week's activities in a paper and give it to the students (Schlemmer & Schlemmer, 2008). Anchor activities help the students in the differentiated classrooms to complete their works despite their different rates.

Portfolio assessment can be utilized also as a differentiated product strategy to assess the students' performance in special and general educational classrooms. It is a complete body of the student's works that shows the student's progress and the skills that were demonstrated over time. This portfolio should be selected by the teacher and the student, and it should provide evidence of the student's academic growth. It could also include any work that makes the students feel proud, such as the work that was completed with difficulty. The most important feature of the portfolio assessment is it requires attaching an index page that represents the reason for selecting each work that was included in this field. Therefore, gathering information about the student's progress can be done simply from looking at the portfolio index (Bender, 2002).

To implement the portfolio assessment in successful ways, the student's works that were selected to be integrated in the portfolio should be clearly determined. The content must be done by the students and observed by the teacher. Also, the teacher is required to follow up with the student's works (Valenzuela, 2002). For example, teachers could create a rubric that explains which work is allowed to be added to the portfolio (Bender, 2002). Moreover, teachers should schedule a meeting with each student to talk about the portfolio content as well as the student's progress. This meeting could be formal or informal just to encourage the students to demonstrate their learning well. Portfolio assessment is recommended in the differentiated classroom due to its features to support the student's self-evaluation as well as encourage the student's thinking (Valenzuela, 2002). Also, tiered assessment can be used as a product assignment to assess the students by asking them, for example, different questions moving from the easier to the more complex levels. This helps students to feel challenged during the assessment (Tomlinson, 2000). Tiered assessment strategy aims

to differentiate the product assignments based on the students' readiness. Therefore, the students who studied the same content and skills will demonstrate their learning differently. Teachers could develop multiple tiered assignments for a particular lesson.

In the general classroom, teachers could create three tiered assignments, which target the students who are below average, at average, and above average levels. Each tier will assess whether the students reached the mastery level or not by meeting the target of the objectives. For example, teachers could develop a tiered assignment to assess the students in a social studies classroom. Tier 1, which has the below average students, will ask the students to read a simple text. Tier 2, which has at-average students, will ask for reading more difficult text. Tier 3, which has the above average students, will ask for advanced text (Schlemmer & Schlemmer, 2008).

The product of differentiated instruction in educational classrooms helps students understand the instructional contents and helps teachers also follow their students' progress. Recently, differentiated instruction became one of the important strategies that are used in the general classrooms to teach the students, especially the students who have disabilities.

Differentiated Instruction in the Writing Class:

The Michigan Department of Education website for assisting beginning teachers presented a plan in 2006 to teach writing in the classrooms for at-risk students. This plan contained various ways to help teachers to teach writing classes successfully. There were various ways to make the writing classes were differentiated. First, teachers could ask students to work in groups or with partners by giving each one a role to write a paragraph. Assigning the students in a group gives the students a chance to help and model for others. In addition, if a group has a student who has problems with organizing his/her thoughts, this student can get help from the other members of the class. Second, giving the students the first sentence of the paragraph helps the students who are struggling in starting their writing. Third, teachers should allow using the computer for typing instead of using paper to help students with fine-motor skills problems. Fourth, providing the students with ways to organize their ideas is very helpful, particularly for students who have problems with organizing their thoughts. Therefore, teachers can give the students different types of graphic organizers, such as plot map or flow chart, and teach them how to use them. Fifth, providing a picture dictionary for students could work for students who have difficulties

with spelling, so the students can copy the word's spelling. Sixth, asking students to write a rebus story, a story written from sequence pictures, helps students who have problems with brainstorming and imagining what they would write about. Seventh, giving the instruction in a mini lesson or in a short time could help the students who have problems focusing for a long time. Eighth, breaking the large task assignment into smaller assignments is considered as a way to differentiate the products. For instance, the students could be asked to write the introduction at a particular time and the first paragraph in another time (Writing differentiated plan: an elementary writing example, 2006).

Differentiated Instruction in the Social Studies Class:

Differentiated instruction was utilized to create a lesson plan about state emblems for second grade students. This lesson was created to help the students to demonstrate three objectives: first, educating the students about the state emblems, such as the official name of Texas's state capital, birds, tree, and flower; second, teaching the students the state motto and promoting them to repeat it aloud; third, instructing the students on how to draft a story of complete sentences talking about the official symbols of the state. The students must demonstrate these three objectives at 80 to 95 percent accuracy (Lynch & Warner, 2008).

Because the classroom has students with different abilities such as students who are at, below, and above the grade level, the lesson is differentiated by varying the expectation of these students. For example, the students with mild disabilities, whose intelligences are below the average, are allowed to point to the pictures of the state emblems, repeat the state motto collectively, and read aloud a story about the meaning of the state symbols. Also, responding by yes or no and short phrases, following up instructional direction, and interacting socially by taking turns are acceptable for the students with significant disabilities. However, the students who are at above class average grade level are required to give a comparison between their state and other states' emblems, a study about the state motto history, and a written story about the state symbols (Lynch & Warner, 2008).

The lesson introduction, body, and conclusion were also differentiated to meet all students' needs. For the introduction, teachers showed the students colorful and large maps that were easy to be seen and interpreted.

Teachers will tell the students this lesson is going to explain their state's emblem. Their state, Texas, and their city, Houston, will be identified on the

map. Teachers will also explain the state capital, bird, and flower with showing the picture of each one to meet the needs of the students who are below the class grade average. On the other hand, students who are above the class average level will be asked complex and abstract questions that request high thinking skills (Lynch & Warner, 2008).

Moving to the lesson body, teachers could explain the lesson concepts through showing pictures in order to increase the students' conceptions. Teachers could also display the state flag and show a brief movie while explaining that Texas is known as the "Lone Star State," for example. In addition, when teachers explain that the name of the Texas state motto is "Friendship," teachers can inform the students that the reason for this name is the meaning of the first colonist whose name was "friendly". This fact should be given with showing the first colonist picture. Also, asking the students questions about the lesson concepts encourages the students thinking skills. Teachers might ask questions starting with "why" to help the students who are at high grade average level to feel challenged. To help the students to write a story about the state's emblem, teachers could ask them to chart, draw, or record their stories. Students are also allowed to express their knowledge orally and work individually or in groups (Lynch & Warner, 2008).

Reviewing the lesson concepts by asking the students to repeat what they learned is such a useful way to close the lesson. Teachers could also differentiate the conclusion by asking the students who have verbal difficulties to complete a leading sentence. For example, teachers could ask the students with Autism to complete the sentence "The state tree is," so these students will demonstrate their learning by providing just one word. Also, writing a story might take a long time, so students can get extended time if they need (Lynch & Warner, 2008).

Teachers should also vary the evaluation strategies based on the students' ability levels. The students who are below the average need more flexibility. For example, they might need more time to demonstrate their learning, so teachers could ask them to respond after asking the other students. They could start responding at the moment the lesson conclusion begins.

However, the students who are above the average need to feel challenged, so they might be asked to talk about another state's emblem to encourage their thinking skills (Lynch & Warner, 2008). All these methods could help the

diverse students concentrate in the class, be engaged during the instruction, and achieve the lesson objectives.

Using differentiated instructions in the general educational classrooms is very important to help teachers who have challenges with diverse students, including the students with learning difficulties and gifted students. These students are struggling with their academics, which is a result of their limited organization, engagement, and interaction ability skills. Thus, teachers must understand each student's strengths and weaknesses in order to help the students to interact with the class content and demonstrate what they have learned (Bender, 2002). Therefore, adjusting the educational classrooms and lessons with differentiated instruction, through providing different strategies among the process and product areas, can serve teachers and students in the diverse classrooms.

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