



Strategies for Differentiation in Math and Science

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Abstract

Each student has their own strengths and weaknesses. They thrive in some subjects and falter in others. But they are expected to learn whether they understand the subject or not. Math and science are subjects that can be difficult for most students. It can be a challenge to grasp concepts that are new and unfamiliar. To create the most success in student learning and knowledge retention, differentiation should be implemented in to the curriculum so that the students will take advantage of their strengths and weaknesses to learn and understand the concepts found in both Math and Science.

Introduction & Research Question

Differentiation is where the curriculum is modified to fit the student's needs. It keeps the original subject of the lesson but modify the way it is presented to the student so it is easier for them to understand. Teachers understand the things that help their students learn and so they can change the work so that they are able to understand when it gets too difficult. But not all teachers spend the time to create the new lessons for their students as it is too time consuming. Why should teachers implement differentiation in to the curriculum when teaching math and science? If teachers implement differentiation in to the curriculum when teaching math and science then the students will retain the information that they learned because they are learning at their own pace and in a way that makes sense to them and so they retain the information better for future use.

Research Focus

Differentiation can be achieved through many different strategies but they all take time and effort in to finding the right fit for the student. A teacher would need to collect data from all of their students every school year and analyze each and every one to find the right teaching style that can allow the student to succeed in learning the lesson. It can be very time consuming and put more strain on the teacher but it is all for the benefit of the student so they are able to learn especially when dealing with subjects that they would have trouble understanding.

Strategies

- Math
 - A. Modified work problems
 - B. Manipulatives
 - C. Small Group Collaborations
 - D. Different methods to solve the problem

- Science
 - A. Hands on activities
 - B. Video Lessons
 - C. Problems with multiples solutions
 - D. Science Wall in the Classroom

- Both subjects
 - A. Self-directed research projects
 - B. Quarterly Assessments
 - C. Changing the Learning Environment
 - D. Educational Games
 - E. Relate the learning to the students real world and personal connections

Discussion

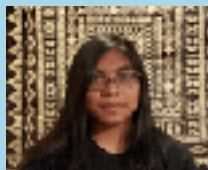
As the curriculum is modified to the student, they are able to draw upon their prior knowledge on the subject and use that as a means on understanding the content. It allows the student to understand the lesson in their own way and that can increase the chances of knowledge retention and using the information for future reference. This can be used in scaffolding when teaching so the teacher can use the knowledge they know the students have to aid in their instruction.

Conclusions

For a teacher to find the right teaching style and form of delivery of the information for each and every student can be a daunting task to do every year. It is time consuming, at times difficult, and could have possibly little reward. But it is an example of an exemplary teacher going the extra mile to ensure that their students have the opportunity to learn and succeed in their studies. A teacher is not obligated to do these things but it shows the dedication they have to their job as a guide for the future leaders of the world

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