PCS EDVENTURES! EXPERTS IN HANDS-ON STEM EDUCATION

ASSESSMENT, DIFFERENTIATION AND HIGH-STAKES TESTING IN THE 21ST CENTURY

Abstract

Discussion of modern testing techniques and their application in classrooms with students of varied ability. Explanation of the comparative advantages and challenges in implementing alternative "21st Century" assessment methods. Presentation of case studies with examples of various assessment techniques illustrates their uses and benefits.

21st Century Assessment Techniques & Differentiated Learning

21st Century Assessment techniques differ from many of the classic initiatives such as No Child Left Behind and Race to the Top. Race to the Top specifically encourages the strict testing of standards which are known as the Common Core. Although the idea behind the Common Core was developed with student success in mind and the standards themselves are thoughtfully constructed in alignment with current learning and cognitive science research, high-stakes testing techniques may be undermining their successful application. Many educators, teachers and parents feel



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there should be more time spent on assessment methods which provide meaningful, personalized feedback about students to help instructors. As international education company Pearson stated, "assessments serve an important function as they motivate students to learn, help teachers to refine their practice, and inspire education systems to improve. Therefore, if 21cS [21st Century Skills] are important to our future, we must measure them," (Tager & Rosen, 2013). As the need for 21cS increases, so does the need for appropriate assessment techniques.



These new 21st Century assessment practices provide students opportunities to display their knowledge in authentic ways and have been shown to improve the scores of standardized tests such as the PARCC (Partnership for Assessment of Readiness for College and Careers). In this white paper, the goal is to show that modern standards such as the Common Core and Next Generation Science Standards have meritorious backing, but can be evaluated in more learner-friendly practices which benefit students with differentiated needs. These new 21st Century assessment practices provide students opportunities to display their knowledge in authentic ways and have been shown to improve the scores of standardized tests such as the PARCC (Partnership for Assessment of Readiness

for College and Careers). Although the standardized tests which accompany the country-wide push for education are not going to disappear anytime soon, there are additional techniques which can be used to make classrooms more student-friendly during this age of high-stakes testing, without sacrificing either test performance or important 21cS.

What is Differentiation?

Differentiation in a classroom means that teachers use a variety of instruction techniques to cater to the various needs of students in their classroom. It is often considered a process unique to each learning environment, rather than a singular one-size-fits-all formula. Carol Weselby, a writer for Concordia Online Education, explained, "just as everyone has a unique fingerprint, each student has an individual style of learning. Not all students in a classroom learn a subject in the same way or share the same level of ability. Differentiated instruction is a method of designing and delivering instruction to best reach each student," (2014). In order to fulfill these requirements, a leader in differentiated learning Carol Ann Tomlinson, believes there are four major aspects which dictate the differentiation in classrooms: 1) content, 2) process, 3) product



and 4) learning environment (Weselby, 2014). Presently, the need for classrooms to support diverse learning styles and needs has reached an all-time high, which means differentiated learning environments are on the rise. The benefits of creating a differentiated classroom have been shown to be effective in not only individual student growth, but also in standardized testing.

Why choose to teach differentiated?

Research shows that there are many benefits to creating a differentiated learning environment for students, which naturally have a variety of learning styles, speeds and needs. Through inquiry, Weselby found the following pros of differentiated classrooms: 1) they are effective with students of both high-ability as well as those with mild to severe disabilities 2) when given more options on how they can learn material, students take on more responsibility with their own learning and 3) students become more engaged in learning, and have fewer discipline problems in classrooms (2014). In addition to these palpable results, Kay Brimijoin author of

"Differentiation and High-Stakes Testing: An Oxymoron?" believes that the effect of differentiated learning environments extends into the realm of aligning with national standards and nation-wide tests. Brimijoin explains, "Because any classroom with more than one student presents a range of learning needs, teachers struggle to provide all students access; what works for some students will not work for others (Berliner & Biddle, 1995). If we expect students to navigate successfully through high stakes tests, then it seems only fair that their teachers have at least foundational skills in differentiation," (2005, p. 254). As evident, individual students require individual learning in order to succeed, and it is possible to find common ground between differentiated learning classrooms and the push for national standards and tests. However, it is also important to realize that assessment goes far beyond these standardized tests.

Assessment Beyond Tests

The article by Edutopia titled "Why is Assessment Important?" made some compelling points about what assessment should really be doing while incorporating an interview with Grant Wiggins, a nationally acknowledged assessment expert. The article states that there is so much more to assessment than the tests which students take, and Wiggins explained, "testing is a small part of



assessment. It needs to be part of the picture. Many people who are anti-testing end up sounding anti-evaluation and antimeasurement. A good test has a role to play," ("Why is Assessment Important?," 2008). Therefore, assessment cannot be fully measured in tests, and must be accounted for through a variety of sources. Edutopia continued by listing what it believed were fundamental elements of assessment models; they should provide diagnostic feedback, help educators set standards, motivate performance as well as evaluate and relate student progress. Evidently, the current standardized tests cannot meet these requirements, which calls for teachers to create their own assessment models dependent on unique classroom environments. The question is: what type of assessment techniques are most beneficial in differentiated learning environments?

Solving the Assessment Problem

Tonya R. Moon, author of "The Role of Assessment in Differentiation," claimed "to be successful in the 21st century, all students must have not only knowledge and understanding of content, but also the capacity to think critically, analyze, synthesize, and make inferences," (2005, p. 227). It has been found that in order to achieve this goal, educators create classrooms that utilize 21st Century

assessment techniques which support differentiated learning. While at times it may seem that standardized testing, classroom assessment and differentiated learning are at odds with one another, there is a solution. PCS Edventures, a company dedicated to STEM education and 21cS, has developed an impressive assessment model which supports unique learning environments by offering both summative and formative assessment. There are three options offered for educators, which reinforce traditional testing skills for the highstakes standardized testing world students live in, as well as provide creative ways to assess alternative skills. The first assessment approach is called the "Continuum Assessment" because it uses rubrics to authentically assess



students continually as they progress through content, including an integral journaling component which encourages metacognitive reflection. The second is called "Standard Assessment" which reinforces skills and conceptual knowledge in traditional test-taking style. The third is known as "Mastery Based Assessment" because it facilitates independent, differentiated learning and provides a feasible structure for assessing such knowledge. Overall, the curriculum that offers assessment models provides instructors with tremendous flexibility and choice, and allows for a more accurate picture of what students are learning, what they need to learn better and how instructors can better facilitate these needs. In addition, the curriculum is very much student-driven so that individuals can not only take responsibility for their learning, but move at different paces. As Moon concluded, "assessment is vital to the success of a differentiated classroom. There are dynamic relationships between differentiated instruction and assessment...Educators seeking to create a differentiated classroom community should start with carefully constructed, purposely executed assessments, and should use the resulting information to inform the instructional sequence so all learners have the support and opportunities needed for success," (2005, p. 232).

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➡ sales@edventures.com

