Assessment
Overview

Research recognizes the power of assessment to amplify learning and skill acquisition. Assessing students is a fundamental ingredient of effective teaching. It is the tool that enables teachers to measure the extent to which a student or group of students have mastered the material taught in a lesson or a class or during the school year, and it gives instructors the necessary information to modify instruction when progress falters. Assessment affects decisions about grades, placement, advancement, instructional strategies, curriculum, special education placement, and funding. It works to improve instruction in the following ways: (1) as a diagnostic tool, (2) by providing feedback on progress measured against benchmarks, (3) as a motivating factor, and (4) as an accountability instrument for improving systems.

Teachers routinely make significant critical decisions to tailor instruction to the needs of students. Research suggests that, on a daily basis, teachers make between 1,000 and 1,500 student-related instructional decisions that impact learning (Jackson, 1990). Assessment provides educators with the knowledge to make these informed decisions, some seemingly small at the time and others high stakes, which may have a major influence on a child's success in life.

Educators generally rely on two types of assessment: **informal** and **systematic**. Informal assessment, the most common and frequently applied form, is derived from teachers' daily interactions and

observations of how students behave and perform in school. This type of assessment includes incidental observations, teacher-constructed tests and quizzes, grades, and portfolios, and relies heavily on a teacher's professional judgment. The primary weaknesses of informal assessment are issues of validity and reliability (AERA, 1999). Since schools began, teachers have depended predominantly on informal assessment. Teachers easily form judgments about students and their performance. Although many of these judgments help teachers understand where students stand in regard to lessons, a meaningful percentage result in false understandings and conclusions. That is why it is so important for teachers to adopt assessment procedures that are valid indicators of a student's performance (appraise what the assessment claims to), and for the assessment to be reliable (provide information that can be replicated).

Systematic assessment is specifically designed to minimize bias and to increase validity and reliability, thus providing teachers and educators with the most accurate information to maximize student achievement. This type of assessment uses preplanned tools designed to identify objectively how well a student has progressed and to reveal what students have learned in relation to other students and against predetermined standards. Educators depend on two forms of systematic assessment: **formative** and **summative**. Formative assessment is used as students are learning, and summative assessment happens at the end of instruction.

Formative assessment has the greatest effect on an individual student's performance, functioning as a problem-solving mechanism that helps teachers pinpoint impediments to learning and offers clues for adapting teaching to reduce student failure. In contrast, summative assessment is best used to evaluate learning at the conclusion of an instructional period and is employed to evaluate learning against standards.

Figure 1 examines the relative impact of formative and high-stakes summative assessment on student achievement. Research shows a clear advantage for the use of formative assessment for improving student performance.

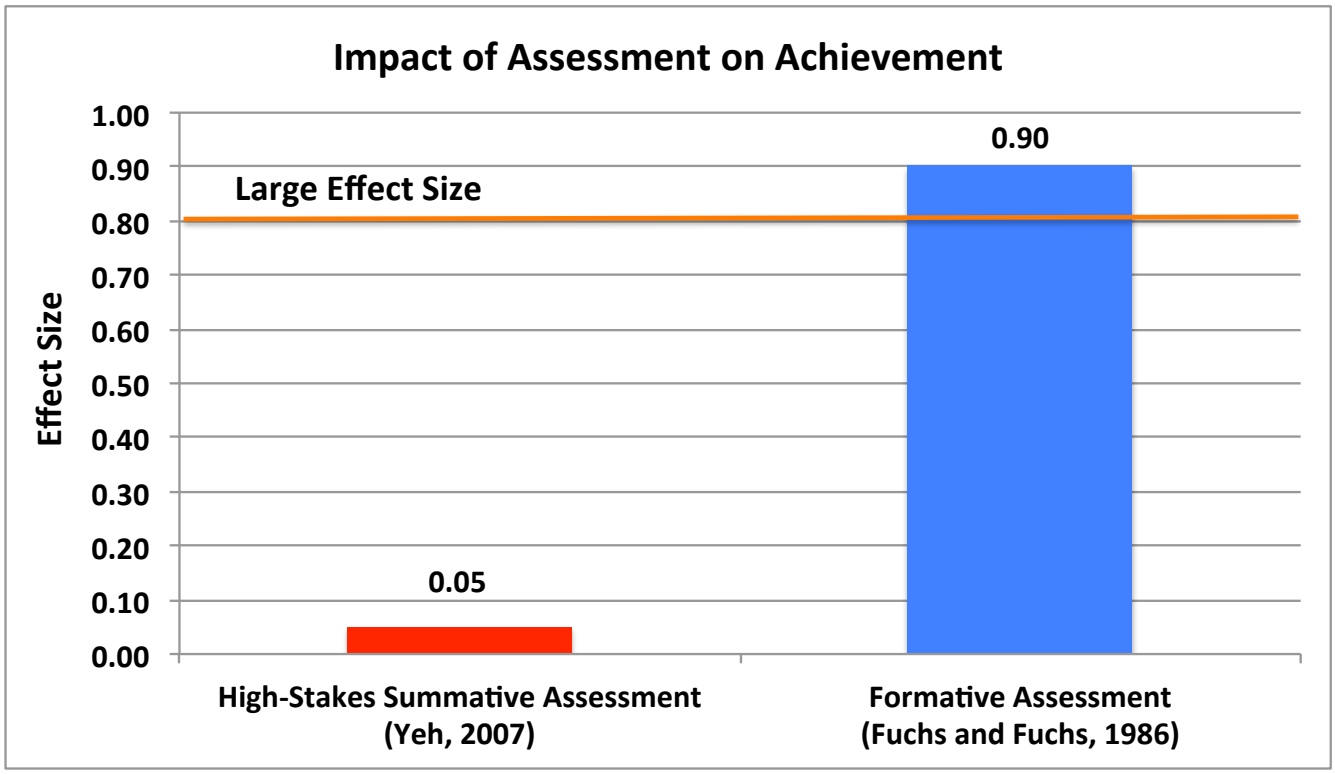

Figure 1. Comparison of formative and summative assessment impact on student achievement

Formative Assessment

For teachers, few skills are as important or powerful as formative assessment. Also known as progress monitoring and rapid assessment, formative assessment allows teachers to quickly determine if individual students are progressing at acceptable rates and provides insight into where and how to modify and adapt lessons, with the goal of making sure that all students are progressing satisfactorily. It is the process of using frequent and ongoing feedback on student performance to gain insight on how to adjust instruction to maximize learning. The assessment data are used to verify student progress and as an indicator to adjust interventions when insufficient progress has been made (VanDerHeyden, 2013). For the past 30 years, formative assessment has been found to be effective in typical classroom settings. The practice has shown power across student ages, treatment durations, and frequencies of measurement, and with students with special needs (Hattie, 2009).

The relative power of formative assessment can be seen in Figure 2, which compares the practice with seven common education interventions (Glazerman et al., 2010; Hattie, 2009; Yeh, 2007). This comparison reveals that none of the seven interventions rise much above a small effect size, whereas formative assessment's large effect size of 0.90 shows its sizable impact on achievement.

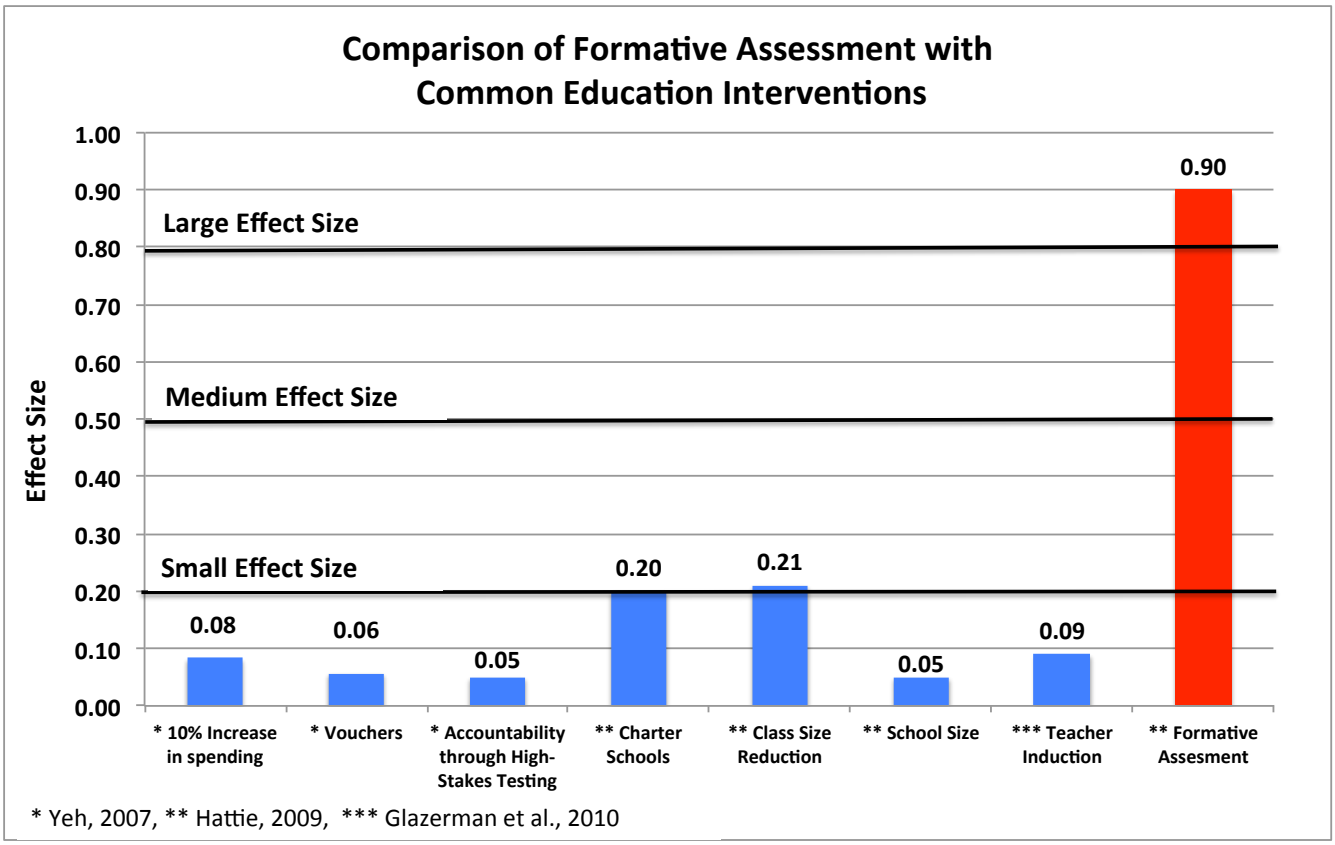

Figure 2: Comparing formative assessment with commonly adopted education interventions

Summative Assessment

Summative assessment is an appraisal of learning at the end of an instructional unit or at a specific point in time. It compares student knowledge or skills with standards or benchmarks. Summative assessment evaluates the mastery of learning. Generally, it gauges how a particular population rather than an individual responds to an intervention. It often aggregates data across students to act as an independent yardstick that allows teachers, administrators, and

parents to judge the effectiveness of the materials, curriculum, and instruction used to meet national, state, or local standards.

This type of assessment includes midterm exams, final project, papers, teacher-designed tests, standardized tests, and high-stakes tests. Summative assessment is used to determine at a particular point in time what students know and do not know. Because it occurs at the end of a period, it is of little value as a diagnostic tool for enhancing an individual student's performance during the school year, but it does play a pivotal role in troubleshooting weaknesses in an education system.

Summative assessment is most often associated with standardized tests such as state achievement assessments, but is also commonly used by teachers to assess the overall progress of students when determining grades. As a subset of summative assessment, standardized tests play a critical role in ensuring that schools are held to the same standards and that all students regardless of race or socioeconomic background perform to expectations. Summative assessment provides educators with metrics to know what is working and what is not.

Since the advent of No Child Left Behind, summative assessment has increasingly been used to hold schools and teachers accountable for student progress. This has led to concerns among many educators that schools place too great an emphasis on instruction that will result

in higher achievement scores. In many districts, standardized tests have become the single most important indicator of teacher and school performance. A consequence of this overemphasis is the phenomenon known as “teaching to the test.” The concern is that an exclusive focus on material that will be tested in a standardized test will be accompanied by a corresponding neglect of the broader curriculum. Accentuating standardized tests has also led to a notable increase in the number of standardized tests given each year (Hart et al., 2015). Teachers and administrators feel enormous pressure to ensure that test scores rise consistently. Educators have also expressed concern that excess standardized testing limits the available time for instruction.

Parents, teachers, school administrators, and legislators have begun to voice frustration with the weight assigned to and the growth in the number of standardized tests administered each year in public schools. In 2015, resistance in Boulder, Colorado, schools resulted in zero students participating in testing in some schools. Similar protests against standardized testing have popped up across the nation over the past 5 years, leading for demands to bring balance back to the system.

Summary

Formative assessment and summative assessment play important but very different roles in an effective model of education. Both are

integral in gathering information necessary for maximizing student success. In a balanced system, both types of assessment are essential components of information gathering, but they need to be used for the purposes for which they were designed.

Citations

Fuchs, L. S. & Fuchs, D. (1986). Effects of systematic formative evaluation: A meta-analysis. *Exceptional Children, 53*(3), 199–208.

Glazerman, S., Isenberg, E., Dolfin, S., Bleeker, M., Johnson, A., Grider, M., & Jacobus, M. (2010). *Impacts of comprehensive teacher induction: Final results from a randomized controlled study.* (NCEE 2010-4027.) Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Hart, R., Casserly, M., Uzzell, R., Palacios, M., Corcoran, A., & Spurgeon, L. (2015). *Student testing in America's great city schools: An inventory and preliminary analysis.* Washington, DC: Council of the Great City Schools.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement.* New York, NY: Routledge.

Jackson, P. W. (1990). *Life in classrooms.* New York, NY: Teachers College Press.

Joint Committee on Standards for the Educational and Psychological Testing of the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. (1999). *Standards for educational and psychological testing.* Washington DC: American Educational Research Association (AERA).

VanDerHeyden, A. (2013). Are we making the differences that matter in education? In R. Detrich, R. Keyworth, & J. States (Eds.), *Advances in evidence-based education: Vol 3. Performance feedback: Using data to improve educator performance* (pp. 119–138). Oakland, CA: The Wing Institute. http://www.winginstitute.org/uploads/docs/Vol3Ch4.pdf

Yeh, S. S. (2007). The cost-effectiveness of five policies for improving student achievement. *American Journal of Evaluation, 28*(4), 416–436.