

Life without Levels:

The Importance of Monitoring Student Growth

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About the Author

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Introduction

Learning, tailored to the individual needs of students, requires an understanding of those needs. Despite this simple fact, it is the exception and not the rule to find such an understanding of students in most schools. Understanding student needs requires diligent observation to monitor student attainment and growth. Through periodic assessment, students' strengths and weaknesses can be identified in real time leading to appropriate and timely academic supports.

The benefits of periodic assessment are twofold: They provide an understanding of a student's academic strengths and weaknesses at a given point in time while simultaneously enabling a view of the academic growth a student makes over time. It is the latter benefit that is often not utilized but has the most potential for transforming the education of students. Historically, individual student assessment has been a point in time data collection event with the goal of taking account of where the student is at one particular moment in time. Seeing education as a journey and not a destination, it is critical to monitor the progress of students along that journey. Students will not reach desired outcomes if they do not make adequate progress during their academic journey.

In recent years England has witnessed significant efforts to reform school assessment and accountability under the new national curriculum. The most prominent of these efforts involves the removal of Levels from assessment during, and at the end of, Key Stages. Just as important, however, are a number of key design principles (DfE, 2014):

- ongoing, teacher-led assessment is a crucial part of effective teaching;
- schools should have the freedom to decide how to teach their curriculum and how to track the progress that pupils make;
- both summative teacher assessment and external testing are important;
- accountability is key to a successful school system, and therefore must be fair and transparent;
- measures of both progress and attainment are important for understanding school performance; and,
- a broad range of information should be published to help parents and the wider public know how well schools are performing.

Key to the faithful implementation of these DfE design principles is the concept of student growth. Student growth percentiles (SGP) provided by STAR™ assessments provide the means to monitor student progress in line with these design goals.

Student Growth

Tracking student growth provides a window on student performance not previously available to teachers and administrators. Student performance has often been understood based upon point in time assessments indicating the Level associated with a students' performance. Including student growth refines that point-in-time view of student performance and allows users to monitor the academic track of the student as it unfolds and make appropriate plans to maximise the progress of the student going forward.

The range of questions teachers and administrators can address with the addition of student growth measurement is quite broad. Research on the types of questions asked about student growth shows that different stakeholder groups often have different interests. In a survey of parents, teachers, and district administrators on growth questions of interest, Yen (2007) reported the following:

Parent Questions

- Did my child make a year's worth of progress in a year?
- Is my child growing appropriately towards meeting standards?
- Is my child growing as much in Maths as in Reading?
- Did my child grow as much this year as last year?

Teacher Questions

- Did my students make a year's worth of progress in a year?
- Did my students grow appropriately towards meeting standards?
- How close are my students to becoming proficient?
- Are there students with unusually low growth who need special attention?

Senior Leadership Team Questions

- Did the students in our school make a year's worth of progress in all content areas?
- Are our students growing appropriately toward meeting standards?
- Does this school/program show as much growth as other similar ones?
- Can I measure student growth even for students who do not change proficiency categories?
- Can I pool together results from different years to draw summary conclusions?

Student Growth Percentiles (SGP)

The SGP methodology implemented with STAR assessments permits comprehensive progress monitoring of students (Betebenner 2008, 2009). Periodic and regular assessment of students allows for the creation of an “achievement time line” that permits two views of student attainment:

- **Diagnosis:**

A retrospective view of student attainment allows one to understand where a student has been and what they have done. Student growth percentiles associated with that attainment history provide the rich context in which to understand whether the students’ progress has been exemplary, typical, or poor.

- **Prognosis:**

A prospective view of student attainment allows one to understand what would be a reasonable goal for an ambitious year for each student. Whether catching up students who are behind, or keeping up students who are ahead, prospective analyses indicate how steep the future path is for each student. Going far beyond Levels, ambitious yet reasonable achievement targets for all students can be established, regardless of where their starting point lies.

Both diagnosis and prognosis serve useful and distinct purposes in progress monitoring of students. The backward focused diagnosis allows teachers to “learn from the past” and applies lessons learned going forward in an effort towards continuous improvement. The forward focused prognosis allows teachers to evaluate the coming challenges for each student necessary to reach or maintain desired attainment levels and to plan support and interventions accordingly. Following the testing cycles, what was a forward focused support becomes a backward focused topic for review — an examination of what appeared to work or not work.

SGP Calculation

Student growth percentiles are a norm- and criterion-referenced growth metric that enables users to comprehensively monitor a student’s progress by allowing users to simultaneously address three questions:

- 1.1. How much growth did a student make?
- 1.2. How much growth is enough?
- 1.3. How much growth is ambitious yet reasonable to expect?

How much growth did a student make? is answered with the student growth percentile (SGP). The SGP is a norm-referenced percentile-based quantity ranging from 1 to 99 indicating how exemplary a student’s growth is relative to their academic peers, students with a similar achievement history to the student. For

STAR data, growth norms are created annually using all UK test takers in each content area and year window. Currently, SGPs are calculated across multiple testing windows including, Autumn to Winter, Winter to Spring, Spring to Summer, and Autumn to Winter to Summer. Student growth percentile calculations includes multiple prior achievement scores for students when available and do not include any demographic information for the student¹.

Similar to the height and weight percentiles parents receive when taking their toddler to the paediatrician, SGPs provide an easily understood metric indicating whether to be happy or concerned with a student’s academic growth. The metric was developed in the United States and is widely used there. Because of its versatility and ease of interpretation it has found use internationally in recent years. An SGP of 10, for example, would indicate growth of the student that exceeded 10 percent of their academic peers’ growth and that was less than 90 percent of their academic peers, i.e. relatively low growth. Conversely, an SGP of 90 would indicate growth exceeding 90 percent of their academic peers.

How much growth is enough? is answered with the student growth projection. Using data derived from students across the UK, adequate growth percentiles (ranging from 1 to 99 just like SGPs) required for students to reach any attainment level in any time frame are calculated and used to establish growth targets for students. Targets for students to reach ambitious attainment levels at the end of the Key Stages can be determined and used to chart an educational path for the student going forward. This allows, for example, teachers to establish multi-year plans for a student to catch up, particularly in situations where the trajectory to catch up in a single year is too steep.

How much growth is ambitious yet reasonable to expect? is answered by the percentile metric itself. Because SGPs and student growth projections are reported in the percentile metric, the number indicates how exemplary the growth demonstrated by the student is as well as how ambitious the growth desired for the student is. A student needing 90th percentile growth in the coming year to catch up is, under common educational circumstances, unlikely to reach that target. However, spread out over two or more years, the growth necessary to catch up is more reasonable to expect and educational interventions can be better structured towards reaching this growth target.

¹ A technical report detailing the analytics behind SGP calculation can be found at <http://www.renaissance.co.uk/sgp>

From Individual Growth to Groups

Individual level growth provides a view of student performance not previously available, but that view is just part of a larger whole available to teachers and administrators interested in examining the performance of their students. As the questions in the introduction suggest, teachers and senior leadership teams are often interested in how groups of students perform. Student growth percentiles, being nationally normed, have a median of 50 across the nation. That benchmark of 50 allows local teachers and senior leadership teams to assess how well their students are doing by taking the median of their subgroups of interest.

It is often of interest to examine how schools, classes, and year groups within schools are performing in terms of attainment and growth. Do a school's students show higher growth in reading than in mathematics? Are students in poverty showing as much growth as their wealthier peers? By taking the median SGP in the group(s) of interest one can compare the group(s) to the benchmark 50 and/or to each other. Any group examined for attainment can be examined for growth and the results for growth will illustrate more about the contributions made to student learning than previous point-in-time attainment measures.

Anticipating how quickly students will need to grow to reach their future attainment goals is just as straightforward. As part of STAR SGP analyses, each student receives growth targets showing what they need to do to reach future attainment goals. In particular, the proposed **Attainment 8** and **Progress 8** accountability metrics can be coupled with SGPs so that progress toward desired attainment goals is monitored.

Summary

Progress monitoring with STAR and SGPs provides a window on student performance not previously available. Progress monitoring goes beyond Levels testing to indicate not only where students are at but what their growth has been and what it needs to be. STAR and SGPs provide essential feedback at the individual level or for groups of students that simple point in time attainment measures cannot. Combined with teacher observations and expert judgment, monitoring student growth holds the potential to accelerate student learning.

References

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