Massachusetts Department of
ELEMENTARY & SECONDARY
EDUCATION

Growth Model Pilot

An explanation of the pilot process and the lessons learned during the development

of the MCAS student growth model.

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Background

For several years the Massachusetts Department of Elementary and Secondary Education (ESE) has been working to develop what is known as a "growth model"—a statistically valid way to measure the change in individual student performance over time. A growth model complements the Massachusetts Comprehensive Accountability System (MCAS) year-by-year test scores, since it reports change over time rather than a student's performance level in any one year.

ESE evaluated several different ways of calculating student progress and in the fall of 2008 became aware of an innovative, statically valid new approach developed by Dr. Damian Betebenner at the National Center for Assessment in Dover, NH. This new metric, called a student growth percentile, measures students' progress relative to other students with a similar test score history.

In preparation for providing all districts and schools with growth data, ESE piloted the model with nine districts in the spring of 2009. The goals of the pilot were to inform the development of reports and interpretive materials for use with the growth data as well as to further develop the ways in which districts and schools can use growth data.

Process

ESE Working Group
Recognizing that growth data could be used by a variety of different units within the ESE, an intra-agency working group was established to assist in the development of the growth model. To provide more specialized focus, working group participants were organized into three teams. An operations team was responsible for coordinating the pilot activities; a communications team was responsible for developing materials stakeholders would use to understand the growth model as well as a growth model webpage; and, a reports team was responsible for developing the growth model data reports.   A campaign manager was designated to help coordinate the activities between the working group teams and the pilot districts. In addition, nine participants of the working group were assigned to be district liaisons and serve as the support contact for each pilot district.

Identification of Pilot Districts
The working group developed a list of potential pilot districts with the goal of including districts representing a range of characteristics. Factors that were considered were geographic location, population/land density classifications, district structure, performance and growth, data capability, and community economic resources. Discussions at working group meetings resulted in a list of nine districts: Community Day Charter Public School, Franklin, Lowell, Malden, Newton, Northampton, Sharon, Springfield, and Winchendon. Districts were encouraged to compose teams of three to five people representing teachers, instructional leaders, and central office staff.

Pre-pilot
Prior to the launch of the growth model pilot, a series of pre-pilot meetings were held in February and March 2009 with the Malden Public School District. The pre-pilot meetings provided an opportunity to pre-test the training, data, reports, and interpretive materials planned

for the pilot sessions. The meetings provided Malden with access to growth data and informed the structure of the growth model pilot.

Pilot Implementation Meeting
On April 29, 2009, the first meeting of the growth model pilot group was held at the Lowell Public Schools district office. The day-long meeting was designed to introduce the growth model to the pilot districts and provide an opportunity for each district to familiarize themselves with their growth data. ESE staff presented the background and conceptual framework for understanding the growth model. Participants were provided with a draft of the Growth Model Interpretive Guide as well as paper copies of the four different types of growth reports. Each pilot district worked with their district liaison to discuss and understand the different information provided in each report and the potential applications of the information. In the afternoon, participants were provided with an overview of the Education Data Warehouse (EDW), the portal through which growth data is accessed, and had the opportunity to access their growth data interactively. At the end of the meeting, participants shared their observations from working with the growth data and were given an overview of what to expect over the next eight weeks of the pilot.

Questions of the Week
The working group developed a series of questions (see appendix) to assist districts in understanding their growth data. Questions were e-mailed to all pilot districts and the ESE working group once per week. Participants were encouraged to respond via an email listserv. The questions were intended to serve as a form of guided inquiry to help districts develop a deeper understanding of their growth data. The listserv provided an online community in which participants could share their responses and questions, or simply read the discussions in order to deepen their understanding of the growth model.

Technical Assistance and Office Hours
Each district liaison was responsible for communicating regularly with his or her pilot districts to trouble-shoot problems, assist with interpretation of growth data, and answer questions. In addition to conversations over the telephone and via email, several liaisons were asked to provide on-site support to districts and meet in person with members of the pilot team and other district staff. Members of the EDW staff also provided technical assistance. Pilot participants also had access to biweekly office hours during which districts called a shared conference line to ask questions, share observations, or listen to the discussion.

Webinar
During the week of May 18, two online webinars were held to introduce pilot districts to growth projections, an additional type of growth data. Participants were led through a PowerPoint presentation that explained the concept of growth projections as well as how to access growth projection data via the EDW. Participants also had the opportunity to ask questions and discuss the potential applications of the data.

Final Pilot Meeting
On July 2, the final meeting of the growth model pilot was held at the Assabet Valley Regional Vocational Technical High School in Marlborough, MA. The purpose of the meeting was for the pilot districts to provide feedback to the ESE working group on the growth model and various aspects of the pilot process. The day began with presentations from two districts and a

discussion of what districts had learned. The Commissioner of Elementary and Secondary Education also attended this meeting and discussed the role of growth data. District staff were then divided into three groups and asked specifically to provide feedback on growth reports and the EDW, communications materials, and district implementation.

Lessons Learned

The growth model pilot proved to be an effective means of gathering feedback and suggestions for the statewide implementation in fall 2009. Listed below is a summary of the feedback received from the pilot districts, separated into comments related specifically to data and reports and comments related to the statewide rollout.

Interpreting Growth Data and Growth Reports

- The addition of growth to existing MCAS data contributes to the picture of how students/schools/districts are doing over time.
- Growth data is more formative than summative and has led to a shift from identifying performance toward explaining reasons for performance/growth and taking action. Participants expressed interest in using the data to analyze the effectiveness of specific elements in a district or school's academic program.
- Growth data was identified as a potentially powerful tool for professional development.
- The predictive element of the growth model was noted to be particularly difficult to explain; however, it may provide information that can be used to proactively provide student interventions.
- Understanding the difference between the English language arts and mathematics assessments and its impact on growth percentiles was noted to be an area of potential confusion.
- Guidance on statistical significance when making comparisons and looking at change over time was identified as an area of need.
- Districts expressed interest in being provided training that would better prepare them to explain the model to others.
- Pilot districts provided a significant level of feedback on the reports used. These included specific formatting changes as well as suggestions about the amount of information included in each report.
- Most of the pilot districts had previously used the EDW. Districts that were new to the EDW said it was intimidating at first.
- Districts that had used the EDW before stated that the growth model data can be well integrated with other data in the EDW, which allows for deeper analysis.
- Although time consuming, the question of the week was an effective way of helping district staff familiarize themselves with the data.
- The question of the week was useful for participants who simply read answers and did not submit their own responses.
- Knowing how to have conversations about data was an important aspect of using the growth model data.
- The fact that the model controls for prior academic performance helped stimulate meaningful discussions.
- Participants were interested in having an interpretive/user guide that is aimed at different users (i.e. district staff, school staff, parents, etc.)

Suggestions for Implementation

- Provide media briefings about the growth model before it is released so that everyone is well informed.
- Provide differentiated levels of trainings, interpretive materials, and support that are based upon stakeholders' backgrounds and roles.
- Provide online trainings instead of conferences that require individuals to travel or join a conference call. If possible, archive the trainings online for reference.
- Provide online videos on how to use the reports.
- Provide self-paced training modules online.
- Provide a way for stakeholders to discuss and interpret the data using some form of online discussion such as the question of the week.
- Provide more hands-on training that is guided by questions.
- Hold a series of introductory sessions, similar to the first meeting of the pilot, in which targeted audiences could learn about the model and explore their data.
- Provide opportunities for districts to present and share how they are using the data.
- Provide exemplars that illustrate how districts can use the data.
- If possible, provide districts with a liaison that they can contact with questions.
- Provide stakeholders with tools (such as a PowerPoint presentation created by ESE) that they can use to explain the model to school leader and teachers.
- Develop more standardized terminology to use when explaining the model.
- Consider how this data will be interpreted by parents. Districts expressed concern over parent notification of growth scores and the possibility that this could lead to an increase in IEP referrals.
- Provide EDW training before and after growth data is released.
- Encourage districts to adopt the EDW and participate in basic training prior to the release of the growth model.
- Provide documentation that shows how to use the growth model reports to support the Cycle of Inquiry that is referenced in the EDW courses. This document would include examples of research questions, the reports that could be used to answer them, and the inferences that could be made from these reports.

Appendix

Questions of the Week

1. What can you do with the EDW reports that you can't do with printed reports?

2. Across your district as a whole, how does growth compare across grades?

3. Are growth rates similar across all schools serving the same grades? Are they similar across subjects?

4. How much growth do your students need to show to be proficient next year?
   - Run a Growth Needed roster report for your grade 6 students (or a subset of them) and scan the results.
   - How many of your students need to achieve very low, low, or typical growth to score at needs improvement on ELA next year? Proficient? Advanced? What about math?
   - How many need to achieve very high growth on ELA to score at needs improvement, proficient, or advanced? What about math?
   - Based on these projections, about what percent of your students are likely to score proficient or advanced next year, assuming they exhibit very low, low, or typical growth?
   - If you wish, try the same analysis for different grades or different subsets of students.

5. Does growth vary by grade within schools?
   - Run a separate report for each school in your district, showing growth by grade for ELA and mathematics, for grades 4 through 8. (Hint: start with the district 5-bar report but select one school at a time)
   - If your district has a lot of schools, you may want to narrow down and look only at elementary schools, only at middle schools, or even only at a subset (e.g., all the middle schools in one section of your district).
   - Are students growing at similar rates by grade across all schools in your district?
   - Run separate student scatter plots for each grade in one school (e.g., all of Washington Street Middle School's sixth graders, then all of its seventh graders). Do you see patterns that tell you more about how growth varies by grade within that school?

6. Does growth vary by subgroup?
   - Using the student scatter plots, 5-bar charts, and on track / off track charts, explore whether students in different subgroups have different rates of growth. Some potentially interesting subgroups to consider:
     a. Boys vs. girls on English language arts. In particular, compare their growth in grades 4 and 7 (grades in which writing is tested) to grades 5, 6, and 8.
     b. Limited English Proficiency students in earlier and later grades
     c. Racial / ethnic groups in mathematics
     d. Special education or low income students in any grade or subject

7. Based on the findings you have already made and discussions with local staff, develop some new hypotheses about patterns of growth in your district and test to see if the data support or refute them. Share your findings with the group.

8. As a result of your participation in the pilot, has the district taken any action or plan to take action on what has been learned from growth model reports? (Answer shared at general session/breakout sessions at July 2 meeting)