FACILITATION GUIDE
VALUE-ADDED VIDEO SERIES

VIDEO 4:
GETTING THE BASICS:

SAS® EVAAS® UNIVARIATE RESPONSE MODEL (URM), PREDICTED MEAN APPROACH

For district, building, and teacher leaders supporting professional learning on value-added analysis

Ohio | Department of Education

Battelle for Kids

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INTRODUCTION

The Value-Added Video Series is designed for teachers and administrators as an easy, digestible way to acquire a basic, conceptual understanding of Ohio's value-added measures to foster the appropriate and effective use of value-added information.

To get the most out of the video series, you are encouraged to use the videos during collaborative learning times, and leaders may use the accompanying Facilitation Guide for each video to elicit thoughtful discussions among educators in a collegial, professional learning setting.

The series includes:

- Video 1: Introduction to the Value-Added Series (6:52)
- Video 2: Establishing Awareness: Why Growth Measures Matter (24:30)
- Video 3: Getting the Basics: SAS® EVAAS® Multivariate Response Model (MRM), Mean Gain Approach (33:38)
- Video 4: Getting the Basics: SAS® EVAAS® Univariate Response Model (URM), Predicted Mean Approach (14:50)
- Video 5: Understanding Standard Error and Growth Index (17:28)
- Interpreting Value-Added & Diagnostic Reports (Facilitation Guide only, no video)
- Video 6: Analyzing and Using Value-Added Information (11:30—includes educators sharing their experiences)
- High School Value-Added Video-A Good Beginning to value-added Information (7:35)

Facilitation Guides include:

- Learning targets and length for each accompanying video
- Guided practice which includes reflection activities, questions, and scenarios
- Talking points and example responses to support the facilitator
- Additional resource suggestions for those interested in learning more

Thank you for accessing and engaging in these professional learning resources to support your understanding and use of value-added measures.

This Facilitation Guide and the accompanying Value-Added Video Series are provided through a partnership between the Ohio Department of Education and Battelle for Kids.

PLANNING FOR THE USE OF VIDEO 4: GETTING THE BASICS: SAS® EVAAS® UNIVARIATE RESPONSE MODEL (URM), PREDICTED MEAN APPROACH

STEP 1

Access and review Video 4 and this Facilitation Guide to familiarize yourself with the content prior to using the resources with an audience.

STEP 2

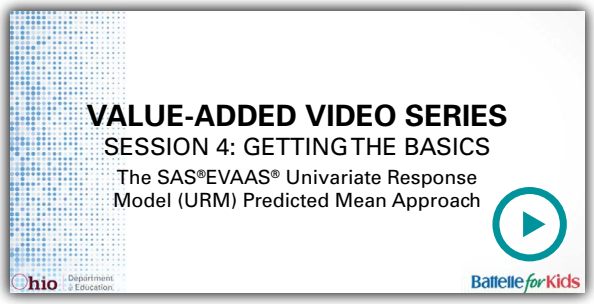
Decide who should participate in Video 4 professional learning and when. This video explores the value-added model used in Ohio, applicable to grades 5 and 8 science, grade 6 social studies, high school end-of-course subject areas, and in some grades/subject areas for districts that participate in approved vendor assessments used to generate value-added reporting.

Video 4 Learning Targets

- Understand the history of value-added reporting in Ohio
- Learn about Ohio's value-added analytics provider, SAS Institute, Inc.
- Acquire basic, conceptual knowledge of how the SAS® EVAAS® predicted mean model is calculated

Video 4 Length: 14:50

VIDEO 4



STEP 3

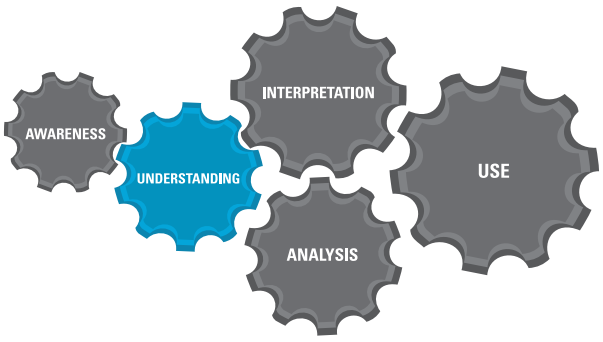
- Consider the Guided Practice activities in this guide, and plan how you will integrate them into the professional learning.
- Determine if you will show the video in its entirety first, or pause the video throughout to facilitate activities at suggested times. Suggested times to pause the video and engage in discussion or in an activity are included in this guide. The symbol to the right is included in the videos at any point where a pause is suggested for processing time or to check for understanding.

STEP 4

Print the pages in the guide you plan to use as attendee handouts. Suggestions:

- Print pages 10 and 11 (back-to-back) for all attendees

Consider printing the pages in this guide marked "Facilitator Copy" to support your efforts. These pages include activity instructions and talking points.



CLARIFICATION FOR THE FACILITATOR RESOURCE

PURPOSE

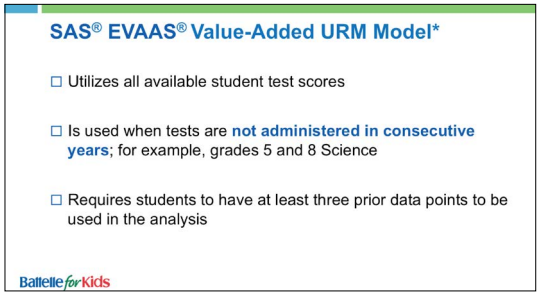
The purpose of this resource is to provide the facilitator with clarification and additional understanding as attendees may have questions throughout the video. This clarification section is not meant to be used as an attendee handout; however, depending the size of your audience, you might consider providing table facilitators with a copy of it.

SUGGESTED USE

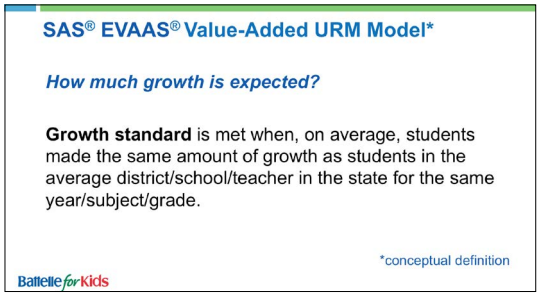
1. **Prior to showing the video:**
   - Share Video 4 learning targets with the audience.

2. **Pause the video at 9:05 and clarify any necessary points from the last three slides before getting into the details on the expected score:**
   For the slide that starts at 7:38, clarify the following points with attendees as needed:

   - Utilizes all available test scores from state standardized assessments. The state analysis uses the most recent student test scores and prior test scores.
   - This URM analysis will be used for the EOC exams as well, including math and ELA areas. Students don't always take high school courses/tests in a consecutive, sequential pattern, so the URM is necessary for all EOC subject areas.
   - Students must have at least three prior data points from state standardized assessments to be used in the analysis, i.e., for 5th grade science value-added analysis, many students would have four prior data points (3rd grade reading and math and 4th grade reading and math).



   At 8:15 in the video, the growth standard definition slide is simply showing that it's about averages across the state in that grade/subject area for the most recent year.

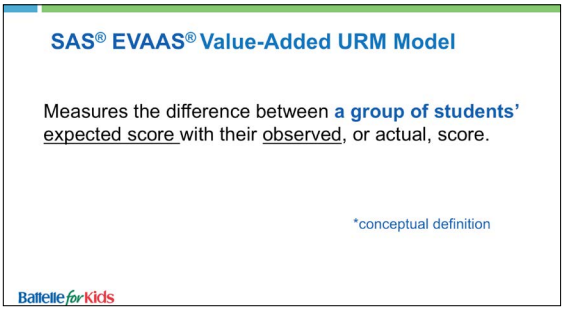


FACILITATOR COPY

CLARIFICATION FOR THE FACILITATOR RESOURCE

For the slide that starts at 8:55, it should be emphasized that the value-added measure is always about a **group of students**.

- While an expected score for each student is calculated, the actual value-added analysis is always done at the group level representing the average growth of the group of students.
- It's common that a teacher may reference a student in his/her classroom who was having a bad day or a student who perhaps is an extraordinarily good test taker. You might emphasize that this is about the growth of a group of students that uses all available student test scores, past and present, to inform the analysis



3. **Push play to continue the video.**

Tips: If attendees ask questions on how the expected score is calculated, the Guided Practice 1 Handout and the next section of the video address this concept.

- Note that the terms "prediction or predicted score" and "expected score" are used interchangeably in EVAAS® explanations and reports on the URM analysis.
- After the video, if attendees would like more explanation than what was provided, suggest the additional resources listed at the end of this Facilitation Guide. The Technical Documentation of EVAAS® Analysis, located on the Ohio EVAAS® login site http://ohiova.sas.com, contains more in-depth information. Also recommended is the URM-specific document, "URM Modeling Approach for Value-Added."

GUIDED PRACTICE 1: UNPACKING THE EXPECTED SCORE AND THE URM

PURPOSE

The purpose of this activity is for attendees to process key understandings of the URM analysis, necessary to reach a basic, conceptual understanding of the model.

SUGGESTED USE

1. **Prior to showing the video:**
   - Print Guided Practice Handout 1, pages 10 and 11, (back-to-back) ahead of time for attendees.
   - Although it's suggested to complete this activity in its entirety after the video, you might distribute the handout prior to the video so attendees can consider the questions while watching.

2. **After the video:**
   - Allow 10–15 minutes for attendees to work with a partner or their table group on the questions/scenarios in Guided Practice 1.
     - o Question 4 uses the example of English I. If other examples are more relevant to attendees, consider giving groups a different subject area to use for question 4, i.e., Algebra I, 5th grade science, 6th grade social studies, etc.
   - If time permits, invite a few tables to share highlights from their conversation.
   - You might share a few of the Example Responses from your Facilitator Copy to complete the activity.
   - After the video, if attendees would like more explanation than what was provided, suggest the Additional Resources provided at the end of this facilitation guide. The Technical Documentation of EVAAS® Analysis, located on the Ohio EVAAS® login site http://ohiova.sas.com, contains more in-depth information. Also recommended is the URM-specific document, "URM Modeling Approach for Value-Added."

GUIDED PRACTICE 1: UNPACKING THE EXPECTED SCORE AND THE URM

EXAMPLE RESPONSES

The URM analysis is a regression-based model. Let's first understand the basics and what is meant by linear regression that estimates relationships among different variables. This is a fundamental understanding that precedes understanding how the predicted/expected score is calculated in the URM analysis.

Non-educational examples of linear regression include:

- Predicting height using shoe size, weight, and age.
- Predicting life span using health factors like smoking, eating healthy, dangerous lifestyle, etc.
- Predicting blood pressure using weight and age.

1. **What are some examples of where linear regression is used in education?**

There are many examples. A few include:

- Predicting success in Algebra I using 7th and 8th grade math results.
- Predicting college readiness using test results such as ACT/SAT scores and GPA.
- Predicting college readiness and college completion using non-cognitive measures such as hope.
- Predicting 5th grade science test results using 3rd and 4th grade math and reading test results.
- Predicting high school graduation rates with the passage of Algebra I.
- Predicting lifetime earnings of high school dropouts versus adults with a high school degree.
- Predicting incarceration rates with the percent of students who read below a 3rd grade level.

2. **Consider the first example: predicting height using shoe size, weight, and age. Would knowing the gender likely strengthen the prediction?**

Knowing the additional information of gender would likely improve or strengthen the prediction of height. This is due to the fact that there is a correlation/relationship between the variables of gender and height.

3. **Under what conditions would having additional data points strengthen or improve the reliability of a predication?**

Typically, the more data points available, the stronger the prediction. However, this would assume that there is a correlation/relationship between the data point(s) and the variable being predicted. If there is not a correlation/relationship, then having the additional data point(s) wouldn't necessarily improve the predication and may not be used.

EXAMPLE RESPONSES

4. **Using English I as the example, what prior data points would most Ohio students have that would be used within the value-added analysis in determining the students' expected score for English I?**

> 8th grade math, reading, and science; 7th grade math and reading; 6th grade math and reading; 5th grade math, reading, and science; 4th grade math and reading; 3rd grade math and reading.

5. **Which prior data point(s) do you think would be weighted more so than others in the English I value-added analysis, indicating that they have a stronger correlation/relationship with the results of the English I exam?**

> - Allow attendees to talk through this. There is no right or wrong answer. A likely response might be the 8th grade reading score as some would assume prior data points from reading in the most recent years would have the strongest relationship with English I results.
> - Some might arrive at the understanding that student performance in math typically has a relationship to student performance in reading since a student's ability to read impacts the ability to interpret and understand math questions. Similarly, there is typically a relationship between science and social studies results and results of math and reading.

Note that SAS® EVAAS® models **do not assume** there is a relationship between prior and current data. The URM analysis uses **actual data** to determine the relationship and the weights of the prior data points to be used within the calculation of the predicted (or expected) scores.

6. **In this URM analysis, how is reliability improved by requiring students to have three prior data points used in the analysis?**

> The key concept is that the results from any one prior test will not be perfectly correlated to the test in question. Therefore, multiple prior test scores are needed to improve the reliability of the students' expected scores. Students must have at <u>least</u> three prior data points, however, all available data points are used.

7. **As explained in the video, the expected score for a student is based on that student's prior testing performance and how students with similar prior testing performance did, on average, across the state.**

At your table, discuss why both are important aspects to improve the reliability of the expected score.

> - By using all available prior data for a student, past performance is used to predict future performance. For example, if a student is low achieving, his/her prior scores typically reflect that they have always been low achieving.
> - As well, the expected score for a student is also influenced by academically similar students and their performance. This is an important aspect used to establish the average gains across the state in the current year.

GUIDED PRACTICE 1: UNPACKING THE EXPECTED SCORE AND THE URM

The URM analysis is a regression-based model. Let's first understand the basics and what is meant by linear regression that estimates relationships among different variables. This is a fundamental understanding that precedes understanding how the predicted/expected score is calculated in the URM analysis.

Non-educational examples of linear regression include:

- Predicting height using shoe size, weight, and age.
- Predicting life span using health factors like smoking, eating healthy, dangerous lifestyle, etc.
- Predicting blood pressure using weight and age.

1. **What are some examples of where linear regression is used in education?**

2. **Consider the first example: predicting height using shoe size, weight, and age. Would knowing the gender likely strengthen the prediction?**

3. **Under what conditions would having additional data points strengthen or improve the reliability of a predication?**

GUIDED PRACTICE 1: UNPACKING THE EXPECTED SCORE AND THE URM

4. **Using English I as the example, what prior data points would most Ohio students have that would be used within the value-added analysis in determining the students' expected scores for English I?**

5. **Which prior data point(s) do you think would be weighted more so than others in the English I value-added analysis, indicating that they have a stronger correlation/relationship with the results of the English I exam?**

Note that SAS® EVAAS® models **do not assume** there is a relationship between prior and current data. The URM analysis uses **actual data** to determine the relationship and the weights of the prior data points to be used within the calculation of the predicted (or expected) scores.

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NEXT STEPS & ADDITIONAL RESOURCES

STEP 1

Follow up with attendees:

- Show them where to access the resources from Video 4 of the Value-Added Video Series located on the Ohio Student Progress Portal: www.battelleforkids.org/ohio.
- Communicate the plan for additional professional learning that will lead to effective use of value-added information.

Tip:

- Video 5: *Understanding Standard Error and Growth Index* is a continuation of understanding Ohio's value-added analysis and the content is applicable to both the MRM and URM models.

STEP 2

Determine if the staff need more time with the content from Video 4.

- Share the Additional Resources information, below, for more professional learning with the entire staff, groups/teacher teams, and/or individuals before proceeding with the Value-Added Video Series.

ADDITIONAL RESOURCES

The following are free to Ohio educators and available for use to go deeper into the content discussed in this video and guide.

- The Technical Documentation of EVAAS® Analyses can be found on the Ohio EVAAS® login site at https://ohiova.sas.com.

- Online value-added modules:
  o Coming spring 2016: New course on Understanding the URM Analysis

  Log into the Ohio Student Progress Portal to access online courses through "My Learning" and Enroll in Learning: www.BattelleforKids.org/Ohio

Many online courses are available for Ohio educators, including value-added and formative instructional practices.