Supporting Teacher Use of Score Reports

Leanne Ketterlin Geller, Amy Clark, Dawna Duke, Cary Rogers

2018 NCME Classroom Assessment Conference

Overview

Critical Design Features – Leanne Ketterlin Geller, Southern Methodist University

Design and Use – Amy Clark, University of Kansas: ATLAS

School Leader Perspective on Supporting Use – Dawna Duke, Southern Methodist University

Teacher Perspective on Using Reports – Cary Rogers, Kansas State Department of Education
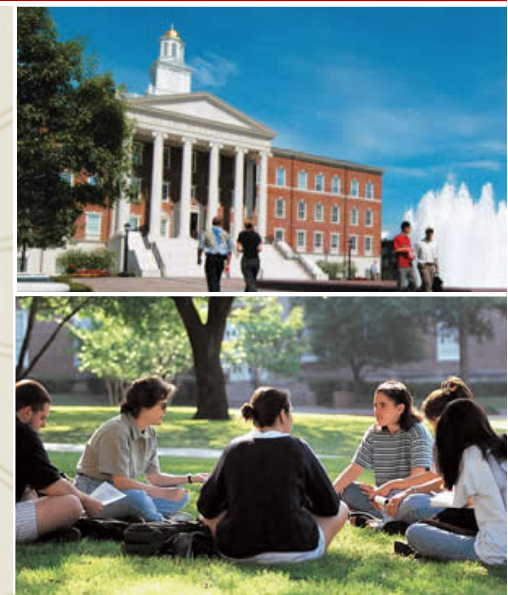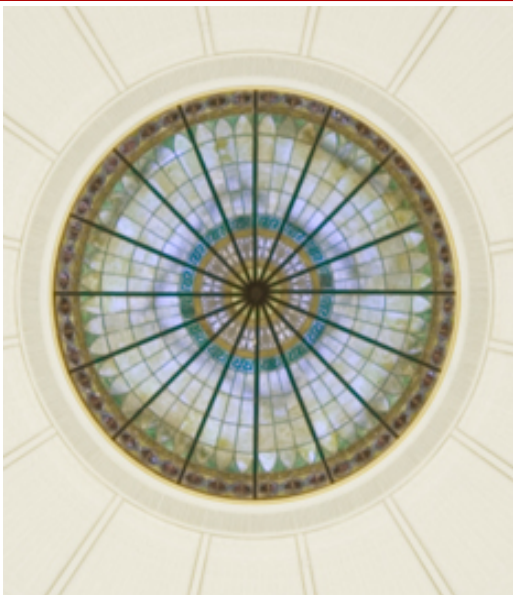
Supporting Teachers' Use of Test Scores: Critical Design Features

Leanne R. Ketterlin-Geller, Beth Adams, Lindsey Perry, Anthony Sparks

Southern Methodist University
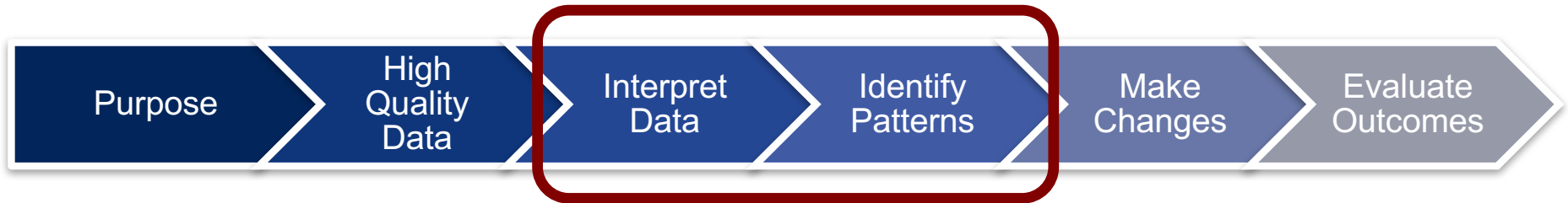
Agenda

- Theory of action for data use

- Synthesized recommendations for design of score reports

  - Methods

  - Synthesized features

  - Instantiated example from a universal screener score report

- Conclusions and implications

Theory of Action of Data Use

| Purpose | High Quality Data | Interpret Data | Identify Patterns | Make Changes | Evaluate Outcomes |

Score reports impact educators' ability to interpret data and identify patterns.

Validity

Importance of Score Reports

- Purpose: Facilitate the **intended uses and interpretations** of the results by the **intended audience**

- Process: disseminate results via forms of communication

Research on Interpretations of Score Reports

- Content does not align with the audiences' intended uses (e.g., teachers want instructionally relevant information) (c.f., Huff & Goodman, 2007; Ryan, 2006)

- Reports are not comprehensible by intended audience (e.g., statistical terms, symbols, grade equivalent scores) (c.f., Gotch & French, 2013; Hambleton & Slater, 1997; Ryan, 2006; Van der Kleig, Eggen, & Engelson, 2014; Wainer et al., 1999; Zapata-Rivera & VanWinkle, 2010)

- Information is difficult to interpret (e.g., unclear graphs, referents, cluttered/hard to find information) (c.f., Impara et al., 1991; Ryan, 2006; Ward, Hattie, & Brown, 2003)

Purpose of our Study

Methods for Synthesizing Literature

- 2 independent researchers

- Inclusion criteria

  - Peer reviewed journal articles, also considered technical reports or book chapters

  - Focus on features of score reports in the social sciences (e.g., education or psychology)

- Literature search

  - Resulting in 58 articles

  - Narrowed to 45 articles

- Article summaries (2 researchers separately)

  - Focusing on the feature type and description

- Article summary comparison and coding

  - Synthesizing across two summaries

  - First level codes focused on the overall purpose of the feature

  - Second level codes focused on the type of feature
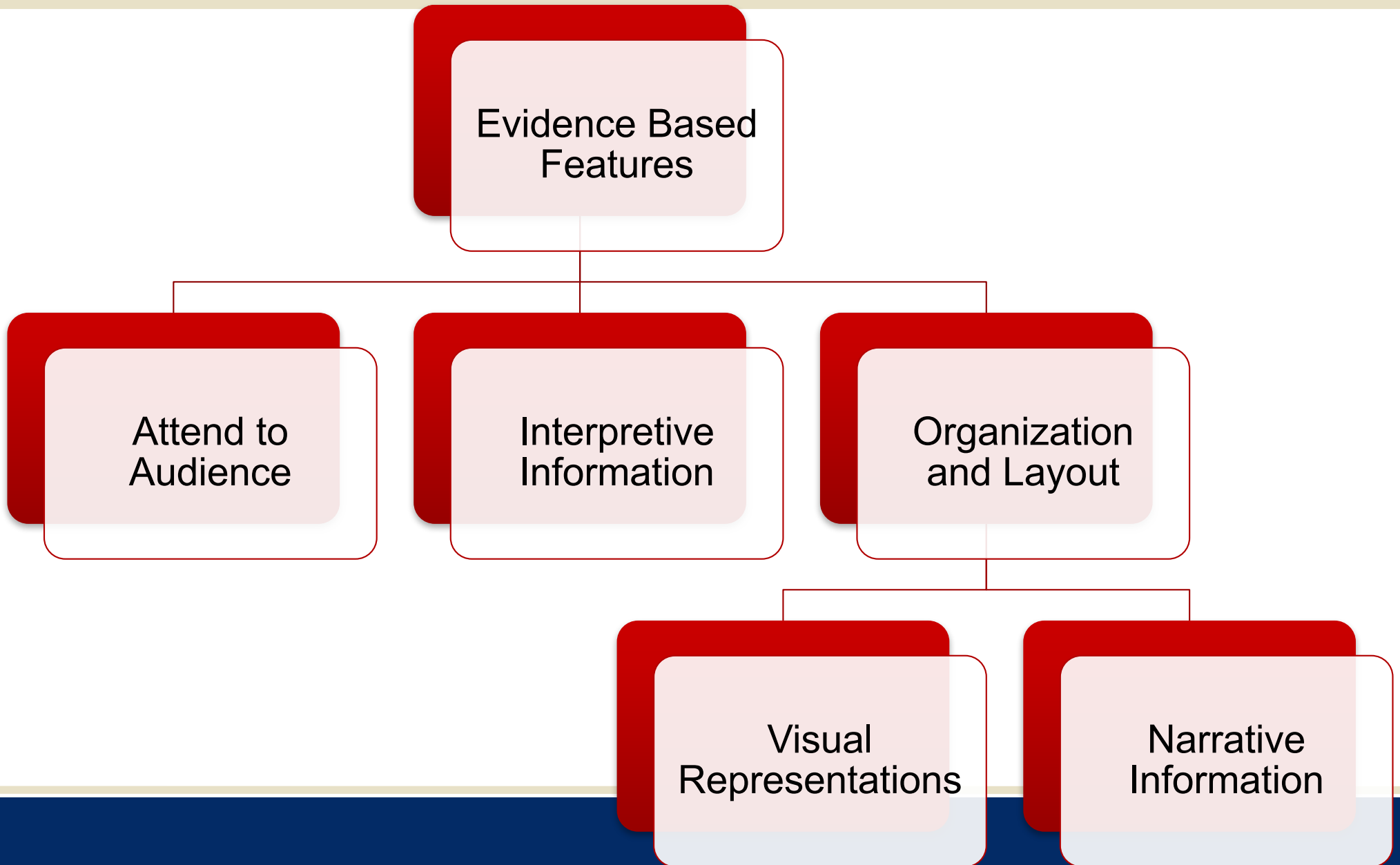
Category Descriptions

- **Attend to Audience**

  - Provide statement of purpose

  - Include interactive components (e.g., pop-up definitions, game-like features)

  - Personalize

  - Use multiple representations

- **Interpretive information**

  - Convey instructionally relevant information

  - Provide interpretive guidelines

  - Interpret complex information:

    - Measurement error

    - Percentile ranks

    - Relation to referents

Category Descriptions

- Organization and layout

  - Facilitate interpretation in straightforward manner

  - Summarize information in easy to find way

  - Add meaning with selected font style and features

  - Use headings to organize

- Narrative information

  - Provide a narrative description of data

  - Use readable and comprehensible text

  - Use appropriate language and vocabulary

- Visual representations

  - Use clear and simple graphical displays

  - Use color and contrast to highlight important information

  - Use graphical renderings that are appropriate for the data

  - Use tables for smaller data sets or comparisons

  - Include numerical values with visuals

  - Label all graphical elements

Summary of Findings for Sample Report

Feature	Summary of Ratings across Sub-features
Attending to audience	2 out of 3
Interpretive information	1 out of 5
Organization and layout	4 out of 4
Narrative information	1 out of 3
Visual representation of data	4 out of 6

Conclusions: Variability in Alignment

Often Included

- Audience: multiple representations, personalization

- Interpretive information: **relation to referents**

- Organization/layout: font style, headings, summary (usually graphic)

- Narrative: readable text

- Visuals: clear display, color, tables

Often Omitted

- Audience: statement of purpose

- Interpretive information: instructionally relevant info, measurement error, context for PR, interpretive guidelines

- Organization/layout: uncluttered

- Narrative: describe results, define terms

- Visual displays: labels, appropriate graphs, numbers in graphs

- Variability makes common interpretive lens difficult

  - Pre-service preparation

  - In-service professional development

- Lack of literature-supported features impacts test users' ability to interpret data and identify patterns, which then calls into question the integrity of the instructional changes that result from using the data

| Purpose | High Quality Data | Interpret Data | Identify Patterns | Make Changes | Evaluate Outcomes |

Validity

Leanne Ketterlin Geller: LKGELLER@smu.edu

# Score Reports Designed for Instructional Use

Amy Clark

Overview

- Results should be
  - interpretable
  - informative
  - useful to teachers' instructional decision-making
- Report development and evaluation process should include teachers
  - Sharing a few of those approaches today

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Background on DLM Alternate Assessments

- Include instructionally embedded assessments taken during the year
  - Teachers have flexibility in standards and levels assessed within blueprint constraints
- Basis of reporting is the set of diagnostic mastery classifications

Instructionally Embedded Assessment
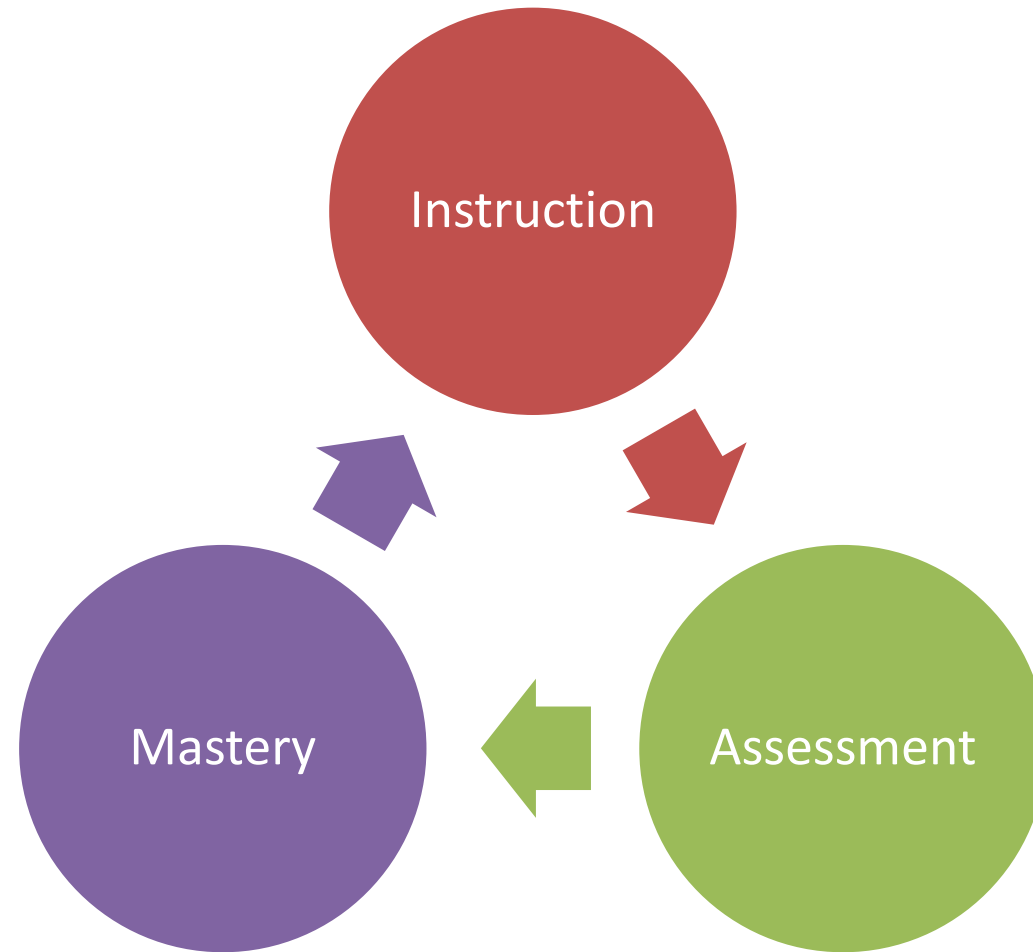
Research Initiative

- ## Design and Development
  - Began with teacher interviews and focus groups reacting to **prototypes**

- ## Interpretation and Use
  - Interviews and focus groups with teachers on **interpretation** and how they use summative reports to plan instruction in the **subsequent academic year**
  - **Survey** data collection on progress report use

Types of Reports

- ## Progress Reports
  - Available on demand during instructionally embedded testing
- ## Summative Reporting:
  - **Learning Profile** summarizes specific skill mastery
  - **Performance Profile** summarizes overall achievement

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Research Questions

1. What design **features** of reports are most **useful** to teachers?

2. How do teachers **interpret** results?

3. How do teachers use reports to inform **instructional decision-making**?

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Report Criteria

✓ District	✓ School	✓ Subject

Reset · 001 Demo District · 001 Demo School 2 · English Language Arts

02-20-2017

Save

Individual Student Progress Report for Jane Demo
001 Demo School 2, 001 Demo District, DLM QC State
Grade 3, English Language Arts

Claim: ELA.C1 Students can comprehend text in increasingly complex ways. — **Conceptual**
Area: ELA.C1.1 Determine critical elements of text

Grade Level Expectation	Level 1	Level 2	Level 3	Level 4 ◎	Level 5
ELA.EE.RI.3.1 Answer who and what questions to demonstrate understanding of details in a text.	attend to object characteristics	identify familiar people, objects, places, events	identify concrete details in an informational text	identify/answer questions about concrete details Attempted: 02/20	identify words related to explicit information
ELA.EE.RI.3.2 Identify details in a text.			Planned		
ELA.EE.RL.3.3 Identify the feelings of characters in a story.	identify feeling states in self Mastered: 02/20	identify feeling words and character feelings	identify feeling words and character feelings	identify character feelings and relate to actions	identify character feelings and relate to actions

Claim: ELA.C1 Students can comprehend text in increasingly complex ways. — **Conceptual**
Area: ELA.C1.3 Integrate ideas and information from text

Grade Level Expectation	Level 1	Level 2	Level 3	Level 4 ◎	Level 5
ELA.EE.RI.3.9 Identify similarities between two texts on the same topic.	attend to object characteristics	identify familiar people, objects, places, events	identify concrete details in an informational text	compare informational texts on the same topic Attempted: 02/20	compare informational texts on the same topic

Claim: ELA.C1 Students can comprehend text in increasingly complex ways. — **Conceptual**
Area: ELA.C1.2 Construct understandings of text

Grade Level Expectation	Level 1	Level 2	Level 3	Level 4 ◎	Level 5
ELA.EE.RL.3.4 Determine words and phrases that complete literal sentences in a text.				Planned	

◎ = Target · ▪ = Mastered · ▪ = Attempted · ▪ = Assessed, results not available · ▪ = Planned

This report provides student results so far for this school year. These results do not guarantee the student's overall performance at the end of the year.

Data Extracts

Downloads

Alternate Assessments

General Reports
 Monitoring Summary
Instructionally Embedded
 Student Progress
 Class Roster
Year End
 Student (Individual)
 Students (Bundled)

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Individual Student Year-End Report
Learning Profile 2017-18

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NAME: Student DLM
DISTRICT: DLM District ID
SCHOOL: DLM School

DISTRICT ID: DLM District
STATE: DLM State

Student's performance in 10th grade English language arts Essential Elements is summarized below. This information is based on all of the DLM tests Student took during the 2017-18 school year. Grade 10 had 19 Essential Elements in 4 Conceptual Areas available for instruction during the 2017-18 school year. The minimum required number of Essential Elements for testing in 10th grade was 10. Student was tested on 17 Essential Elements in 4 of the 4 Conceptual Areas.

In order to master an Essential Element, a student must master a series of skills leading up to the specific skill identified in the Essential Element. This table describes what skills your child demonstrated in the assessment and how those skills compare to grade level expectations.

Area	Essential Element	Level Mastery				
		1	2	3	4 (Target)	5
ELA.C1.2	ELA.L.9-10.4.a	Identify familiar objects through property word descriptors	Identify definition of words	Identify missing words using sentence context	Use semantic clues to identify word meaning	Use semantic clues to identify phrase meaning
ELA.C1.2	ELA.L.9-10.5.b	Draw conclusions from category knowledge	Identify the multiple meanings of a word	Identify word meaning of multiple meaning words using context clues	Identify the intended meaning of multiple meaning words	Understand how multiple meaning words can result in humor
ELA.C1.2	ELA.RI.9-10.1	Identify concrete details in a familiar informational text	Identify concrete details in an informational text	Cite textual evidence for inferred information	Discriminate between citations for explicit and inferred information	Cite evidence for a text's specific meaning

| | Levels mastered this year | | No evidence of mastery on this Essential Element | | Essential Element not tested | Page 1 of 4 |

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Individual Student Year-End Report
Performance Profile 2017-18

NAME: Student DLM
DISTRICT: DLM District
SCHOOL: DLM School

DISTRICT ID: DLM District ID
STATE: DLM State

Overall Results

Students in Grade 10 English language arts are expected to be administered assessments covering 50 skills for 10 Essential Elements. Student mastered 17 skills during the year.

Overall, Student's mastery of English language arts fell into the first of four performance categories: **emerging**. The specific skills Student has and has not mastered can be found in Student's Learning Profile.

emerging   approaching the target   at target   advanced
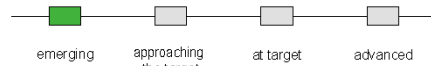
EMERGING:	The student demonstrates **emerging** understanding of and ability to apply content knowledge and skills represented by the Essential Elements.
APPROACHING THE TARGET:	The student's understanding of and ability to apply targeted content knowledge and skills represented by the Essential Elements is **approaching the target**.
AT TARGET:	The student's understanding of and ability to apply content knowledge and skills represented by the Essential Elements is **at target**.
ADVANCED:	The student demonstrates **advanced** understanding of and ability to apply targeted content knowledge and skills represented by the Essential Elements.

A student who achieves at the **emerging** performance level typically can identify objects associated with a text, identify text elements, demonstrate an understanding of language, and identify text structure when reading literature and informational text.

The student identifies objects associated with a text by:

- using property words to identify familiar objects
- identifying objects within a category
- understanding subgroups of objects within a category

The student identifies text elements by:

- identifying details in a familiar text

Performance Profile, continued

Conceptual Area

Construct understandings of text — 100%
*Mastered 12 of 5 skills**

Integrate ideas and information from text — 7%
Mastered 1 of 15 skills

Use writing to communicate — 10%
Mastered 2 of 20 skills

Integrate ideas and information in writing — 20%
Mastered 2 of 10 skills
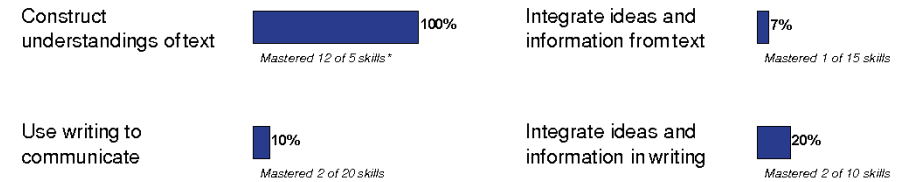
*Student took more assessments and demonstrated mastery of skills beyond what was required during the year.

More information about Student's performance on each Essential Element that make up the Conceptual Areas is located in the Learning Profile.

Design Features

- Reports were easy to read and understand
- Paid little attention to narrative statements
- Valued the fine-grained skill statements in the Learning Profile
  - Liked focus on mastery over deficits
- Performance Profile provided a high-level snapshot of performance

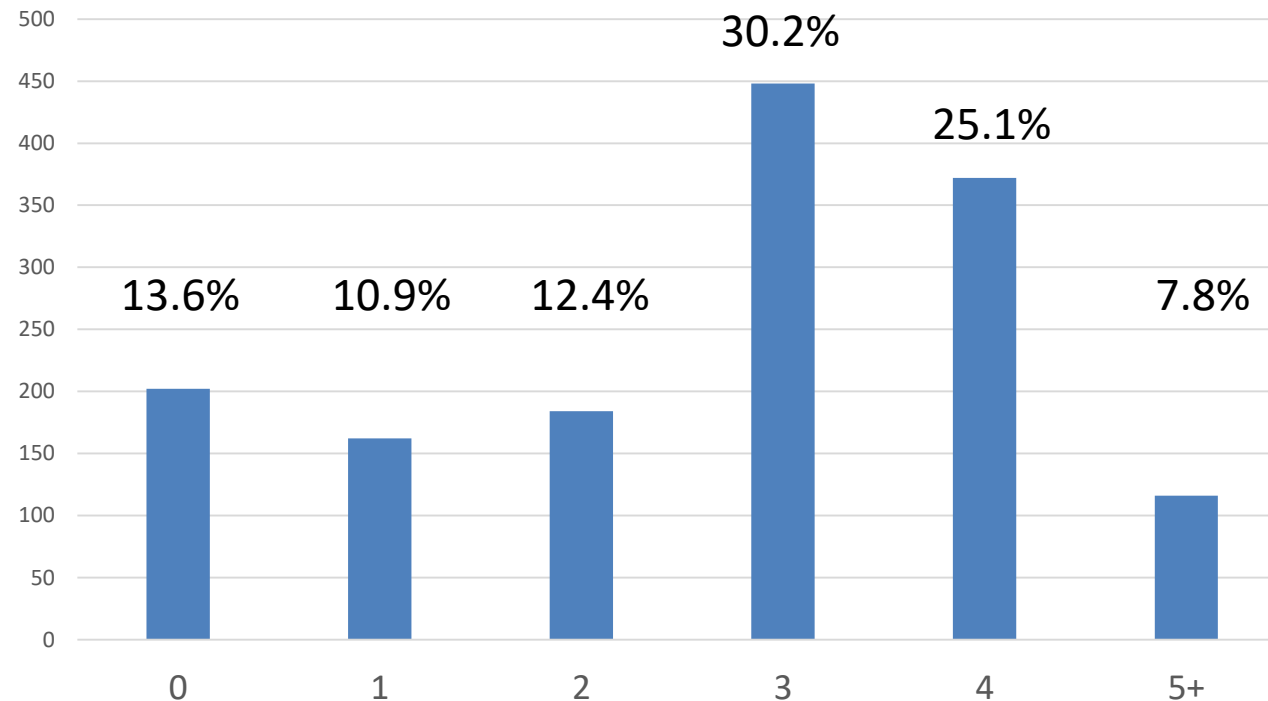**DYNAMIC**®
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Interpretation

Asked to imagine talking to parent

- Tended to describe in terms of **skill mastery** over performance level results or number of skills mastered

- **Bar charts** over performance level results

- Bar charts of % of mastered skills often **misinterpreted** as % correct or % of trials
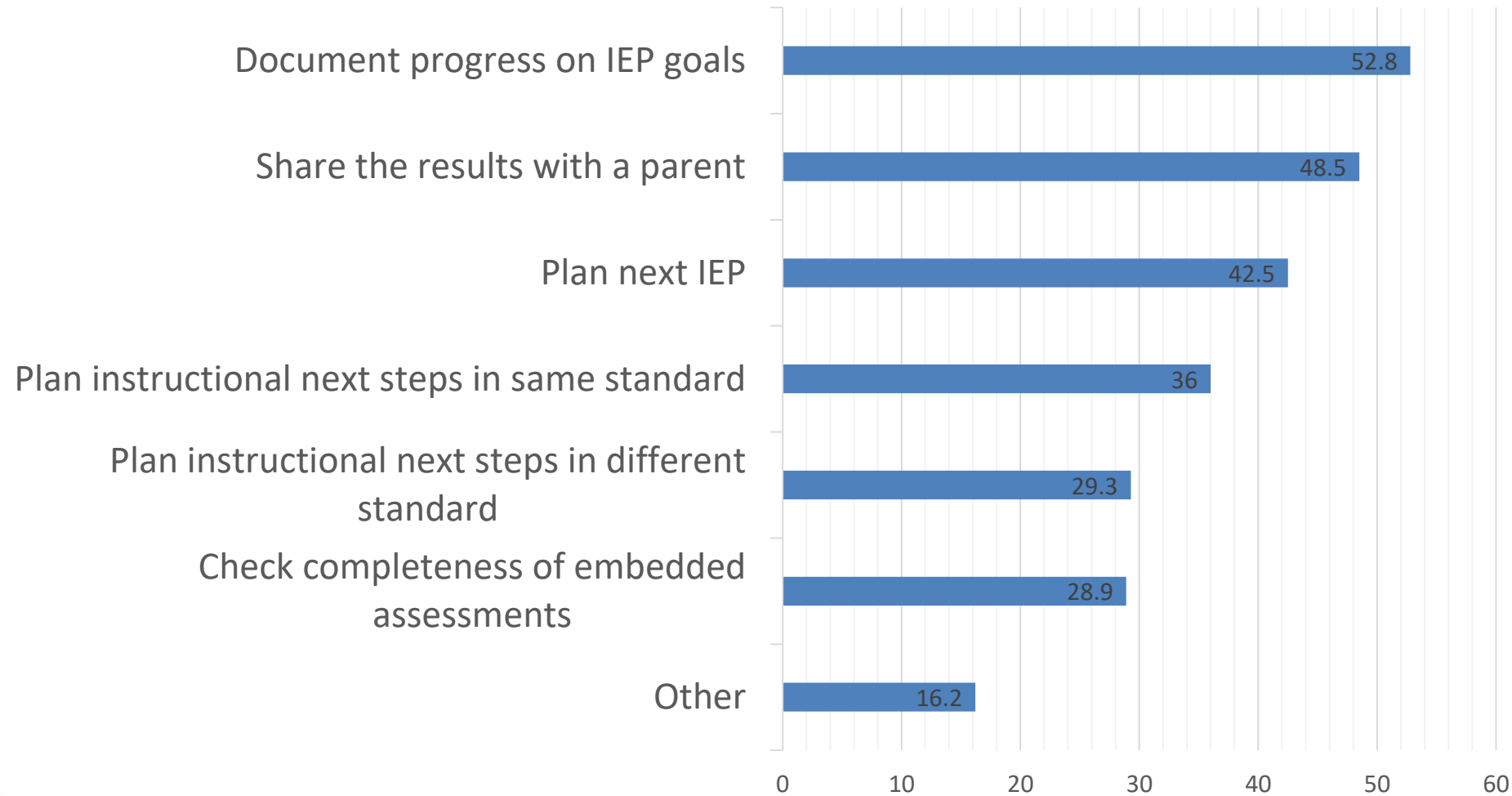
Progress Report Use

- 1487 teacher responses to survey
  - One survey per student

Progress Reports Created for the Student

Bar chart showing Progress Reports Created for the Student:
- 0: 13.6%
- 1: 10.9%
- 2: 12.4%
- 3: 30.2%
- 4: 25.1%
- 5+: 7.8%

15

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Teacher Use of Progress Reports

Document progress on IEP goals — 52.8
Share the results with a parent — 48.5
Plan next IEP — 42.5
Plan instructional next steps in same standard — 36
Plan instructional next steps in different standard — 29.3
Check completeness of embedded assessments — 28.9
Other — 16.2

0 10 20 30 40 50 60

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Teacher Use of Summative Reports in Subsequent Academic Year

- Use fine-grained mastery to plan instruction in subsequent grade
  - Varied in prioritizing depth in related standard versus breadth across standards
- Summarize mastery to plan instruction for students working on the same skills across standards
- Describe overall reports to parents
- Specify and evaluate progress toward IEP goals

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Key Takeaways

1. Design reports to support teacher needs
2. Utility for diagnostic results
   – instructional use within and across years, IEP goal setting, & instructional groupings
3. Opportunities to provide additional guidance to support accurate interpretation

THANK YOU!

For more information:
www.dynamiclearningmaps.org

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The Perspective of an Urban School Leader

Dawna Duke

A Comparison of District Mandated Math Assessments for Grade 3

Traditional Public School	Higher Performing Charter	Lower Performing Charter
Does Not Use Tri-Weekly Assessments	EXEMPT from MANDATED Tri-Weekly Assessments Due to High Standardized Test Scores	9 Tri-Weekly Assessments X 75 min = 9 days
6 Common Six-Weeks Assessments X 90 min = 7.2 days	2 Common Quarterly Assessments X 120 min = 3.2 days	2 Common Quarterly Assessments X 120 min = 3.2 days
1 Rehearsal Summative State Assessment X 240 min = 3.2 days	1 Common 3rd Quarter Assessment X 240 min = 3.2 days	1 Common 3rd Quarter Assessment X 240 min = 3.2 days
1 ACP Test X 180 min = 2.4 days	3 MAP Tests X 75 min = 3 days	3 MAP Tests X 75 min = 3 days
Total instructional days of mathematics: 12.8	Total instructional days of mathematics: 9.4	Total instructional days of mathematics: 18.4

The kids with the highest instructional needs are systemically losing access to quality instruction because they are taking mandated tests.

1.7

Data.
Score Reports.
More Data.

We had it all.

Score Reports can be a Barrier for Teachers

"That assessment was just bad! I don't care what the score report says!"

"I didn't even get teach everything yet, and had to give the test on Monday!"

"I don't even get the score report for weeks… at this point it's too late!"

"I look at the report and it's a bunch of numbers. I don't even know what to do with it."

Score Reports can be a Barrier for School Leaders

The reports do not inform instruction.

The next step is not granular.

The implication is test prep versus schema

"Learning how to change score reports into actions allowed me to see precisely what part of each skill my students were struggling with and then give them a tool to fix it. I could efficiently reach all of my students; something I was never able to find the time to do before."

- Haley, 3rd Grade Teacher

From Barriers to Benefits: Understand the End-User

Why	What	How
"Look at this data! Why did only 25% of my students get it?" "I have always taught it like this…"	"I tried to teach this and I just didn't know what to do or say." "I don't know what this looks like."	"This group of kids isn't getting it. I don't know how to reach them." "I don't know how!"
Mission + Vision + Impact Always point back to how kids learn. Look at research & impact.	Define the objective. Share structures. What does exemplary teaching of _____ look like? This teacher needs to	Model lessons. Show them videos. Pull out the strategies. Break down the components. This person needs a thought partner.

"As an educator, I strive to develop and present meaningful lessons to my students in a highly engaging and relevant manner. There are times that despite the planning and intent behind the lesson, some students still may not get it.

In those moments it is of the utmost importance to have a school leader work side by side with you to develop and facilitate instructional change; guiding, sometimes listening to the frustration and fear, to help create and plan meaningful interventions and reteach of standards.

I have been lucky enough to have had that guidance and support by a leader as well as access to a program that tracks data and aids in instructional change for the better."

- Jessica, 3rd Grade Teacher

Kansans CAN

SUPPORTING TEACHERS USE OF SCORE REPORTS

Cary Rogers
Education Program Consultant
Kansas State Department of Education

Kansas leads the world in the success of each student.

TEACHERS PERSPECTIVE

❖ Performance category

❖ Typical skills of performance level

❖ Student learning profile

❖ Strengths and needs

  ❖ Specific skills for PLAAFP

  ❖ Next steps

  ❖ Planning and monitoring

STATE PERSPECTIVE

❖ Skill specific data for present levels

❖ Using score reports when reviewing DLM participation guidelines each year

❖ Students performing at target or advanced in multiple subject areas

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the success of each student.

Discussion and Questions