

Spring 2015

Online Professional Development for Algebra Progress Monitoring: Teacher Use and Satisfaction

Pamela M. Stecker
Clemson University

Amber Simpson
Clemson University

Renee Lyons
Clemson University

Vince Genareo
Iowa State University

Anne Foegen
Iowa State University

Follow this and additional works at: https://tigerprints.clemson.edu/hehd_awards

Recommended Citation

Stecker, Pamela M.; Simpson, Amber; Lyons, Renee; Genareo, Vince; and Foegen, Anne, "Online Professional Development for Algebra Progress Monitoring: Teacher Use and Satisfaction" (2015). *Health, Education and Human Development Awards*. 20.
https://tigerprints.clemson.edu/hehd_awards/20

This Poster is brought to you for free and open access by the Research and Innovation Month at TigerPrints. It has been accepted for inclusion in Health, Education and Human Development Awards by an authorized administrator of TigerPrints. For more information, please contact kokeefe@clemson.edu.

ONLINE PROFESSIONAL DEVELOPMENT FOR ALGEBRA PROGRESS MONITORING: TEACHER USE AND SATISFACTION

Pamela M. Stecker, PhD
Clemson University

Amber Simpson, EdS
Clemson University

Reneé Lyons, MEd
Clemson University

Vince Genareo, PhD
Iowa State University

Anne Foegen, PhD
Iowa State University

Professional Development for Algebra Progress Monitoring (PD-APM)

Online Professional Development

Highlighted Results

Final Year of IES Goal 2 Development Project, Pilot Study (2013-2014)

Subjects

29 general and special education teachers in IA, MN, and SC

Treatment

- Teachers completed 11 online professional development modules (including instruction about description, administration, scoring, and data entry for three types of algebra progress monitoring measures),
- Administered two types of algebra measures and scored and entered data from one measure in the online system across a 10-week period, and
- Conducted skills and error analysis for two students.

Measures

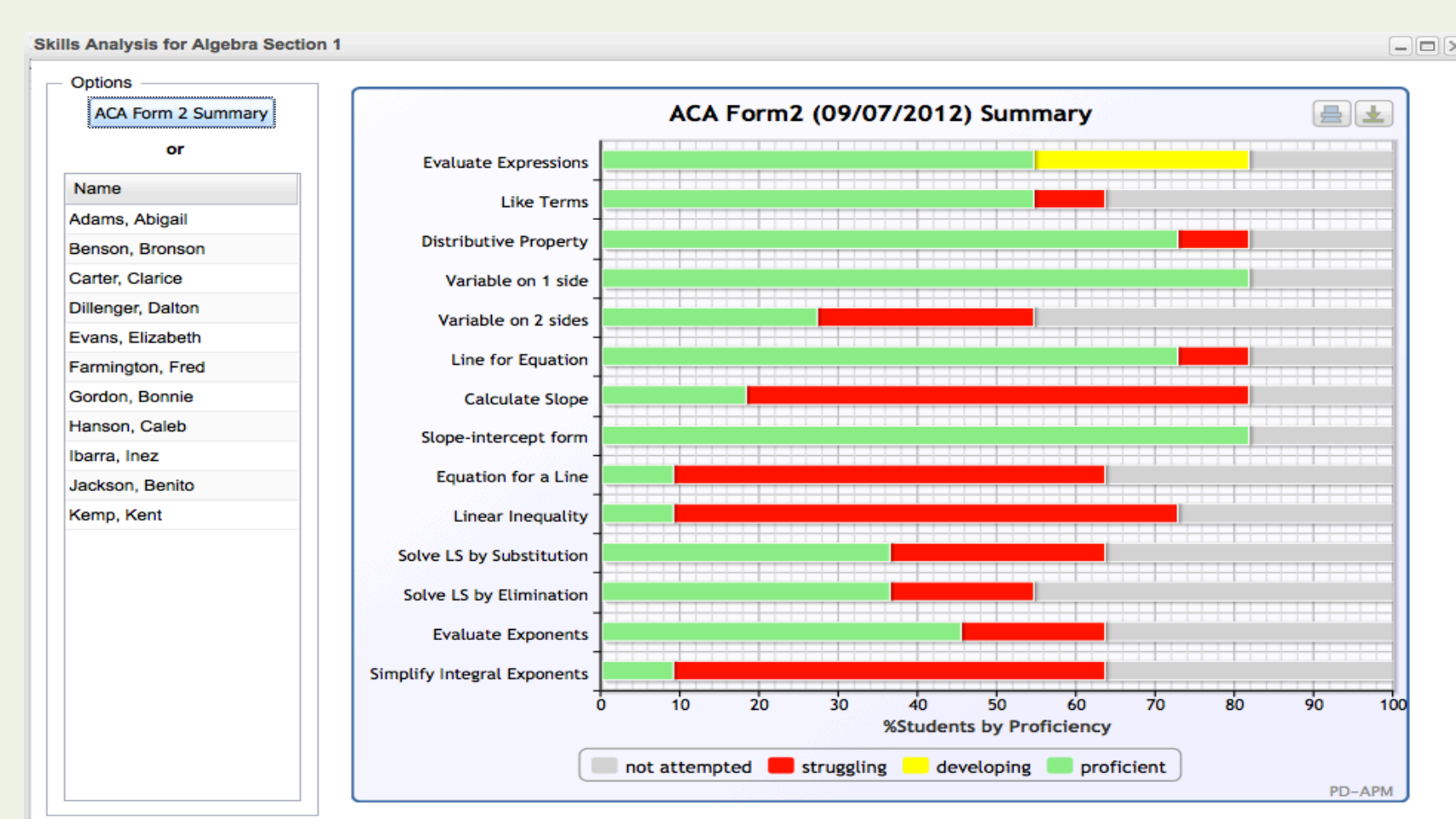
- Teachers completed Pre- and Post-Knowledge Test about Progress Monitoring, satisfaction ratings at three points during the online instruction, and a satisfaction questionnaire at the conclusion of the project.

PD-APM uses the ThinkSpace platform to provide instructional modules and to support the scoring and data management tools incorporated into the system



Online Scoring and Data Management System

Class Skills Analysis Shows Which Skills Are or Are Not Being Mastered



Online Scoring with Possible Error Selection

Algebra Content Analysis Form 2 - Page 2

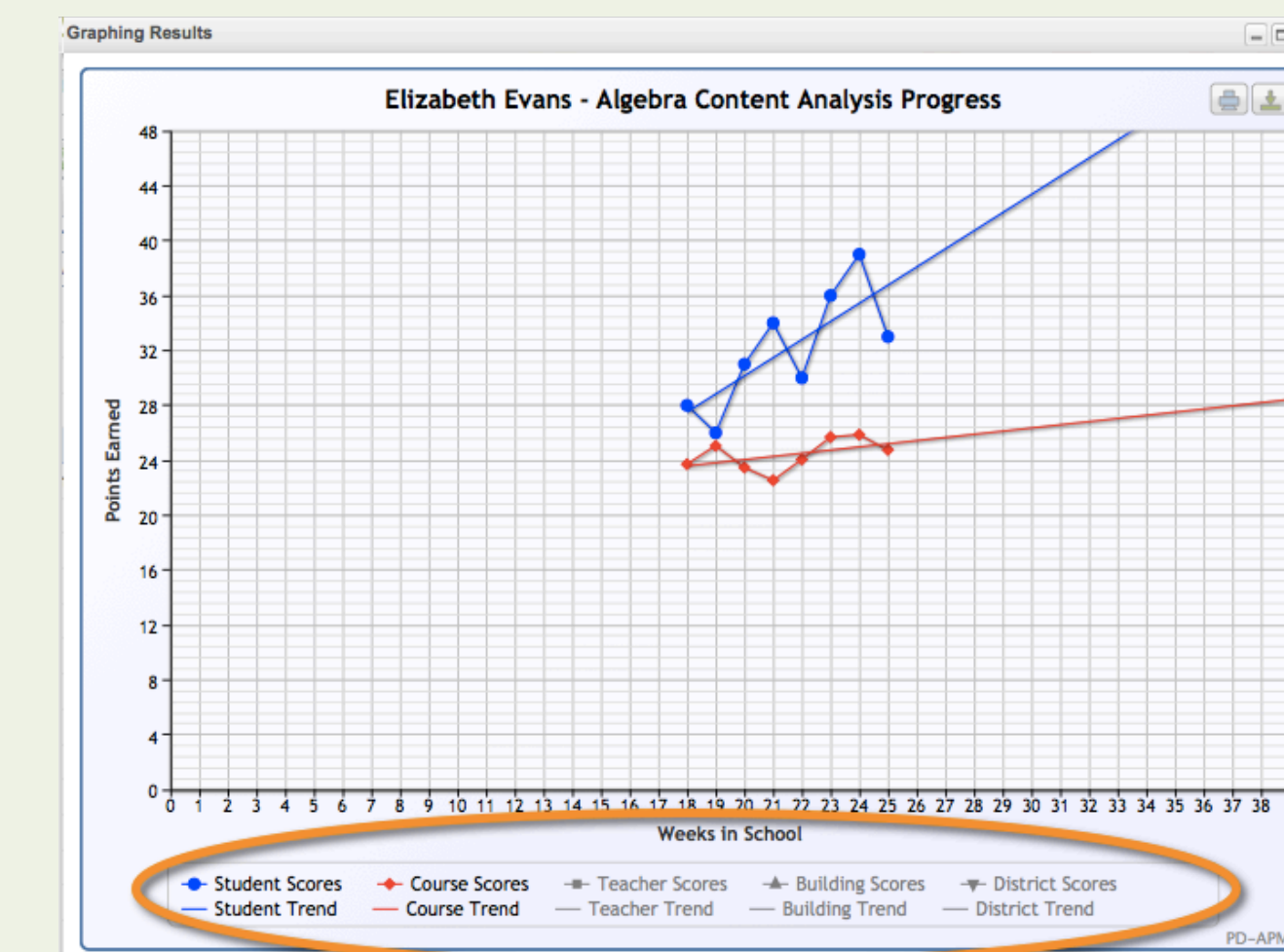
Find the slope of a line through (-3, 1), (2, 1)

Options: 3, 2, 1, 0, -1, -2, NR

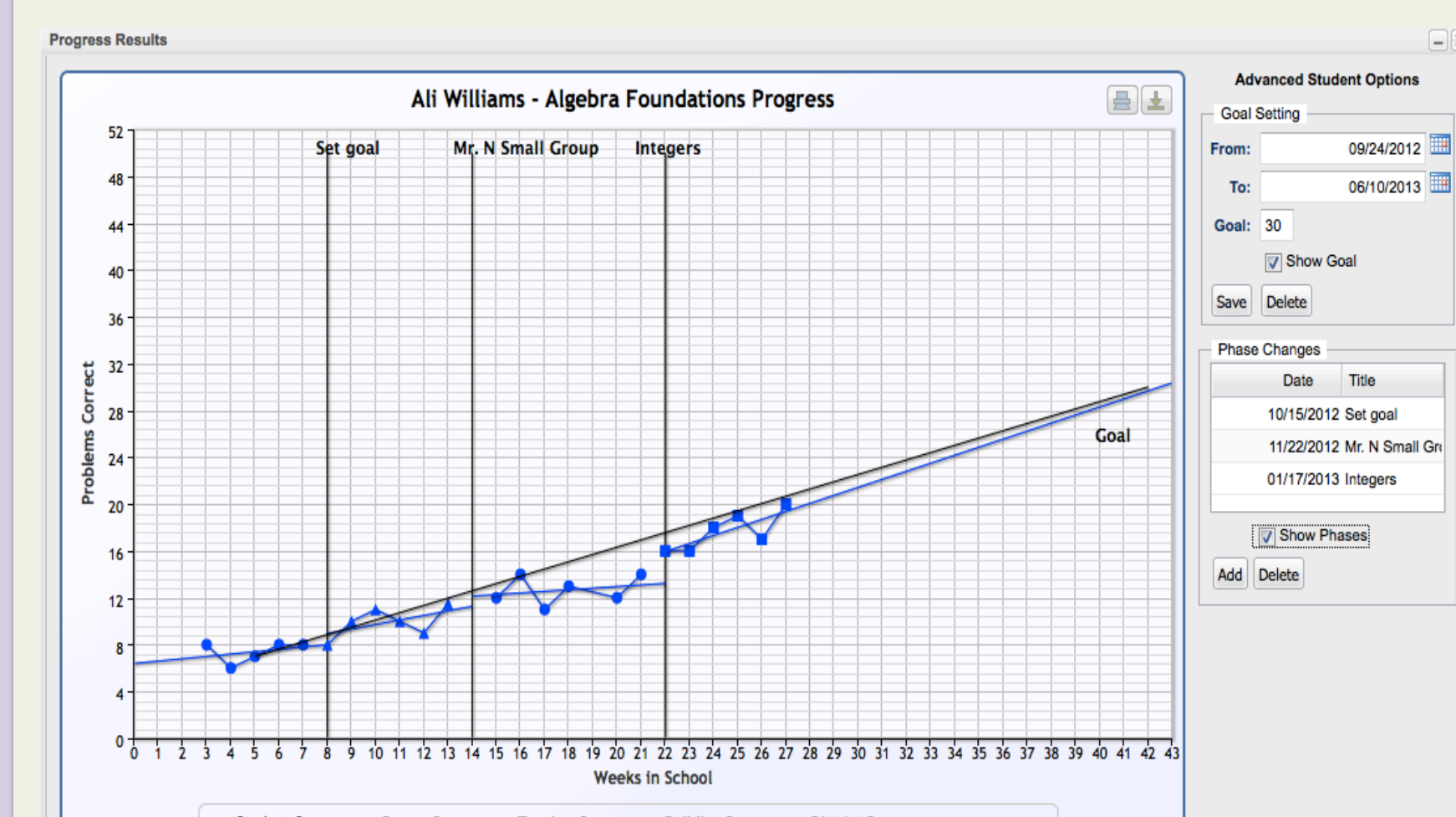
Draws a graph to determine slope OR uses slope formula

Further reduces elements in the expression

Student Trend Line Compared to Class Trend Line (student performing better than average class performance)



Modifying Student Instruction: Showing Effects (trend lines) of Different Instructional Changes (vertical lines)



What did teachers say about the Professional Development?

"I would highly recommend the APM Professional Development to all algebra teachers! It is definitely the kind of PD I like! I hate it when you do a summer PD and then, once school starts, you can't remember how to do any of the cool things they showed during the PD. The APM PD system allows me to move at my own pace and not have to wait on others or be lost. Plus I know exactly where it was taught in the system, if I don't remember how the bells and whistles work!" **General Education Teacher, Algebra I**

Did teachers' knowledge change? (# correct items on Knowledge Test)

	n	Pretest Items	Posttest Items	t
Experimental	29	9.97 (5.02)	17.66 (2.83)	7.59*
Contrast	5	5.20 (5.26)	6.60 (3.65)	0.50

* $p < .001$.

Convenience sample of five contrast teachers who did not use the system also completed the knowledge pre- and posttest.

Were teachers accurate in their scoring and data entry?

Accuracy of Scoring Across Teachers (Percentages)

ABS (n = 20)	AF (n = 9)	ACA (n = 2)	Overall
99	96	97	97

Accuracy of Data Entry Across Teachers (Percentages)

ABS (n = 28)	AF (n = 9)	ACA (n = 2)	Overall
96	94	99	96

What did teachers say about the online training? (System Ratings)

Mean ratings reported: 1 = Low Satisfaction; 5 = High Satisfaction

	Time 1 (n = 24)	Time 2 (n = 20)	Time 3 (n = 28)
Quality of graphics	4.33	4.20	4.43
Quality of animation	4.13	4.00	4.21
Quality of narration	4.33	4.20	4.36
Ease of navigation	4.21	4.05	4.12

Were teachers generally satisfied? (n = 29; # of teachers providing each rating on Final Questionnaire)

1 = Completely Disagree; 2 = Disagree; 3 = Agree; 4 = Completely Agree

	1	2	3	4
Time spent on PD modules was acceptable	0	2	15	12
Time to administer probes was acceptable	1	1	9	18
Time to score probes was acceptable	1	3	7	18
Content of measures was appropriate	1	2	11	15
I used student progress data to inform instructional decision making	1	5	16	7

How did teachers report using the student progress monitoring data to inform their instruction? (from Final Questionnaire)

21 of the 29 teachers used student progress data to review common skills and concepts not mastered

"I discovered some of the 'gaps' in students' understanding of algebra and was able to focus on this during instruction time and homework time." **General Education Teacher, Supplemental Instruction**

5 of the 29 teachers used student progress data to provide more individualized instruction "Error analysis allowed me to see the mistakes that students were commonly making and focus on those skills during review, one-on-one, and small-group assistance." **Special Education Teacher, Algebra I**

3 of the 29 teachers used student progress data to inform IEP meetings and in writing IEP goals "Very useful for IEP information. I was able to provide insight on levels of math mastery. I will use probes next year for setting goals for my students with math disabilities." **Special Education Teacher, Academic Support**

Algebra Progress Monitoring Measures

5 minutes, 60 points possible

See the Project AAIMS website for sample measures



Algebra Basic Skills

5 minutes, 50 points possible

Algebra Foundations

7 minutes, 48 points possible

Algebra Content Analysis

Contact Information:

Principal Investigator: Dr. Anne Foegen
Email: afoegen@iastate.edu

Check out the PD-APM

website!



Funded by Institute of Education Sciences,
Award #R324A090295

