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
Online Professional Development for Algebra Progress Monitoring (PD-APM)

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

- Subjects: Final Year of IES Goal 2 Development Project, Pilot Study (2013-2014)
- Principal Investigator: Dr. Anne Foegen

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.

Algebra Progress Monitoring Measures

- 5 minutes, 60 points possible
  - See the Project AIMMS website for sample measures

- 5 minutes, 50 points possible
  - Algebra Basic Skills

- 7 minutes, 48 points possible
  - Algebra Foundations

Online Professional Development

- 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
- 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

Online Professional Development

Highlighted Results

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

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Pretest Items</th>
<th>Posttest Items</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>29</td>
<td>9.97 (5.02)</td>
<td>17.66 (2.83)</td>
<td>7.59*</td>
</tr>
<tr>
<td>Contrast</td>
<td>5</td>
<td>5.20 (5.26)</td>
<td>6.60 (3.65)</td>
<td>0.50</td>
</tr>
</tbody>
</table>

* 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)

<table>
<thead>
<tr>
<th></th>
<th>ABS (n = 20)</th>
<th>AF (n = 9)</th>
<th>ACA (n = 2)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>99</td>
<td>96</td>
<td>97</td>
<td>97</td>
</tr>
</tbody>
</table>

Accuracy of Data Entry Across Teachers (Percentages)

<table>
<thead>
<tr>
<th></th>
<th>ABS (n = 28)</th>
<th>AF (n = 9)</th>
<th>ACA (n = 2)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>96</td>
<td>94</td>
<td>99</td>
<td>96</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Quality of graphics</th>
<th>Time 1 (n = 24)</th>
<th>Time 2 (n = 20)</th>
<th>Time 3 (n = 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.33</td>
<td>4.20</td>
<td>4.43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of animation</th>
<th>Time 1 (n = 24)</th>
<th>Time 2 (n = 20)</th>
<th>Time 3 (n = 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.13</td>
<td>4.00</td>
<td>4.21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of narration</th>
<th>Time 1 (n = 24)</th>
<th>Time 2 (n = 20)</th>
<th>Time 3 (n = 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.33</td>
<td>4.20</td>
<td>4.36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ease of navigation</th>
<th>Time 1 (n = 24)</th>
<th>Time 2 (n = 20)</th>
<th>Time 3 (n = 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.21</td>
<td>4.05</td>
<td>4.12</td>
</tr>
</tbody>
</table>

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

1 = Completely Dissatisfied; 2 = Dissatisfied; 3 = Satisfied; 4 = Completely Satisfied

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 math instruction time and homework time.” - General Education Teacher, Supplemental Instruction

6 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 1

5 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

Contact Information:
Principal Investigator: Dr. Anne Foegen
Email: afoegen@lastate.edu

Funded by Institute of Education Sciences, Award #R324A090295