Program Effects of READ 180 on Student Achievement 2008-2010

Sample Unified School District

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Joseph De La Rosa
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2007 – 2008 SCHOOL YEAR
METHODOLOGY
According to their website, Scholastic’s READ 180 program is a reading intervention program. It is “…a comprehensive system of curriculum, instruction, assessment, and professional development proven to raise reading achievement for struggling readers in grades 4–12+.

Designed for any student reading two or more years below grade-level, READ 180 leverages adaptive technology to individualize instruction for students and provide powerful data for differentiation to teachers. “ The software is used by students independently and provides them, “with individualized practice in reading, spelling, vocabulary, and writing.”

(http://read180.scholastic.com/about/instructional-model)

Purpose
The main purpose of the study was to determine the impact of the READ 180 program on student achievement at Moreno Valley Unified School District over a three-year period.

Process
To prepare for analysis, a student enrollment file indicating participation in the READ 180 program was queried from the District’s Student Information System. We received a file containing this information across four years (the first for baseline) in addition to demographic, California Standards Test English Language Arts (CST-ELA), California English Language Development Test (CELDT), and Scholastic Reader Index (SRI) scores. We supplemented missing data from the Student Testing and Reporting (STAR) Disc. We also pulled a Comparison group from this database as well. For CST-ELA and CELDT, previous years performance levels were subtracted from the year we were analyzing to calculate growth from year-to-year (e.g. An improvement of one or more performance levels was coded as an increase for the year, no change was coded as “same”, and any decline was coded as a decrease.) Change was also calculated for the SRI using pre and post test scores within each year.

Several statistics are captured within the READ 180 software that can be used to measure intensity of exposure or dosage in relation to the intervention. The system captures the number of minutes a student has spent logged into the READ 180 program, the number of times they have logged into the system, and the number of words that they have read within the program. We received this data for each student enrolled in the READ 180 program each year. To create the intensity levels, we calculated the proportions on each variable within each year and assigned two cut-scores per variable such that each was divided into equal thirds designated low, medium, and high.

In the early stages of the READ 180 program (06-07 and 07-08), students with disabilities were primarily selected for participation. As the program progressed, it was opened up to all students. Because disability was a selection variable for participation in the program, it was considered appropriate to use disability as a selection variable when sampling the data set.
A matched sampling process was conducted for each cluster of years (07/08; 08/09; 09/10) to equalize the Intervention (READ 180) and Comparison (Non-READ 180) groups as much as possible given sample size constraints. We first attempted to sample the Comparison group using both disability and English proficiency, however, the sample size became too small. Thus, we used disability as the primary sampling variable which resulted in the READ 180 group and Comparison (Non-READ 180) group having the same percentages of students with disabilities. Other demographics of importance are available in tabular form at the beginning of each year of analyses so that READ 180 vs. Comparison group evaluations can be made in context and in relation to student demographics.

**Analyses**

First, the sample was split on program participation (READ 180 vs. Comparison) and descriptive statistics were produced by calculating the percentage of students within each category (increase, same, decrease) to indicate growth within a given year on each of our outcome variables of interest (CST-ELA, CELDT, and SRI). Then, similar analyses were run by splitting on number of log ins, number of words read, and amount of time spent logged into READ 180. Finally, we isolated on English Learner status so that the district could see the impact of the intervention program on their English Learner students.

Analysis of Variance (ANOVA) statistical tests were conducted to determine whether the differences between groups were significant at the $p < .05$ level (95% Confidence Interval). An * will be used to indicate statistically significant relationships between groups throughout the report.
## Demographic table

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<thead>
<tr>
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<th>Non-Read 180</th>
<th></th>
<th>Read 180</th>
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2007-2008
Percentage of Students Who Increased One Performance Level or More on the CST ELA
Read 180 vs. Non - Read 180

* Non vs. READ 180: t(1472)=5.305, p=.0000
2007-2008
Percentage of Students Who Increased One Performance Level or More on the CST ELA by Number of Log Ins

\[ n: \]
None: 845
Low: 204
Medium: 226
High: 199

* None vs. High: \( t(1042)=6.597, p=.0000 \)

2007-2008
Percentage of Students Who Increased One Performance Level or More on the CST ELA by Number of Words Read

\[ n: \]
None: 845
Low: 188
Medium: 200
High: 241

* None vs. High: \( t(1042)=6.597, p=.0000 \)

2007-2008
Percentage of Students Who Increased One Performance Level or More on the CST ELA by Amount of Time Logged In to Read 180

\[ n: \]
None: 845
Low: 214
Medium: 206
High: 209

* None vs. High: \( t(1052)=5.835, p=.0000 \)
2007-2008 Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Number of Log Ins Read 180 Students Only

\[ n: \]
Low: 160
Medium: 199
High: 215

* Low vs. High: \( t(373)=3.643, p=.0003 \)

2007-2008 Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Number of Words Read Read 180 Students Only

\[ n: \]
Low: 288
Medium: 271
High: 273

* Low vs. High: \( t(559)=6.928, p=.0000 \)

2007-2008 Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Amount of Time Logged In Read 180 Students Only

\[ n: \]
Low: 272
Medium: 273
High: 287

* Low vs. High: \( t(557)=4.455, p=.0000 \)
**2007-2008**
Percentage of Students Who Increased One Performance Level or More on the CELDT by Number of Log Ins
READ 180 Students Only

![](chart1.png)

*n:*
Low: 155
Medium: 219
High: 380

Low vs. High: \( t(533) = 1.514, p = .1306 \)

---

**2007-2008**
Percentage of Students Who Increased One Performance Level or More on the CELDT by Number of Words Read
READ 180 Students Only

![](chart2.png)

*n:*
Low: 157
Medium: 255
High: 342

* Low vs. High: \( t(497) = 2.107, p = .0356 \)

---

**2007-2008**
Percentage of Students Who Increased One Performance Level or More on the CELDT by Amount of Time Logged In to Read 180 READ 180 Students Only

![](chart3.png)

*n:*
Low: 149
Medium: 215
High: 390

* Low vs. High: \( t(537) = 2.051, p = .0408 \)
2007-2008
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA
Read 180 vs. Non - Read 180

* Non vs. Read 180: t(615)=2.705, p=.0070
2007-2008
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Number of Log Ins

\[ \begin{align*}
\text{None} & : 24.3 \\ 
\text{Low} & : 27.8 \\ 
\text{Medium} & : 25.5 \\ 
\text{High} & : 39.4
\end{align*} \]

\[ n: \] None: 301, Low: 81, Medium: 110, High: 125

* None vs. High: \( t(424)=3.136, p=.0018 \)

2007-2008
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Number of Words Read

\[ \begin{align*}
\text{None} & : 24.3 \\ 
\text{Low} & : 30.0 \\ 
\text{Medium} & : 26.7 \\ 
\text{High} & : 35.0
\end{align*} \]

\[ n: \] None: 301, Low: 86, Medium: 102, High: 128

* None vs. High: \( t(427)=2.271, p=.0236 \)

2007-2008
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Amount of Time Spent Logged In to Read 180

\[ \begin{align*}
\text{None} & : 24.3 \\ 
\text{Low} & : 28.4 \\ 
\text{Medium} & : 30.2 \\ 
\text{High} & : 33.9
\end{align*} \]

\[ n: \] None: 301, Low: 83, Medium: 100, High: 133

*None vs. High: \( t(432)=2.071, p=.0390 \)
• In 2007-2008, a larger percentage of READ 180 students increased one or more performance levels on the CST-ELA relative to the Comparison group who was not exposed to READ 180. This comparison was statistically significant.

• A stair-step effect was evident when analyzing the percentage of students who increased a performance level or more on the CST-ELA across intensity or dosage levels. A smaller percentage of students with no exposure to READ 180 increased by one performance level relative to READ 180 students, regardless of the number of times they logged in, number of words that they read, or amount of time they spent logged into the system. The result seems to indicate that any exposure to READ 180 was beneficial, but more exposure was even better. Number of log ins appear to have resulted in the greatest impact. These results were statistically significant for all groups.

• Similar results were reflected in the graphs representing growth on the SRI. For this set of data, only READ 180 students were tested so the results do not reflect a Non-READ 180 group. The comparisons are within the intervention group and are based upon intensity or dosage levels. Number of words read appeared to have the greatest effect on growth as measured by SRI score. Once again, level of exposure made a difference to a statistically significant degree.

• The pattern of results was slightly different for CELDT performance level growth for this particular year. Once again, only the READ 180 group was considered in this analysis. This analysis was also exclusive to English Learner students. The differences between the medium and high log in, words read, and amount of time logged in groups was negligible. However, there were significant differences between the low and medium/high groups when split on words read and amount of time logged in to READ 180.
• The pattern of results for EL students was similar to the general population. EL students who participated in READ 180 made greater gains on the CST relative to EL students who did not participate in READ 180. However, the growth of the EL students in READ 180 was not as great as that of the general population.
2008 – 2009 SCHOOL YEAR
# Demographic table

<table>
<thead>
<tr>
<th></th>
<th>Non-Read 180</th>
<th></th>
<th>Read 180</th>
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2008-2009
Percentage of Students Who Increased One Performance Level or More on the CST ELA
Read 180 vs. Non - Read 180

* Non-READ 180 vs. Read 180: t(2075)=6.210, p=.0000
2008-2009
Percentage of Students Who Increased One Performance Level or More on the CST ELA by Number of Log Ins

\[ n: \]
- None: 1,145
- Low: 267
- Medium: 302
- High: 363

* None vs. Med: \( t(1506) = 6.219, p = .0000 \)

2008-2009
Percentage of Students Who Increased One Performance Level or More on the CST ELA by Number of Words Read

\[ n: \]
- None: 1,149
- Low: 250
- Medium: 301
- High: 377

* None vs. Med: \( t(1524) = 6.440, p = .0000 \)

2008-2009
Percentage of Students Who Increased One Performance Level or More on the CST ELA by Amount of Time Logged Into Read 180

\[ n: \]
- None: 1,145
- Low: 266
- Medium: 303
- High: 363

* None vs. Med: \( t(1506) = 6.838, p = .0000 \)

KeyData Systems
2008-2009
Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Number of Log Ins
Read 180 Students Only

\[n:\]
- Low: 476
- Medium: 499
- High: 544

* Low vs. High: \(t(1018)=9.712, p=.0000\)

2008-2009
Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Number of Words Read
Read 180 Students Only

\[n:\]
- Low: 524
- Medium: 483
- High: 508

* Low vs. High: \(t(1030)=12.143, p=.0000\)

2008-2009
Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Amount of Time Logged In
Read 180 Students Only

\[n:\]
- Low: 480
- Medium: 501
- High: 538

* Low vs. High: \(t(1016)=8.043, p=.0000\)
2008-2009
Percentage of Students Who Increased One Performance Level or More on the CELDT by Number of Log Ins
READ 180 Students Only

\[ n: \]
Low: 150
Medium: 161
High: 174

*Low vs. Med: t(322)=2.864, p=.0045

2008-2009
Percentage of Students Who Increased One Performance Level or More on the CELDT by Number of Words Read
READ 180 Students Only

\[ n: \]
Low: 137
Medium: 168
High: 180

Low vs. High: t(315)=1.350, p=.1780

2008-2009
Percentage of Students Who Increased One Performance Level or More on the CELDT by Amount of Time Logged In to Read 180
READ 180 Students Only

\[ n: \]
Low: 142
Medium: 163
High: 180

* Low vs. High: t(320)=2.234, p=.0262
2008-2009
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA
Read 180 vs. Non - Read 180

* Non vs. READ 180: t(977)=3.948, p=.0001

n:
Non - Read 180: 356
Read 180: 623
2008-2009
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Number of Log Ins

\[
\begin{array}{cccc}
\text{None} & \text{Low} & \text{Medium} & \text{High} \\
26.8 & 40.2 & 43.0 & 36.7
\end{array}
\]

\[n:\]
\begin{align*}
\text{None: 362} \\
\text{Low: 162} \\
\text{Medium: 198} \\
\text{High: 257}
\end{align*}

* None vs. High: \(t(617)=2.626, p=.0088\)

2008-2009
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Number of Words Read

\[
\begin{array}{cccc}
\text{None} & \text{Low} & \text{Medium} & \text{High} \\
26.8 & 36.6 & 40.3 & 41.1
\end{array}
\]

\[n:\]
\begin{align*}
\text{None: 362} \\
\text{Low: 185} \\
\text{Medium: 198} \\
\text{High: 234}
\end{align*}

* None vs. High: \(t(594)=3.642, p=.0003\)

2008-2009
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Amount of Time Spent Logged In to Read 180

\[
\begin{array}{cccc}
\text{None} & \text{Low} & \text{Medium} & \text{High} \\
26.8 & 42.2 & 40.1 & 37.4
\end{array}
\]

\[n:\]
\begin{align*}
\text{None: 362} \\
\text{Low: 165} \\
\text{Medium: 199} \\
\text{High: 253}
\end{align*}

* None vs. High: \(t(613)=2.793, p=.0054\)
• In 2008-2009, a larger percentage of READ 180 students increased one or more performance levels on the CST-ELA relative to the Comparison group who was not exposed to READ 180. This comparison was statistically significant.

• In this year, READ 180 students outperformed the Comparison students on the CST-ELA when compared across intensity or dosage levels. A smaller percentage of students with no exposure to READ 180 increased by one performance level relative to READ 180 students, regardless of the number of times they logged in, number of words that they read, or amount of time they spent logged into the system. The students with medium levels of READ 180 activity performed better than all other groups. Amount of time spent logged in to the system appears to have resulted in the greatest impact. These results were statistically significant for all groups.

• For SRI results, only READ 180 students were tested so the results do not reflect a Non-READ 180 group. The comparisons are within the intervention group and are based upon intensity or dosage levels. Number of words read appeared to have the greatest effect on growth as measured by SRI score. Once again, level of exposure made a difference to a statistically significant degree.

• The pattern of results was slightly different for CELDT performance level growth. Once again, only the READ 180 group was considered in this analysis. This analysis was also exclusive to English Learner students. The differences between the medium and high log in, words read, and amount of time logged in groups was negligible. However, there were significant differences between the low and medium/high groups when split on number of times logged in and amount of time logged in to READ 180.
• The pattern of results for EL students was similar to the general population for this year as well. EL students who participated in READ 180 made greater gains on the CST relative to EL students who did not participate in READ 180. However, the growth of the EL students in READ 180 was not as great as that of the general population. It is also important to note that this year’s cohort of EL students improved more than last years.
2009 – 2010 SCHOOL YEAR
## Demographic table

<table>
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<tr>
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<th>Non-Read 180</th>
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2009-2010
Percentage of Students Who Increased One
Performance Level or More on the CST ELA
Read 180 vs. Non - Read 180

* Non Read 180 vs. Read 180: t(1450)=5.132, p=.0000
### 2009-2010
**Percentage of Students Who Increased One Performance Level or More on the CST ELA by Number of Log Ins**

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<th>Percentage</th>
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<td>High</td>
<td>38.9</td>
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\[ n: \]
- None: 759
- Low: 190
- Medium: 241
- High: 262

* None vs. High: \( t(1019)=4.294, p=.0000 \)

### 2009-2010
**Percentage of Students Who Increased One Performance Level or More on the CST ELA by Number of Words Read**

<table>
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<th>Level</th>
<th>Percentage</th>
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\[ n: \]
- None: 759
- Low: 192
- Medium: 244
- High: 262

* None vs. Med: \( t(1001)=4.797, p=.0000 \)

### 2009-2010
**Percentage of Students Who Increased One Performance Level or More on the CST ELA by Amount of Time Logged In to Read 180**

<table>
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<tbody>
<tr>
<td>None</td>
<td>25.0</td>
</tr>
<tr>
<td>Low</td>
<td>34.9</td>
</tr>
<tr>
<td>Medium</td>
<td>42.1</td>
</tr>
<tr>
<td>High</td>
<td>37.0</td>
</tr>
</tbody>
</table>

\[ n: \]
- None: 759
- Low: 189
- Medium: 242
- High: 262

* None vs. Med: \( t(1019)=5.239, p=.0000 \)
### 2009-2010
Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Number of Log Ins

**Read 180 Students Only**

- **n:**
  - Low: 245
  - Medium: 328
  - High: 298

* Low vs. High: $t(541)=4.609, p=.0000$

### 2009-2010
Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Number of Words Read

**Read 180 Students Only**

- **n:**
  - Low: 253
  - Medium: 312
  - High: 306

* Low vs. High: $t(557)=5.080, p=.0000$

### 2009-2010
Percentage of Students Who Increased Their Scholastic Reading Index Score from Pre to Post by Amount of Time Logged In

**Read 180 Students Only**

- **n:**
  - Low: 243
  - Medium: 328
  - High: 300

* Low vs. High: $t(541)=4.808, p=.0000$
### 2009-2010
Percentage of Students Who Increased One Performance Level or More on the CELDT by Number of Log Ins

**READ 180 Students Only**

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>36.6</td>
<td>25.7</td>
<td>33.1</td>
</tr>
</tbody>
</table>

- **n:**
  - Low: 164
  - Medium: 167
  - High: 236

Low vs. High: $t(398) = 0.724, p = .4694$

---

### 2009-2010
Percentage of Students Who Increased One Performance Level or More on the CELDT by Number of Words Read

**READ 180 Students Only**

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>27.4</td>
<td>32.2</td>
<td>33.4</td>
</tr>
</tbody>
</table>

- **n:**
  - Low: 113
  - Medium: 149
  - High: 305

Low vs. High: $t(416) = 1.170, p = .2426$

---

### 2009-2010
Percentage of Students Who Increased One Performance Level or More on the CELDT by Amount of Time Logged In to Read 180

**READ 180 Students Only**

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>35.5</td>
<td>26.3</td>
<td>34.0</td>
</tr>
</tbody>
</table>

- **n:**
  - Low: 166
  - Medium: 186
  - High: 215

Low vs. High: $t(379) = 0.305, p = .7605$
2009-2010
Percentage of EL Students Who Increased One Performance Level or More on the CST ELA
Read 180 vs. Non - Read 180

* Non vs. READ 180: t(605)=3.197, p=.0015
2009-2010 Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Number of Log Ins

*n:
None: 223
Low: 105
Medium: 118
High: 161

* None vs. High: $t(382)=3.103$, $p=.0021$

---

2009-2010 Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Number of Words Read

*n:
None: 223
Low: 103
Medium: 117
High: 164

None vs. High: $t(385)=2.780$, $p=.0057$

---

2009-2010 Percentage of EL Students Who Increased One Performance Level or More on the CST ELA by Amount of Time Spent Logged In to Read 180

*n:
None: 223
Low: 100
Medium: 135
High: 149

* None vs. High: $t(385)=2.421$, $p=.0160$
• In 2009-2010, a larger percentage of READ 180 students increased one or more performance levels on the CST-ELA relative to the Comparison group who was not exposed to READ 180. This comparison was statistically significant.

• In this year, READ 180 students outperformed the Comparison students on the CST-ELA when compared across intensity or dosage levels. A smaller percentage of students with no exposure to READ 180 increased by one performance level relative to READ 180 students. Unlike previous years, there was no pattern of differences across intensity levels. Overall, the READ 180 students showed more growth, and any use of READ 180 seemed to have an effect. The variance of usage may have impacted these difference for some of the categories. These results were statistically significant.

• For SRI results, only READ 180 students were tested so the results do not reflect a Non-READ 180 group. The comparisons are within the intervention group and are based upon intensity or dosage levels. For this year, students with medium and high levels of READ 180 usage demonstrated similar growth. Both groups outperformed the low group to a statistically significant degree.

• The pattern for CELDT performance level growth was entirely different for this year of data. Once again, only the READ 180 group was considered in this analysis. This analysis was also exclusive to English Learner students. There were no significant differences between groups for this analysis. Further investigation into the sample would be needed to discern why these results appear to break the pattern.
SUMMARY 09-10

• The pattern of results for EL students was similar to the general population for this year as well. EL students who participated in READ 180 made greater gains on the CST relative to EL students who did not participate in READ 180. However, the growth of the EL students in READ 180 was not as great as that of the general population. This year’s cohort of EL student’s improved at a similar rate to last years.

• When splitting on log ins, words read, and amount of time logged in, high users tended not to demonstrate as much growth as low and medium users. This could indicate that a different type of EL student was in the program this year. For example, perhaps students with lower CELDT levels were encouraged to use READ 180 with greater frequency. Additional analyses would need to be conducted to verify this supposition.
CONCLUSIONS

Three years of data was analyzed to determine the impact of the READ 180 program on the growth of students on three outcome variables: CST-ELA, SRI, and CELDT. Level of intensity or dosage was also examined to determine whether more exposure to the program resulted in more growth. In almost every scenario, students with higher levels of exposure to the program demonstrated more growth, relative to students with no exposure or low levels of exposure to the READ 180 program.

The effects of the program were especially apparent when looking at CST-ELA and SRI results. For English Learner students taking the CELDT, level of exposure appeared to impact growth in 2007-2008 and 2008-2009. However, this pattern was not found for 2009-2010. Further investigation into the sample or any changes to the program would need to be conducted to further explain these results.

In regard to the variables collected by the READ 180 software (amount of log ins, number of words read, and amount of time logged in), all of them appeared to be useful ways to look at the relationship between the software and student performance on our outcome variables (CST-ELA, SRI, CELDT). However, some appeared to be related to greater growth relative to others. The pattern of results across all years seems to suggest that number of words read in the system resulted in the greatest growth.

READ 180 appears to be effective for EL students in addition to the general student population, though perhaps to a lesser extent. An interesting follow-up might include an analysis of growth by CELDT level by program participation. This might reveal the optimum level of English proficiency at which to introduce a student to the program.
Questions?

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Lorie@KeyDataSys.com