The success of any instructional program depends on how educators monitor its impact and use data to make important adjustments to improve student outcomes. Reading Recovery continually collects, monitors, and uses data to improve the program. The availability of a trained Reading Recovery teacher leader at each site who interprets the data and presents it to school and administrative teams makes this possible. The teacher leader also provides ongoing professional development to Reading Recovery teachers at the site. This serves to support teachers’ efforts and improve their theoretical and clinical understandings of the reading and writing processes. Reading Recovery’s system of data collection, evaluation, and ongoing professional development is unique. Other programs schools adopt often have little or no continuous data collection that can be used for program improvement. In addition, there are often no professional development opportunities beyond the initial information sessions to support implementation and change. Because they show minimal results, these other programs are usually evaluated only once and then dropped.

This article describes how two Reading Recovery teacher leaders, Cindy Kirchherr at the Oxford Hills Training Site and Marcia Nye Boody at the Central Maine Training Site, use data with school and administrative teams to bring about program improvement. We provide two case studies showing how educators made data-based decisions that led to improved services to children. Data allowed teachers and administrators to analyze the issues and develop unique approaches in their districts.

Cindy Tells the Oxford Hills Story

Since the inception of Reading Recovery, the Oxford Hills School District worked to become fully implemented. Full implementation is defined as every child needing Reading Recovery has the opportunity to get it. In 1999, after the first year of full implementation, our results did not meet our expectations. Although our teachers were dedicated, well trained, and worked very hard, we were disappointed to find that our discontinuing rate for all children served was 39%. What was the problem?

I looked for answers in the district site report that was generated from data Reading Recovery teachers had sub-
mitted to the National Data Evaluation Center. Through examining the end-of-program status data, I learned that in addition to the low discontinuing rate, 17% of our children were recommended for further action after full 20-week programs. Furthermore, 35% of our children were left hanging at the end of the year with an incomplete program. This meant they did not have enough time in the program to either discontinue or have 20 weeks of instruction. Finally, 9% of our children were removed from the program before completing the required 20 weeks of instruction. This last group of children is designated as *none of the above* on the data chart in Table 1.

These numbers indicated that in addition to our low discontinuing rate, we had a large number of children with incomplete programs. Also, school personnel were removing the hardest-to-teach children from the program before they received the required 20 weeks of instruction. A closer examination of the data revealed 47% of first-round students discontinued, but only 22% of second-round students discontinued. It seemed many of the children who were entering the program’s second round were not getting enough instructional time to discontinue. The question was why.

When I looked more closely at the rest of the data included in the report, I discovered four problem areas:

- The average number of weeks for a second-round program was only 13.6 (our school year is 38 weeks).
- A majority of first-round students did not begin their program until three or four weeks after school began in the fall.
- Children recommended for further action after the first round stayed in the program longer than 20 weeks.
- Too many children left the program prematurely because they were considered hard to teach.

I concluded that we were not using time efficiently. We were delaying the start of the program in the fall, keeping children in the program longer than 20 weeks, and allowing children who were hardest to teach to be removed from the program before they had an opportunity to receive 20 weeks of instruction and possibly make accelerated progress.

I presented my findings to administrators in the district, explained the problems, and recommended the following course of action:

- Reading Recovery teachers would begin testing children the very first day of school.
- First-round Reading Recovery programs would start no later than the second week of school.
- First-round Reading Recovery children would receive no more than 20 weeks in the program, unless the teacher could provide evidence that the child was within 2 or 3 weeks of discontinuing.
- All first-round children taken into the program would be given the opportunity for 20 weeks of instruction unless extraordinary circumstances prompted their removal.

Implicit in this plan was availability of the teacher leader to act as a consultant to help teachers having difficulty with hard-to-teach children. Other Reading Recovery teachers were also available to do site visits. The administrators concurred with the interpretation of the data and agreed to support these changes.

The changes in implementation were uncomfortable for some teachers to institute. They had some doubts about taking children out of classrooms for testing so early in the school year. It was difficult for them to stop teaching children who were still struggling after just 20 weeks, and they found it challenging to keep working intensively with children who found learning extremely hard.

By the spring of 2000 though, we could see the results of our efforts. The data had greatly improved in

| Table 1. Oxford Hills School District End-of-Program Status for All Children Served 1998–1999 |
| Discontinued | 39% |
| Recommended | 17% |
| Incomplete | 35% |
| Moved | 0% |
| None of the Above | 9% |
three of the four end-of-program status categories. The discontinued rate rose to 56%, the recommended rate increased to 28%, the incomplete rate had fallen to 11%, and the none-of-the-above rate decreased to 4% (see Table 2).

By making the changes outlined above and working collaboratively, we increased the discontinuing rate, decreased the number of incomplete programs, and reduced the number of none-of-the-above students. The recommended rate went up, but more students had an opportunity for a 20-week program. Not only that, more children successfully completed the program.

The next year’s data looked even better! In the spring of 2001 the discontinuing rate rose to 63%, the recommended rate was 24%, the incomplete rate was 9%; and the none-of-the-above rate fell to a mere 3% (see Table 3).

The district administrators, the teachers, and I were ecstatic!

After celebrating our success, we decided there was still room for improvement. We found it disturbing that the number of children in the recommended category had increased. While probably a result of keeping as many children as possible in the program for 20 weeks, we thought we should look for ways to reduce that number.

As a starting point, I looked at the end-of-year data for the children who had been recommended for further service to see what had happened to them after they left Reading Recovery. I examined both the text reading levels and the writing vocabulary scores from the Observation Survey administered at the end of first grade. I chose to use only those two sub-tests because they do not have ceiling scores. Text reading level and the number of words a child can write clearly reflect a child’s ability to control increasingly more difficult text in both reading and writing.

The children from the recommended category seemed to fall into three distinct groups. First, several children who had been placed in Title I groups after Reading Recovery had scored within the site average band for both text reading and writing vocabulary by the end of first grade. In other words, they had been able to catch up to their peers. A second group of children, also placed in Title I groups, were still at a mid-first-grade text reading level and their writing vocabulary was for the most part below the site average band. Finally, a group of children who had been placed in special education had scores that were far below the average band in both text reading and writing vocabulary.

From the examination of this data, our next goal became clear. We had to find ways of accelerating the learning of these three sub-categories of children who were recommended after a full 20-week program. It seemed reasonable to expect that at least some of these children had the potential for discontinuing from the program. Our task was to devise a way to make this happen.

During the summer of 2001, I again presented my findings to administrators and we developed a course of action:

- At the beginning of the next school year, the teacher leader would provide six intensive continuing contact classes to help support teachers’ efforts.
Marcia Tells the Story of an Elementary School in the Central Maine Training Site

As the new school year began in fall 2000, I began working with the building principal in order to examine Reading Recovery data from the previous school year. Our plan was to use this data to inform our decision making for the next school year. After a close examination of the data, we both agreed on two very important issues: (1) the discontinuing rate was one of the lowest in the region, and (2) many children who needed the intervention did not receive it.

At the close of this meeting, the principal asked me to meet with her administrative team to review our findings and to provide support in the areas of implementation (see Table 4).

Table 4. Elementary School in Central Maine Training Site End-of-Program Status for All Children Served 1999–2000

<table>
<thead>
<tr>
<th>Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discontinued</td>
<td>39%</td>
</tr>
<tr>
<td>Recommended</td>
<td>16%</td>
</tr>
<tr>
<td>Incomplete</td>
<td>26%</td>
</tr>
<tr>
<td>Moved</td>
<td>13%</td>
</tr>
<tr>
<td>None of the Above</td>
<td>6%</td>
</tr>
<tr>
<td>State of Maine Discontinuing</td>
<td>52%</td>
</tr>
</tbody>
</table>

The administrative team included the superintendent of schools, a business manager, and a second elementary principal. This team meets often for the purpose of collaborating and problem-solving numerous issues that affect teaching and learning. Each member of this team has an important role that is vital to the school system’s success. The superintendent of schools is charged with the overall operation of the schools in the system. The business manager is primarily concerned with how monies are spent; in other words, his job is to find the biggest bang for the buck. The second elementary principal has clear expectations for the children in her elementary school as well as expectations for literacy education in the early grades.

Each member of this team has a very different role in the system, but all members interface with each other. After presenting the data and sorting out the implications, the administrative team came to the same conclusions: Although we were successful with some children, we needed to serve and discontinue more students.

During the first year of implementation of Reading Recovery at this school, one teacher served four children individually per day and worked with small groups of children the rest of the day. The teacher worked with two rounds of children, but even so, Reading Recovery was available to only eight children across the year. During the second year, another Reading Recovery teacher was added, and she provided four more teaching slots per day to Grade 1 children, and in her other half day, she worked with small groups of children.

Consequently, Reading Recovery was available to at least 16 students per year. According to teachers in the sys-

with their hardest-to-teach first-round children.

- The Reading Recovery teachers and teacher leader would closely monitor children’s progress by examining children’s monthly text reading level graphs and writing vocabulary charts.

- Hard-to-accelerate action plans would be put into place immediately when a child was not making adequate progress, as reflected by the monthly charts and graphs.

This plan is currently being implemented and it is our hope it will not only increase our discontinuing rate, but also increase the level of learning for all children who come into our Reading Recovery program. Preliminary data seem to suggest that children in the recommended category are exiting the program at slightly higher text reading levels than in previous years. Does this mean our plan will be successful? Only time will tell.

The data analysis of our Reading Recovery program over 3 years produced three positive outcomes. First, the data provided the information we needed to analyze our implementation problems as well as devise a plan for improvement. Second, examination of the data in subsequent years allowed us to see the results of our efforts and to identify areas that continue to need improvement. Finally, going beyond the numbers, we saw teachers had changed their perspectives and attitudes. Seeing the improved performance made clearly visible in the data, they accepted the changes in the program implementation and were even more committed to helping children become successful.
Implementation

Table 5. Elementary School in Central Maine Training Site
Team Decisions: Our Plan for Yearly Service

<table>
<thead>
<tr>
<th>Reading Recovery teacher #1 [1.0 FTE]</th>
<th>8 Reading Recovery Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Recovery teacher #2 [.5 FTE]</td>
<td>5 Reading Recovery Children</td>
</tr>
<tr>
<td>Classroom Class teacher (Reading Recovery Teacher-in-training) [.5 FTE]</td>
<td>5 Reading Recovery Children</td>
</tr>
<tr>
<td>Total Children Served per Round [2.0 FTE]</td>
<td>18</td>
</tr>
</tbody>
</table>

The team, however, 18 additional children needed help and did not receive it. I asked the team to consider the number of students that the Reading Recovery teachers served each day. The block of time allocated for the intervention for four children each day was 3 hours. Five children per teacher per day rather than four would increase the amount of service by four children per year without disrupting any other instruction. The 3-hour block of time would still allow for

- the delivery of the intervention,
- the pickup and return of children to their classrooms,
- teachers’ quick reflection upon the child’s processing for the day, and
- necessary notations on lesson records.

The Reading Recovery teachers agreed to implement this plan, but the school was still left without adequate Reading Recovery service. Although the new plan was an improvement, the principal felt it was not good enough. After continued collaboration and problem solving, the team generated three options:

1. Teachers could increase their teaching slots to eight each day by becoming full-time Reading Recovery teachers and eliminating their Title IA literacy groups in Grades 1 and 2.
2. Reading Recovery teachers could increase their teaching slots to five per day and teach kindergarten or Grade 1 for the second part of the day. Additionally, a classroom teacher could train in Reading Recovery and divide the day between the classroom and individual instruction.
3. The school could simply drop the program since so many children were being left behind.

After discussion between the Reading Recovery teachers, classroom teachers, and the administrative team, the following decisions were made:

- One Reading Recovery teacher agreed to increase her caseload to eight Reading Recovery children per day (1.0 FTE).
- The second Reading Recovery teacher agreed to increase her Reading Recovery children to five a day and made a decision to teach in a Grade 1 classroom the other part of her day (.5 FTE).
- The classroom teacher continued teaching Grade 1 for part of her day, train as a Reading Recovery teacher, and provide five Reading Recovery lessons per day (.5 FTE; see Table 5).

The new solution allows for 18 Reading Recovery slots per day (2.0 FTE) versus the original eight, making it possible to serve 36 or more children across the year. All team members agreed that this was an extremely ambitious plan. (One caution: the teacher workload is huge and the stress it could create would need to be evaluated at the end of the school year.)

Everyone agreed that they would need to eliminate three Title IA literacy groups in Grades 1 and 2 in order to provide the funds to make this plan work. We realized that serving more children one-to-one in Reading Recovery would be more cost effective than small group instruction. The one-to-one accelerative program is a short-term intervention, while small group instruction is a remedial and longer-term (and consequently, a more costly) intervention.

The team agreed that teachers would benefit from the new plan. A Reading Recovery teacher would gain an understanding of typical learners by spending part of the day as a Grade 1 teacher. A classroom teacher would...
gain newer understandings of the reading and writing processes through Reading Recovery training and would use that knowledge and skills to enhance the teaching of Grade 1 students who are most at risk. Most importantly, more children in Grade 1 would have the opportunity to be successful with the reading and writing processes.

The administrative team, Reading Recovery teacher leader, Reading Recovery teachers, and classroom teachers created this plan by collaborating and problem-solving next steps for their lowest-progressing children based on an examination of data. This new plan allowed for the alignment of the early literacy goal in the school: All children who need Reading Recovery will have an opportunity to receive it.

Unfortunately, during the 2000–2001 school year, the local dollars that provided classroom instruction to children were reduced. As a result, a classroom teacher was not trained in Reading Recovery. Furthermore, the Title IA monies that support Reading Recovery in this system were reduced as well. This certainly was bitterly disappointing news to each stakeholder who had worked diligently to create a plan that would allow all Grade 1 children who needed additional help in reading and writing an opportunity to receive it. This reduction of monies moved the school back to its original level of implementation. This meant that Reading Recovery teachers each provided only four teaching slots per day; together they served 16 students across the school year.

In spite of the changes in the plan, results improved with 12 of the children (75%) discontinuing from the program (see Table 6). The Reading Recovery teacher and the classroom teacher worked very closely as they provided clear, concise literacy instruction for each student. This success is the result of collaborative efforts in a school year plagued with budget cuts that profoundly impacted teaching and learning.

The discontinuing rate increased by 36% during the 2000–2001 school year. All the stakeholders were thrilled! Unfortunately, 19% of the students had incomplete programs, and classroom teachers indicated that other students who needed the intervention did not receive it. Hence, the school continued operating at an under-implemented level of instruction.

During the 2001–2002 school year, the federal and local funding stayed the same. However, one Reading Recovery teacher (.5 FTE) served more students—12 students across the school year. This allowed for a third round of students to receive services. The teacher attributed her success to having a better understanding of the reading and writing processes. The other Reading Recovery teacher worked with eight students across the school year. Together, the teachers successfully discontinued 13 of the 20 (65%) students served (see Table 7).

The discontinuing rate of this school exceeds the statewide discontinuing rate of 57% for all children, but 15% of the children served during the second round had incomplete programs. Again, classroom teachers indicated that other children who needed the service did not receive it due to lack of teaching time. This school continu-
uses to operate the Reading Recovery intervention without adequate service to all children due to lack of funding. The school continues to work toward full implementation of the Reading Recovery intervention. This will allow all the children who need this service an opportunity to receive it.

Using Data in Collaborative Problem Solving
The case studies presented in this article demonstrate how two teacher leaders used different approaches to improve the Reading Recovery implementation in their districts. While the data from the two districts initially shared a discontinuing rate of 39%, the causes and recommendations for improvement were very different.

In the first case study, the district was already at full coverage, but the program was not working efficiently. The teacher leader used data to find the inefficiencies and proposed a course of action for administrators and teachers that resulted in dramatic increases in students who successfully completed lessons.

In the second case study, there was not enough instructional time available to provide Reading Recovery for all the children who needed it. The problem solving began when the teacher leader met with the administrative team and presented options for how to bring the school to full coverage. Even though the chosen course of action did not unfold due to budget cuts, the district was able to serve more students with better outcomes due to collaborative efforts. Most importantly, the district continues to work toward the goal of full implementation. This means that every child who needs Reading Recovery support will receive it.

In both cases, the data served as a vehicle for educators to make informed decisions that improved the implementation of Reading Recovery. These improvements led to more children being served and better program outcomes for many of those children.

Data provided the impetus for improved implementation in Oxford Hills. Here, Dr. Mark Eastman, superintendent of The Oxford Hills School District (MSAD #17), meets with Cindy Kirchherr, teacher leader of the Oxford Hills Training Site in South Paris, Maine.