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Effects of Providing Teachers With Information About Their Students' Reading Progress

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Abstract. Monitoring the learning progress of at-risk students positively affects learning growth. This study transfers the approach of learning progress assessment (LPA) to general education in Germany and investigates the effects of information about reading progress and additional teacher training on student achievement. Classes ($n = 43$) were assigned to either an LPA group with teacher training (LPA-T), an LPA-only group, or a standardized achievement test group. Teachers in all groups obtained information about students' reading status. Teachers in both LPA groups obtained additional information about students' reading progress, and LPA-T teachers were additionally trained to use the learning progress information for instructional decisions. Students in both LPA groups showed higher reading growth than students in the standardized achievement test group, but the effect size was small. No effects were found for the teacher training. Teachers rated LPA as easy to administer in general education.

Assessing students' reading progress at short intervals of time allows teachers to immediately react to individual needs and adapt their instruction. Curriculum-based measurement (CBM) is a way to provide teachers with standardized information on student achievement and learning progress over time (e.g., Fuchs, Deno, & Mirkin, 1984; Fuchs, Fuchs, & Hamlett, 2007). Substantial evidence shows that CBM positively affects student learning when teachers use the CBM data for instruction (see Stecker, Fuchs, & Fuchs, 2005, for a review). However, the specific benefits gained from progress data in contrast to information about status are still unclear. In addition, the effects of CBM have predominantly been studied as part of special education or with few low-performing students. Thus, the aim of this study was to evaluate the extent to which providing teachers with information about students' progress in addition to information about achievement status results in higher achievement growth when applied in general reading education. Moreover, we wanted to examine the effects of additional teacher training when using the information about student progress for instructional decisions.

EFFECTS OF MONITORING STUDENT PROGRESS

In a review of studies on the effectiveness of CBM, Stecker et al. (2005) concluded that the vast majority of studies showed positive effects for CBM. Most of the studies reviewed by Stecker et al (2005) used a design in which teachers elected up to four low-per-

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forming students from their class. The learning progress of these students was documented over a period of several weeks, and teachers received immediate feedback concerning whether their instruction yielded a positive impact on students' learning gains. Some of the studies that evaluated the effects of CBM used a three-group design that included a regular CBM condition, a control group, and a group of teachers in a second experimental CBM condition that was supported in using the data to make instructional changes. For example, Fuchs, Fuchs, Hamlett, and Stecker (1990) found that providing teachers with a combination of progress-monitoring data and feedback on skills analysis was superior to a CBM-only condition, and the CBM-only condition did not differ from achievement scores in the control condition. Likewise, providing teachers with specific information about instructional decision making in mathematics in addition to the CBM data was found to increase student learning, but students in the CBM-only group did not outperform students in the control group (Fuchs, Fuchs, Hamlett, & Stecker, 1991). However, in a similar study that monitored reading progress, the main contrast in learning development was found between the two CBM groups and the control condition (Fuchs, Fuchs, Hamlett, & Ferguson, 1992).

It is unclear if closely monitoring progress alone enhances student learning, but combining weekly CBM data with instructional recommendations is more successful than monitoring student progress alone (Fuchs, Fuchs, Hamlett, Phillips, & Bentz, 1994). Moreover, teachers who engaged in self-monitoring procedures in addition to monitoring student progress with CBM changed their teaching in meaningful ways, which resulted in higher student achievement than that of teachers in a CBM condition without self-monitoring (Allinder, Bolling, Oats, & Gagnon, 2000).

In sum, the studies using control-group designs found that CBM can be effective in promoting student achievement when information about student growth is used for timely instructional decisions and that teachers often need additional support in interpreting and using the data. However, the importance of growth information, which is a core assumption of CBM, has been questioned by some studies investigating the relative contributions of initial status and rate of growth in predicting reading comprehension (Kim, Petscher, Schatschneider, & Foorman, 2010; Schatschneider, Wagner, & Crawford, 2008). For example, when investigating the prediction of reading comprehension scores of first, second, and third graders, Kim et al. (2010) found that individual differences in the oral reading fluency (ORF) growth rates of first graders were a dominant predictor of first-grade reading comprehension scores and contributed the most unique variance when predicting third-grade reading comprehension scores. However, after first grade, growth in ORF was a weak contributor of unique variance (Kim et al., 2010).

LEARNING PROGRESS ASSESSMENT FOR ALL STUDENTS IN A CLASSROOM

Most of the research on monitoring student progress with CBM has been conducted with students receiving special education (Graney & Shinn, 2005). When implemented in general education, progress monitoring is usually used as a second type of assessment for low-performing students or at-risk students, following an initial screening process (Deno et al., 2009). However, a regressive or stagnating reading development trajectory is an outcome for not only low-achieving students (Lerkkanen, Rasku-Puttonen, Aunola, & Nurmi, 2004). Longitudinal data from the German Programme for International Student Assessment–Organisation for Economic Cooperation and Development sample showed that about 30% of all students stay at the same level or even show a regression of achievement in an academic year (Ehmke, Blum, Neubrand, Jordan, & Ulfig, 2006).

The need for progress monitoring of students who perform at or above average is further supported by studies that investigated student differences in intervention effective-

ness. For example, Connor and colleagues showed that the efficacy of instruction depended on the fit of instructional strategy with the skill level of the student (Connor et al., 2009; Connor, Morrison, Fishman, Schatschneider, & Underwood, 2007; Connor, Morrison, & Petrella, 2004; Connor, Morrison, & Slominski, 2006). They found that third graders who read above average benefited more from child-managed instruction, whereas children with lower reading skills achieved higher reading achievement growth with teacher-managed explicit instruction (Connor et al., 2004). Teachers improved student achievement for low- and average-performing students when they received classwide feedback with instructional recommendations (Fuchs et al., 1994). Thus, we assume that standardized information about student progress is also important for average- or high-performing students to evaluate instructional effectiveness and educate all students to the best of their abilities.

Transferring learning progress assessment (LPA) to general education and monitoring the progress of all students in a classroom are associated with several assessment challenges. CBM reading progress is usually measured by asking students to read aloud from a grade-level passage for 1 min. The number of words read correctly is calculated and used as an indicator of ORF. ORF has been hypothesized to be an indicator of overall reading competence that requires integration of lower-level reading skills (Fuchs, Fuchs, Hosp, & Jenkins, 2001). It has been extensively investigated and has shown to be a good predictor of reading achievement (Reschly, Busch, Betts, Deno, & Long, 2009). However, at the same time, ORF has been criticized for its emphasis on reading speed instead of reading fluency (Samuels, 2007) and its need for individual administration (Hoffman, Jenkins, & Dunlap, 2009). Both points of criticism are particularly important considerations for monitoring the progress of entire classrooms in general education.

First, as outlined above, students with different reading skills benefit from different types of instruction and different teaching content. In reading instruction, one main distinction is made between instructional programs for nonfluent and fluent readers. Instructional approaches for nonfluent readers should aim at enhancing the automation of word recognition (e.g., repeated reading and paired reading; see Topping, 2006), whereas reading programs for fluent readers should focus on reading strategies to improve comprehension (Antoniou & Souvignier, 2007; Guthrie, Wigfield, & Perencevich, 2004; Palincsar & Brown, 1984). Given that specific effects on reading fluency and reading comprehension for the different types of reading instruction have been found (Seuring & Spörer, 2010), reading progress assessment should provide teachers with information about whether the applied instructional methods lead to the expected effects for individual students. ORF as a robust indicator of reading competence fails to provide such differentiated information and is thus limited in its use for teachers to make instructional decisions (Förster & Souvignier, 2011).

The importance of differentiating between reading fluency and text comprehension problems is supported by a finding of Lerkkanen et al. (2004). They identified three qualitatively different groups of beginning readers by using cluster analysis. Competent readers had high levels of word reading, literal text comprehension, and inferential text comprehension, whereas poor readers scored at low levels on these measures. Finally, technical readers exhibited low levels of both literal and inferential text comprehension but high levels of word reading. The authors noted that technical readers may be misidentified by their teachers because of their excellent word-reading skills. This assumption is corroborated by the finding that about 15% of the students were misidentified as good readers by the ORF measure despite their low reading comprehension skills (Riedel, 2007). Moreover, studies investigating reading development have shown that various reading skills might develop differently (Bast & Reitsma, 1998; Parrila, Aunola, Leskinen, Nurmi, & Kirby, 2005). Moreover, growth in decoding efficiency was greatest in Grade 2, but growth in reading comprehension was greatest in

Grade 3 (Aarnoutse, van Leeuwe, Voeten, & Oud, 2001). Thus, to monitor the reading progress of students with different reading levels, assessments that provide differentiated information about growth in reading fluency and reading comprehension are needed.

The second consideration in using ORF is the exorbitant amount of time an educator needs to individually administer repeated assessment to an entire classroom of students. Thus, a more efficient way to efficiently measure students' reading skills and reduce effort to score and administer the results needed to be developed. Förster and Souvignier (2011) addressed the need for an efficient but differentiated assessment of reading achievement by developing a computer-based assessment instrument for monitoring student reading progress on multiple indicators. The instrument was based on the maze task because of its utility in monitoring students' reading growth (Shin, Deno, & Espin, 2000). However, given that the task might not measure comprehension beyond the sentence level (January & Ardoin, 2012), they combined the task with reading comprehension questions following hierarchical models of text comprehension (e.g., Kintsch, 1998) that can be used in general education for whole classrooms.

The assessment of reading progress is the first step in modifying an instruction to meet individual needs. Yet, assessments alone will fail to improve learning until teachers effectively use the data in their instructional decision-making process (Stecker et al., 2005). To ensure assessments' successful use, teachers would need to rate the assessments as easy to administer and they would need to value the information about student progress to aid them in instructional modification.

PURPOSE

Given the substantial number of students at various achievement levels showing little or no progress and the necessity to adapt instruction and teaching content to individual needs, it is important to monitor student progress. We propose to extend the idea of monitoring low-achieving students to providing teachers with progress information that can be used in the instructional decision-making process for all students in general education. Compared with typical CBMs, we used an extended test concept, reduced test frequency, and applied an online testing procedure. Apart from these modifications, the central requirements of the CBM such as parallelism of tests were incorporated into our testing procedure. Nevertheless, we refer to our approach as LPA instead of CBM.

This study addresses three main goals:

1. We wanted to evaluate whether providing teachers with additional information about the reading progress of all students in their classroom affects growth in reading achievement more than information about reading achievement status alone. Given that progress information can immediately be used to adapt instruction to individual needs, we expected growth in reading fluency (Hypothesis 1a) and reading comprehension (Hypothesis 1b) to be higher for students whose teachers received additional information about their reading progress beyond information about achievement status than for students whose teachers only received information about achievement status from a standardized achievement test (SAT).

2. We wanted to evaluate the effects of teacher training in using the progress information for instructional decisions. Additional teacher support has been found to increase the effects of progress monitoring (Allinder et al., 2000; Fuchs et al., 1991, 1992). Thus, we hypothesized the growth in reading fluency (Hypothesis 2a) and reading comprehension (Hypothesis 2b) to be higher for students whose teachers were trained to use the LPA information for instructional modifications than for students in the LPA group without teacher training.

3. We wanted to examine teachers' perceptions about LPA. We assumed that a computer-based assessment procedure would be easy to administer in general education. However, we expected that a mutual exchange of experiences between teachers in the training sessions would lead to higher ease-of-administration perceptions (Hypothesis 3a). Finally,

we assumed that the teacher training would lead to a better understanding of the progress data and its use for educational decision making, which should result in higher ratings of the usefulness of the progress information (Hypothesis 3b).

METHOD

Student participation was voluntary. Written consent was obtained from parents.

Participants

A total of 958 third-grade students (48% female) from 43 classrooms in 19 schools located in and around a medium-sized German town participated in the study. At the beginning of the study, students were approximately 8.5 years of age ($M = 8.72$ years, $SD = 0.71$). The majority of our sample spoke German (81%) or German and another language (9%) at home. No meaningful differences concerning demographic variables existed among the three treatment conditions.

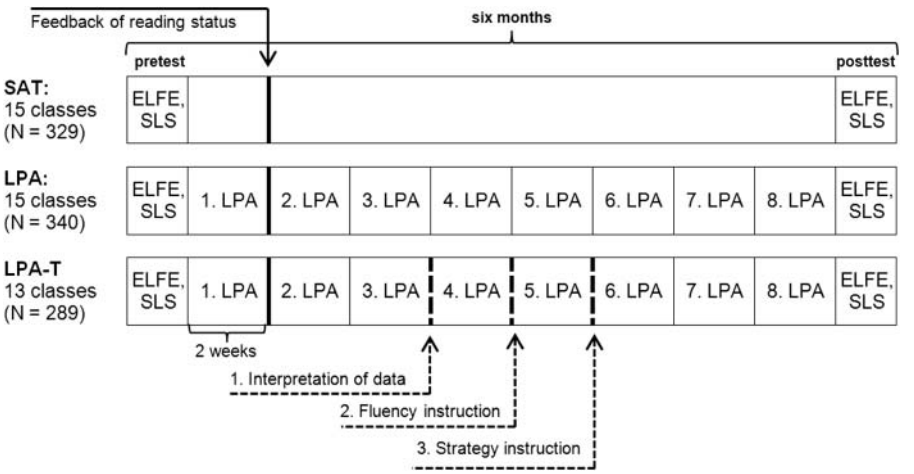
Conditions

A three-group pretest–posttest design was used to investigate specific effects of additional progress information with and without teacher training in comparison to a one-time standardized assessment (see Figure 1). At pretest and posttest, reading fluency and reading comprehension were assessed using two standardized reading achievement tests. Teachers in the SAT group received information about their students' results on the SAT after the testing. Detailed results were provided on class level and on individual level including standard values and additional information about how to interpret the results. Students performing above and below average were highlighted. Teachers in the LPA group also received their students' results on the SAT shortly after testing. For the next 6 months, they additionally applied LPA and were thus also informed about their students' reading progress every 2 weeks. Teachers in the LPA group with teacher training (LPA-T) received the same progress information as teachers in the LPA group but were additionally trained to use the data for instructional decisions.

Procedure

Classrooms were randomly assigned to treatment conditions (13 to LPA-T, $n = 289$; 15 to LPA, $n = 340$; and 15 to SAT, $n = 329$).

Figure 1. Experimental Design of Study



Note. SAT = standardized achievement test group; LPA = learning progress assessment group; LPA-T = learning progress assessment group with teacher training; ELFE = reading comprehension test; SLS = reading fluency test.

Data were collected in October (pretest) and May (posttest) by trained university student assistants.

LPA Groups

Students in both LPA groups completed a 10-min Internet-based reading test every 2 weeks. Tests were available via the Internet and were accessed with a personal login. Depending on the number of computers available in the classroom or in a computer room, students completed the tests during self-study periods or in group tests. Before the first test, they received careful instruction and completed a tutorial in which they were introduced to the testing procedure. Teachers reported that students had no problems completing the tests independently. Overall, eight structurally identical tests were applied within the study period. All tests were based on Aesop's Fables and were strictly matched regarding their readability (i.e., highly similar number of words, sentences, words per sentence, and Flesch indices). Fables have several advantages such as being brief, self-contained, and challenging. Given that fables, in contrast to fairy tales, are usually not read at home, individual differences in reading comprehension should not be affected by specific previous knowledge (cf. Förster & Souvignier, 2011).

The tests consisted of two parts. First, a maze task was presented in which every seventh word had been deleted and replaced with three word choices—one correct choice and two distractors. The number of correct selections (maximum of 17) served as a measure of reading accuracy. In addition, the time needed to complete the task (reading rate) was recorded. In contrast to typical CBMs, the time to complete the reading task was not limited. This lack of restriction was necessary to ensure that all students had the time to read the entire text to be able to answer the comprehension questions following the maze task. Students were instructed to complete the maze as quickly and as accurately as possible. In the second part of the test, students were presented with the correct text and were asked to answer 12 multiple-choice comprehension questions.

Following the text comprehension model of Kintsch (1998), text-based questions asking for information explicitly contained in the text and knowledge-based questions asking for conclusions were differentiated. Gaps, questions, and all distractors were systematically constructed following strict rules and were previously tested to ensure similarity. Reading progress data were automatically analyzed. Teachers had immediate access to the results via the Internet, accessed with a personal login. LPA data were provided separately for reading rate, reading accuracy, and text-based and knowledge-based reading comprehension. In addition to the reading progress results of every single student, the average reading progress of the entire classroom was provided. Moreover, LPA data could be compared with reference values.

Teachers received information about how to interpret the results, which was comparable to that provided for the SATs, including information about the different measures. However, the information about how to interpret the results did not include any explicit recommendation of instructional modifications. All Internet-based reading tests showed high internal consistencies (Cronbach's α = .86) and moderate alternate-form reliabilities for 2-week intervals (M = .68). Correlations with standardized reading achievement tests were high (r = .71), whereas correlations with standardized mathematics achievement tests (r = .37) and intelligence (r = .26) were considerably smaller. Knowledge-based questions were found to be more difficult than text-based questions and showed stronger correlations with a measure for reasoning than text-based questions (Förster & Souvignier, 2011). The growth in reading rate as the time needed to complete the maze task could be compared with growth rates of the widely used ORF measure. The growth in reading rate per week found for the Internet-based tests (1.02 words) was within the range of growth rates (0.76–1.18) reported for reading fluency at the third-grade level (Deno, Fuchs, Marston, & Shin, 2001; Fuchs & Fuchs, 1992; Fuchs, Fuchs, Hamlett, Walz, & Germann, 1993;

Graney, Missall, Martinez, & Bergstrom, 2009).

Teacher Training

Teachers in the LPA-T condition received three 2-hr group training sessions to learn how to use the information about students' learning progress for instructional modifications. All training sessions were conducted by the authors. In the first training session, the interpretation of the data was explained, especially regarding reference values and the different measures of reading achievement. The focus of this training session was to help teachers identify students in need of reading fluency or reading comprehension instruction. In addition, teachers discussed the administration procedure, such as the application of LPA tests during self-study periods. The aim of this collegial exchange about the administration procedure was to benefit from each other's experience.

The second training session included reading fluency instruction through repeated reading and paired reading (Topping, 2006). Both approaches have been found to increase reading fluency (e.g., Chard, Vaughn, & Tyler, 2002; Topping, 1997). In addition to the introduction of the two fluency interventions, we presented a video showing students during intervention, conducted practical exercises, and discussed implementation issues.

The third training session focused on strategy instruction to foster reading comprehension using the program Becoming a Reading Detective (Antoniou & Souvignier, 2007). This program uses the theoretical framework of self-regulated learning and contains two parts: teaching reading strategies and teaching a working routine for cognitive self-regulation. It has been found to be effective in fostering the understanding and application of reading strategies and reading comprehension (Souvignier & Mokhlesgerami, 2006). After an introduction of the theoretical background and an overview of the learning units, we presented the two reading strategies—clarify difficult words and summarize important information—in detail with the help of extracts from the instructors' manual. The importance of direct and explicit strategy instruction was particularly emphasized. Finally, the reciprocal teaching approach (Palincsar & Brown, 1984) was presented as a method to cooperatively work with texts using reading strategies.

Measures

The reading skills of each student were assessed with two different measures. In addition, teachers evaluated the ease of administration and usefulness of the information from the LPA. All measures are described below.

Reading Fluency

Reading fluency was assessed with the Salzburger Lese-Screening (SLS; Salzburger Reading-Screening) for Grades 1 to 4 (Mayringer & Wimmer, 2003). Within 3 min, students decided whether short statements (e.g., "Cherries can speak") are correct. The test consists of 70 short sentences and mainly measures reading speed. Reading accuracy is assessed indirectly and with less sensitivity. Parallel-form reliability and validity rated with results from a reading-aloud test were high ($r = .90$ and $r = .81$, respectively). Standard values are provided as a reading quotient, similar to the standard scale used for intelligence quotient ($M = 100$, $SD = 15$).

Reading Comprehension

Reading comprehension was assessed with the standardized reading achievement test Ein Leseverständnistest für Erst- bis Sechstklässler (ELFE; A Reading Comprehension Test for Grade 1 to 6; Lenhard & Schneider, 2006). Students answered multiple-choice items that assessed reading comprehension at the word, sentence, and text level. A total of 72 pictures with four words, one correct word and three orthographically similar words, are presented for the word comprehension subtest. The sentence comprehension subtest consists of 28 sentences in which one word was deleted and replaced with five word choices, the correct word and four grammatically and orthographically similar words. The text comprehension subtest consists of 13 short texts and a total of 20 single-choice questions about these texts. Students were re-

quired to mark the correct answer out of four possible answers. Internal consistency and odd–even split-half reliability for third graders ranged from .86 to .96 and .83 to .93, respectively. Criterion validity of the ELFE test with respect to decoding speed (.79) and teacher judgment (.76) was high. Given the different metrics of the three subscales, we calculated an overall test value by first converting all subtest scores at pretest into *z* scores using the distribution of the pretest values. We summarized the *z* scores and then again converted the sum into *z* scores. Following this procedure, the overall mean score at pretest was 0, with an *SD* of 1. Raw scores at posttest were transformed in the same way using the mean and standard deviation from pretest. Thus, the overall mean score at posttest shows the average change from pretest to posttest.

Teacher Questionnaire

At the end of the study, teachers evaluated two aspects of the Internet-based reading progress assessment. All items were newly developed. First, the ease of administration was assessed with three items (e.g., "The implementation of the assessments in everyday teaching was easy"). Cronbach's α was sufficient ($\alpha = .77$). Second, the usefulness of the information about students' reading progress was measured with five items (e.g., "The information was useful to identify low achieving students"). Again, the reliability of this scale was sufficient (Cronbach's $\alpha = .72$) for research. For all measures, agreement with each item was rated on a 4-point Likert-type scale anchored at 1 (*does not apply to me*) and 4 (*applies to me*). In addition to the ease-of-administration evaluation using a teacher questionnaire, administration ease was examined based on the completeness of the learning progress data.

Treatment Integrity

The teacher questionnaire also contained items that asked whether teachers in the LPA group had used the online platform to analyze the results of their students. In addition, teachers in the LPA-T group were asked whether they implemented reading methods they had been informed about in the training sessions. A total of 24 of 28 teachers (12 from each group) using LPA in their classrooms completed the teacher questionnaire. Given that the four teachers who did not answer the questionnaire all voluntarily participated in a subsequent study and again applied LPA in fourth grade, their refusal should not be ascribed to dissatisfaction with the assessment procedure. All teachers reported that they had used the online platform to analyze students' results. Likewise, all teachers in the LPA-T group declared that they had implemented at least one of the reading methods from the training sessions.

Data Analysis

Students' development in reading achievement was not independent of one another because reading instruction was equal for students in the same classroom. Analysis of the intraclass correlation showed that 8% to 13% of the variance in reading growth could be explained by differences between classrooms. Ignoring the hierarchical structure of the data could have led to incorrect inferences because of underestimated standard errors (Snijders & Bosker, 1999). Thus, to test whether the development in reading fluency and reading comprehension differed significantly between the groups, we performed multilevel means-as-outcomes models with the Mplus 6 program (Muthén & Muthén, 2010). Affiliation to the treatment groups was specified with two dummy-coded variables and used as a Level 2 predictor to test whether the respective treatment condition contributed to the explanation of variance in the development of reading fluency and reading comprehension. The model used was as follows:

$$\text{Level 1: } Y_{ij} = \beta_{0j} + r_{ij}$$
$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \gamma_{01} \cdot W_j + u_{0j}$$

Given that the Level 2 predictor W_j was dummy coded, the parameter γ_{00} shows the average learning gain of the SAT group and the slope coefficient γ_{01} specifies the difference of the LPA group to the SAT group.

Table 1. Pretest and Posttest Scores ($N = 958$)

Group	Pretest		Posttest	
	M	*SD*	*M*	*SD*
Reading fluency (SLS)				
SAT group	35.70	9.76	41.21	9.82
LPA group	33.82	9.56	40.49	9.24
LPA-T group	34.25	9.45	41.18	9.46
Reading comprehension (ELFE)				
SAT group	0.20	1.02	0.93	1.00
LPA group	–0.09	0.98	0.81	0.98
LPA-T group	–0.12	0.97	0.79	0.97

Note. All ELFE scores were standardized using the distribution of the pretest values. SLS scores show the number of correct sentences (maximum of 70). SLS = reading fluency test; ELFE = reading comprehension test; SAT = standardized achievement test; LPA = learning progress assessment; LPA-T = learning progress assessment with teacher training.

Differences between the two LPA groups were analyzed in a separate means-as-outcomes model, with γ_{00} as the average learning gain of the LPA group and γ_{01} as the slope coefficient of the LPA-T group (Hypotheses 2a and 2b). We chose to use one-sided significance tests for the slope coefficient γ_{01} at an α level of .05, because higher learning gains were expected for the LPA and LPA-T groups.

Data from the teacher questionnaire were not normally distributed. Thus, we used the nonparametric Mann-Whitney test to investigate differences between the two LPA groups. Moreover, the completeness of the LPA data was examined in terms of differences between the two LPA conditions. For this purpose, the average number of missing values per class was computed and tested for group differences, also using the Mann-Whitney test.

Missing Data

Up to 8% of the reading achievement data (SLS, ELFE) were missing in our study. We used multiple imputation for handling missing data in reading outcomes (Graham, 2009). A total of $m = 10$ complete data sets were created, using the IBM SPSS program, version 20. All available information has been used to estimate a good imputation model. Analyses were run using the *type = imputation* command in Mplus (see Muthén & Muthén, 2010). With this procedure, parameter estimates were combined in accordance with Rubin (1987).

Results of the teacher questionnaire are reported for the available data. Missing data were not imputed for the teacher questionnaire.

RESULTS

Means and standard deviations at pretest and posttest for reading fluency (SLS) and reading comprehension (ELFE) for all groups are shown in Table 1, and comparisons of the two LPA groups are included in Table 2. Means and standard deviations for the two scales of the teacher questionnaire are shown in Table 3.

Effects on Reading Achievement

On the basis of a raw score of 35 at pretest, which was assigned a reading quotient value of 100, the SLS analysis showed that reading fluency skills of the sample were typical for third-grade students. Likewise, comparing the ELFE scores with the standard values of the ELFE manual revealed that reading comprehension skills showed an average level (percentile rank = 56). Moreover, the results

Table 2. Parameter and Variance Components of Means-as-Outcomes Models for Reading Fluency and Reading Comprehension

	Parameter		Variance Components		
Model 1	$\gamma_{00(SAT)}$	$\gamma_{01\ LPA}$	σ_{u0j}^2	σ_{rij}^2	R^2
Reading fluency	5.53 (0.51)	1.12 (0.72) $p = .059$	2.30 $p = .003$	32.21	.12
Reading comprehension	0.74 (0.07)	0.16 (0.10) $p = .049$	0.05 $p < .001$	0.36	.11
	Parameter		Variance Components		
Model 2	$\gamma_{00(SAT)}$	$\gamma_{01\ LPA\text{-}T}$	σ_{u0j}^2	σ_{rij}^2	R^2
Reading fluency	6.37 (1.14)	0.28 (0.73) $p = .352$	2.39 $p = .005$	25.94	.01
Reading comprehension	0.89 (0.15)	0.01 (0.09) $p = .471$	0.04 $p = .001$	0.32	.00

Note. $\gamma_{00(SAT)}$ = average learning gain of the standardized achievement test group; $\gamma_{01\ LPA}$ = slope coefficient for the learning progress assessment group; $\gamma_{00(LPA)}$ = average learning gain of the learning progress assessment group; $\gamma_{01\ LPA\text{-}T}$ = slope coefficient for the learning progress assessment group with teacher training. The average learning gain of the LPA-T group can be calculated by the sum of $\gamma_{00(LPA)}$ and $\gamma_{01\ LPA\text{-}T}$.

indicated that the initial values for SLS and ELFE were slightly higher for the SAT group. From pretest to posttest, the average learning gain was 6.35 points ($SD = 0.19$) for reading fluency and 0.84 points ($SD = 0.02$) for reading comprehension, with learning gains being higher for the two LPA groups.

Table 3. Teacher Ratings

	Ease of Administration		Usefulness of Information	
	M	*SD*	*M*	*SD*
LPA group ($n = 12$)	3.08	0.70	3.06	0.32
LPA-T group ($n = 12$)	3.67	0.38	3.14	0.48

Note. Ratings were given on a 4-point Likert-type scale anchored at 1 (*does not apply to me*) and 4 (*applies to me*). LPA = learning progress assessment; LPA-T = learning progress assessment with teacher training.

Purpose 1: Effect on Reading Achievement

The results of the means-as-outcomes models are shown in Model 1 in Table 2. Growth in reading fluency was higher for students in the LPA group than for students in the SAT group but did not reach conventional levels of statistical significance ($z = 1.56$, $p = .059$). Growth in reading comprehension was significantly higher for students in the LPA group ($z = 1.66$, $p = .049$). The amount of variance in reading comprehension growth explained by the affiliation to the LPA group was $R^2 = .11$.

Purpose 2: Effect of Teacher Training

A comparison of the two LPA groups showed no significant differences in reading gains, either for reading fluency or for reading comprehension (Model 2 in Table 2). However, the teacher training tended to result in slightly higher reading growth. A comparison of the LPA-T group and the SAT group showed that reading growth for students in the LPA-T group was significantly higher than

that for students in the SAT group for reading fluency ($z = 1.90$, $p = .029$) and reading comprehension ($z = 1.81$, $p = .036$).

Purpose 3: Administration Ease and Utility

Teachers rated the administration ease of the Internet-based reading progress assessment as generally high. However, a comparison of the LPA and LPA-T groups showed that teachers in the LPA-T group rated the administration ease significantly higher than teachers in the LPA group ($U = 35.00$, $z = –2.19$, $p = .03$). The analysis of usefulness of progress information showed that teachers used the information for educational activities. In comparison with the evaluation of administration ease, values were comparably high but no differences were found between the groups ($U = 60.00$, $z = –0.70$, $p = .51$).

Analysis of the reading progress data showed that only 8.1% of the data were missing. A total of 64.7% of the students completed all LPA tests, 84.1% completed at least seven of eight LPA tests, and 93.6% completed six LPA tests. Thus, reading progress data were available to teachers for most of the students at seven measurement points. Analysis of the LPA data completeness showed a mean of 0.31 missing values ($SD = 0.19$) in the classrooms of the LPA-T group and a mean of 1.00 missing value ($SD = 0.93$) in the classrooms of the LPA group. The difference between the rate of missing values in the two groups was statistically significant, $U = 44.00$, $z = –2.47$, $p = .01$.

DISCUSSION

The purpose of this study was to investigate the effects of additional information about reading progress with and without teacher training in comparison to information about reading status on students' reading growth. Moreover, the administration ease of an Internet-based LPA approach and the usefulness of the progress information were examined. We advanced previous research in three ways. First, LPA was implemented in general education, providing teachers with information about the reading progress of all students in their classrooms. Second, the net effect of information about learning progress was evaluated by providing teachers in the control group with information about student achievement status using two standardized reading tests. Finally, a differentiated Internet-based test concept was used that directly assessed reading speed, reading accuracy, and two different levels of reading comprehension.

The results of this study indicate that information about learning progress adds unique information to make instructional decisions and foster students' reading progress to a greater extent than information obtained in a single–time point assessment. Furthermore, when an Internet-based LPA approach was implemented, monitoring the progress of all students in a classroom was reportedly not difficult to do. However, teacher training in using the LPA information for instructional modification resulted in no significant additional learning gains.

Our finding that students in both LPA groups had higher gains in reading comprehension than students in the SAT group is consistent with research on the effectiveness of progress monitoring (Allinder et al., 2000; Fuchs et al., 1984, 1990, 1991, 1992). However, the amount of variance in reading growth explained by the affiliation to the LPA group was rather small in comparison to previous studies. This result is likely because the teachers in the SAT group received detailed information about their students' reading achievement status at the beginning of the study and were most likely better informed than control-group teachers in previous studies. In our study, teachers were informed about the reading progress of all students in their classrooms and were expected to provide individualized instruction to all students. In previous studies on monitoring student progress, teachers often focused on few students with learning disabilities or low-achieving students (e.g., Allinder et al., 2000; Fuchs et al., 1992).

When studying the effects of LPA on reading growth for only the six lowest-performing readers in a classroom, Souvignier and Förster (2011) found a much higher effect size ($d = 0.50$), although teachers in the con-

trol group were also informed about their students' achievement status. Thus, the effects of LPA may be somewhat higher when teachers focus on fewer low-achieving students. Nevertheless, instructional modifications need to be made available not only for low-achieving students but also for above average–performing students (cf. Connor et al., 2004), and our findings indicate that information about the reading progress of all students helps teachers to achieve significantly higher gains in reading comprehension. The results also indicate that information about student progress is valuable in addition to information about achievement status. Although Schatschneider et al. (2008) and Kim et al. (2010) found that information about the ORF growth rate was not a dominant predictor of reading comprehension after first grade, our results suggest that knowledge of learning progress was helpful for teachers in the instructional decision-making process.

Similar to several other studies (Allinder et al., 2000; Fuchs et al., 1990, 1991, 1992), we investigated the effects of additional teacher support in using the data for instructional decisions. We found that students in the LPA-T group showed significantly higher reading gains than students in the SAT group. However, change in reading fluency and reading comprehension did not differ between students in the two LPA groups. This result may be because of the lack of intensity in the three teacher training sessions to effectively change teacher behavior. We provided teachers with only general information on how to foster reading fluency and reading comprehension, which is in contrast to the concrete guidelines given to teachers in previous studies (Fuchs et al., 1990, 1992, 1994). We suggest that direct behavioral consultation might be a more effective approach to modifying teacher behavior in the future, including the opportunity to practice while receiving feedback, in addition to using didactic instructions and modeling the desired behavior (Watson & Robinson, 1996). Moreover, providing teachers with concrete and worked-out teaching materials in addition to the LPA data might be helpful (Souvignier & Mokhlesgerami, 2006).

The timing of the training sessions could also have influenced the lack of benefit. Information about reading fluency and reading comprehension instruction was provided during the school year. Although all teachers in the LPA-T group reported having implemented at least one of the reading methods, time was too short to affect significant reading growth beyond the effects of learning progress information at posttest. Overall, the pattern of results showing a significant difference between the SAT group and both LPA groups but no significant differences between the two LPA groups is consistent with the study by Fuchs et al. (1992) in which the effects of progress monitoring on the development of reading skills were investigated. It is noteworthy that studies in which differences were found between two progress-monitoring conditions with and without assistance in adapting instruction all focused on instruction in mathematics (Allinder et al., 2000; Fuchs et al., 1990, 1991, 1994). One possible explanation is that the influence of teaching methods may be higher in mathematics than in reading. Clearly, reading skills are more likely to be influenced by extracurricular activities and different school subjects than mathematical skills. Findings from Helmke and Weinert (1997) are consistent with the assumption that reading and spelling, which are addressed in various school subjects, are less likely to be directly affected by instructional efforts in one specific subject. In their study, correlations between instruction characteristics and learning gains were stronger in mathematics than in spelling. To date, however, information concerning subject-specific effects of teacher support is insufficient to draw any safe conclusion.

The results of the teacher questionnaire can be considered a first indication of the administration ease of the Internet-based LPA approach in general education. As hypothesized, ratings of administration ease were different between the two LPA groups. Teachers in the LPA-T group, having the opportunity to discuss the implementation and organization of testing during the teacher training sessions, rated the ease of administration significantly

higher than teachers without collegial exchange. The number of missing data also reflects teachers' evaluations. Overall, most of the students (84%) completed at least seven of eight Internet-based reading tests. Yet, a significant difference was found between the two LPA groups, with fewer missing values in the LPA-T group. Thus, collegial exchange seems to be helpful in implementing the Internet-based LPA approach.

In contrast to the ease-of-administration finding, our assumption that the usefulness ratings of the progress information would be different between the two LPA groups was not confirmed. One possible explanation for this finding is that teachers would have needed even more concrete help to implement new instructional methods and to change to individualized instruction. As Van Keer and Verhaeghe (2005) stated, there is a "marked gap between empirical research and instructional practice" (p. 544), and findings from implementation studies in reading research have shown that teachers need much support to change classroom practices. In addition, time for the implementation of the new reading methods might have been too short to bring about visible effects. For example, some teachers reported that they had implemented a method to foster reading fluency but failed to implement explicit strategy instruction. Thus, they might not have experienced a specific benefit of detailed information about reading fluency and reading comprehension that differed from the experience of teachers in the LPA group who received no additional training. Overall, we conclude that teacher ratings of the usefulness of progress information were rather high.

Limitations

Although our findings are promising in general and they support the assumption that LPA is helpful in adapting instruction to individual needs, some limitations to this study should be noted. First, we were not able to investigate how teachers used the progress information to adapt instruction. A particular difficulty in this field of research is obtaining objective measures over many months. Although self-reported teacher ratings of the usefulness of progress information indicated that the teachers used the data to plan instruction, no objective measures, such as classroom observation or video analysis, were used. These types of assessments are difficult to implement; hence, we chose to use a quasi-experimental approach to manipulate the amount of information on learning progress and instructional methods for the different groups. In contrast to teachers in the LPA group, teachers in the LPA-T group were provided with additional information about effective reading fluency and reading comprehension instruction. Given that both instructional approaches were new to all teachers, we assumed that this information was unique for teachers in the LPA-T group and that they were thus better informed than teachers in the LPA group. However, whether this additional information changed their instructional behavior remains uncertain and is thus a limitation for the interpretation of the teacher training results. As an alternative to expensive or time-consuming methods, 'snapshots' of classroom observation or teaching diaries could be used (Allinder et al., 2000). To further investigate the interaction of progress information and reading instruction, it may also be fruitful to provide teachers with worked-out teaching materials. This approach would result in a quasi-experimental approach that directly connects instructional methods to the progress information.

Second, this study was conducted in Germany using a new test concept to assess reading progress. The generalizability of the results might be limited by language differences, for example, differences in the grapheme–phoneme consistency between English and German (Goswami, Ziegler, & Richardson, 2005; Wimmer & Goswami, 1994). Our new test concept, however, used the maze task in combination with reading comprehension questions and not a reading-aloud measure. Given that grapheme–phoneme consistency is lower in English than in German, context information might play a more important role in English to acquire the correct pronunciation.

Thus, reading aloud might be a better indicator of reading comprehension in English than in German. Nevertheless, we do not assume that the difference in grapheme–phoneme consistency between English and German plays an important role for the maze task or the reading comprehension questions. In short, more research is needed to generalize our findings.

Finally, we used a three-group design in this study to address our research questions. However, given that LPA data are used to adapt instruction to individual needs, future studies should apply time-series analyses (e.g., Schmitz & Wiese, 2006) to investigate the benefit of information about progress in reading fluency and reading comprehension for anomaly detection, as well as for prediction of individual outcomes.

CONCLUSION

This study moved beyond previous studies on student progress monitoring by showing that information about progress is adding information that can be used in the instructional decision-making process beyond what is obtained in a single–time point assessment at the beginning of the school year. Moreover, we found that teachers evaluated the Internet-based LPA approach as easy to administer in general education and that they rated information about the learning progress of all students as useful for instructional decisions. The three teacher training sessions failed to significantly increase student reading gains and affect teachers' evaluation of the usefulness of the progress information. However, collegial exchange was found to enhance perceptions of administration ease.

REFERENCES

Aarnoutse, C., van Leeuwe, J., Voeten, M., & Oud, H. (2001). Development of decoding, reading comprehension, vocabulary and spelling during the elementary school years. *Reading and Writing, 14,* 61–89.

Allinder, R. M., Bolling, R. M., Oats, R. G., & Gagnon, W. A. (2000). Effects of teacher self-monitoring implementation of curriculum-based measurement and mathematics computation achievement of students with disabilities. *Remedial and Special Education, 21,* 219–226.

Antoniou, F., & Souvignier, E. (2007). Strategy instruction in reading comprehension: An intervention study for students with learning disabilities. *Learning Disabilities: A Contemporary Journal, 5,* 41–57.

Bast, J., & Reitsma, P. (1998). Analyzing the development of individual differences in terms of Matthew effects in reading: Results from a Dutch longitudinal study. *Developmental Psychology, 34,* 1373–1399.

Chard, D. J., Vaughn, S., & Tyler, B.-J. (2002). A synthesis of research on effective interventions for building reading fluency with elementary students with learning disabilities. *Journal of Learning Disabilities, 35,* 386–406.

Connor, C. M., Morrison, F. J., Fishman, B. J., Schatschneider, C., & Underwood, P. (2007). Algorithm-guided individualized reading instruction. *Science, 315,* 464–465.

Connor, C. M., Morrison, F. J., & Petrella, J. N. (2004). Effective reading comprehension instruction: Examining child x instruction interactions. *Journal of Educational Psychology, 96,* 682–698.

Connor, C. M., Morrison, F. J., & Slominski, L. (2006). Preschool instruction and children's emergent literacy growth. *Journal of Educational Psychology, 98,* 665–689.

Connor, C. M., Piasta, S. B., Fishman, B., Glasney, S., Schatschneider, C., Crowe, E., . . . Morrison, F. J. (2009). Individualizing student instruction precisely: Effects of child x instruction interactions on first graders' literacy development. *Child Development, 80,* 77–100.

Deno, S. L., Fuchs, L. S., Marston, D., & Shin, J. (2001). Using curriculum-based measurement to establish growth standards for students with learning disabilities. *School Psychology Review, 30,* 507–524.

Deno, S. L., Reschly, A. L., Lembke, E. S., Magnusson, D., Callender, S. A., Windram, H., & Stachel, N. (2009). Developing a school-wide progress-monitoring system. *Psychology in the Schools, 46,* 44–55.

Ehmke, T., Blum, W., Neubrand, M., Jordan, A., & Ulfig, F. (2006). Wie verändert sich die mathematische Kompetenz von der neunten zur zehnten Klassenstufe? [How does mathematical competence change between grade nine and ten?] In M. Prenzel, J. Baumert, W. Blum, R. Lehmann, D. Leutner, M. Neubrand, . . . U. Schiefele (Eds.), *PISA 2003. Untersuchungen zur Kompetenzentwicklung im Verlauf eines Schuljahres* [PISA 2003. Studies on the development of competence in the course of a school year] (pp. 63–85). Münster, Germany: Waxmann.

Förster, N., & Souvignier, E. (2011). Curriculum-based measurement: Developing a computer-based assessment instrument for monitoring student reading progress on multiple indicators. *Learning Disabilities: A Contemporary Journal, 9,* 21–44.

Fuchs, L. S., Deno, S. L., & Mirkin, P. K. (1984). The effects of frequent curriculum-based measurement and evaluation on pedagogy, student achievement, and student awareness of learning. *American Educational Research Journal, 21,* 449–460.

Fuchs, L. S., & Fuchs, D. (1992). Identifying a measure for monitoring student reading progress. *School Psychology Review, 21,* 45–58.

Fuchs, L. S., Fuchs, D., & Hamlett, C. L. (2007). Using curriculum-based measurement to inform reading instruction. *Reading and Writing, 20,* 553–567.

Fuchs, L. S., Fuchs, D., Hamlett, C. L., & Ferguson, C. (1992). Effects of expert system consultation within

curriculum-based measurement, using a reading maze task. *Exceptional Children, 58,* 436–450.

Fuchs, L. S., Fuchs, D., Hamlett, C. L., Phillips, N. B., & Bentz, J. (1994). Classwide curriculum-based measurement: Helping general educators meet the challenge of student diversity. *Exceptional Children, 60,* 518–537.

Fuchs, L. S., Fuchs, D., Hamlett, C. L., & Stecker, P. M. (1990). The role of skills analysis in curriculum-based measurement in math. *School Psychology Review, 19,* 6–22.

Fuchs, L. S., Fuchs, D., Hamlett, C. L., & Stecker, P. M. (1991). Effects of curriculum-based measurement and consultation on teacher planning and student achievement in mathematics operations. *American Educational Research Journal, 28,* 617–641.

Fuchs, L. S., Fuchs, D., Hamlett, C. L., Walz, L., & Germann, G. (1993). Formative evaluation of academic progress: How much growth can we expect? *School Psychology Review, 22,* 27–48.

Fuchs, L. S., Fuchs, D., Hosp, M. K., & Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading, 5,* 239–256.

Goswami, U., Ziegler, J. C., & Richardson, U. (2005). The effects of spelling consistency on phonological awareness: A comparison of English and German. *Journal of Experimental Child Psychology, 92,* 345–365.

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60,* 549–576.

Graney, S. B., Missall, K. N., Martinez, R. S., & Bergstrom, M. (2009). A preliminary investigation of within-year growth patterns in reading and mathematics curriculum-based measures. *Journal of School Psychology, 47,* 121–142.

Graney, S. B., & Shinn, M. R. (2005). Effects of reading curriculum-based measurement (R-CBM) teacher feedback in general education classrooms. *School Psychology Review, 34,* 184–201.

Guthrie, J. T., Wigfield, A., & Perencevich, K. C. (2004). *Motivating reading comprehension: Concept-oriented reading instruction.* Mahwah, NJ: Lawrence Erlbaum Associates.

Helmke, A., & Weinert, F. E. (1997). Unterrichtsqualität und Leistungsentwicklung: Ergebnisse aus dem SCHOLASTIK-Projekt [Quality of teaching and performance development: Results from the SCHOLASTIK-Project]. In F. E. Weinert & A. Helmke (Eds.), *Entwicklung im Grundschulalter* [Development during primary school] (pp. 241–251). Weinheim, Germany: Beltz.

Hoffman, A. R., Jenkins, J. E., & Dunlap, S. K. (2009). Using DIBELS: A survey of purposes and practices. *Reading Psychology, 30,* 1–16.

January, S.-A. A., & Ardoin, S. P. (2012). The impact of context and word type on students' maze task accuracy. *School Psychology Review, 41,* 262–271.

Kim, Y.-S., Petscher, Y., Schatschneider, C., & Foorman, B. (2010). Does growth rate in oral reading fluency matter in predicting reading comprehension achievement? *Journal of Educational Psychology, 102,* 652–667.

Kintsch, W. (1998). *Comprehension: A paradigm for cognition.* New York, NY: Cambridge University Press.

Lenhard, W., & Schneider, W. (2006). *Ein Leseverständnistest für Erst- bis Sechstklässler (ELFE 1–6)* [A reading comprehension test for grade 1 to 6; ELFE 1–6]. Göttingen, Germany: Hogrefe.

Lerkkanen, M.-K., Rasku-Puttonen, H., Aunola, K., & Nurmi, J.-E. (2004). Reading performance and its developmental trajectories during the first and the second grade. *Learning and Instruction, 14,* 111–130.

Mayringer, H., & Wimmer, H. (2003). *SLS 1–4. Salzburger Lese-Screening für die Klassenstufen 1–4* [Salzburger Reading-Screening for grade 1–4]. Bern, Switzerland: Huber.

Muthén, L. K., & Muthén, B. O. (2010). *Mplus—Statistical analysis with latent variables. User's guide* (6th ed.). Los Angeles, CA: Muthén & Muthén.

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1,* 117–175.

Parrila, R., Aunola, K., Leskinen, E., Nurmi, J.-E., & Kirby, J. R. (2005). Development of individual differences in reading: Results from longitudinal studies in English and Finnish. *Journal of Educational Psychology, 97,* 299–319.

Reschly, A. L., Busch, T. W., Betts, J., Deno, S. L., & Long, J. D. (2009). Curriculum-based measurement oral reading as an indicator of reading achievement: A meta-analysis of the correlational evidence. *Journal of School Psychology, 47,* 427–469.

Riedel, B. W. (2007). The relation between DIBELS, reading comprehension, and vocabulary in urban first-grade students. *Reading Research Quarterly, 42,* 546–567.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys.* New York, NY: J. Wiley & Sons.

Samuels, S. J. (2007). The DIBELS tests: Is speed of barking at print what we mean by reading fluency? *Reading Research Quarterly, 42,* 563–566.

Schatschneider, C., Wagner, R. K., & Crawford, E. C. (2008). The importance of measuring growth in response to intervention models: Testing a core assumption. *Learning and Individual Differences, 18,* 308–315.

Schmitz, B., & Wiese, B. S. (2006). New perspectives for the evaluation of training sessions in self-regulated learning: Time-series analyses of diary data. *Contemporary Educational Psychology, 31,* 64–96.

Seuring, V. A., & Spörer, N. (2010). Reziprokes Lehren in der Schule: Förderung von Leseverständnis, Leseflüssigkeit und Strategieanwendung [Reciprocal teaching in the classroom: Fostering reading comprehension, reading fluency and strategy use]. *Zeitschrift für Pädagogische Psychologie, 24,* 191–205.

Shin, J., Deno, S. L., & Espin, C. (2000). Technical adequacy of the maze task for curriculum-based measurement of reading growth. *The Journal of Special Education, 34,* 164–172.

Snijders, T. A. B., & Bosker, R. J. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modelling.* London: Sage.

Souvignier, E., & Förster, N. (2011). Effekte prozessorientierter Diagnostik auf die Entwicklung der Lesekompetenz leseschwacher Viertklässler [Effects of curriculum-based measurement on reading achievement in fourth graders]. *Empirische Sonderpädagogik, 3,* 243–255.

Souvignier, E., & Mokhlesgerami, J. (2006). Using self-regulation as a framework for implementing strategy

instruction to foster reading comprehension. *Learning and Instruction, 16,* 57–71.
Stecker, P. M., Fuchs, L. S., & Fuchs, D. (2005). Using curriculum-based measurement to improve student achievement: Review of research. *Psychology in the Schools, 42,* 795–819.
Topping, K. J. (1997). Process and outcome in paired reading: A reply to Winter. *Educational Psychology in Practice, 13,* 75–86.
Topping, K. J. (2006). Building reading fluency: Cognitive, behavioral, and socioemotional factors and the role of peer-mediated learning. In S. J. Samuels & A. E. Farstrup (Eds.), *What research has to say about fluency instruction* (pp. 106–129). Newark, DE: International Reading Association.
Van Keer, H., & Verhaeghe, J. P. (2005). Comparing two teacher development programs for innovating reading comprehension instruction with regard to teachers' experiences and student outcomes. *Teaching and Teacher Education, 21,* 543–562.
Watson, T. S., & Robinson, S. L. (1996). Direct behavioral consultation: An alternative to traditional behavioral consultation. *School Psychology Quarterly, 11,* 267–278.
Wimmer, H., & Goswami, U. (1994). The influence of orthographic consistency on reading development: Word recognition in English and German children. *Cognition, 51,* 91–103.

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