

Online Case Studies as a Professional Development Opportunity for Teachers of Elementary Reading

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For some time now educators have called for improvements in the nature of professional development (PD) opportunities for practicing teachers (e.g., Borko, 2004; Desimone, 2009). Of continuing interest is the identification of content and methods of PD programs that help teachers gain expertise as practitioners (e.g., Borko, Whitcomb & Liston, 2009; Hatch & Grossman, 2009). With regard to teaching English language arts, traditional programs designed to give teachers guidance in “what” to teach and “how to” teach reading do not always lead to changes in practice or improvements in students’ achievement (e.g., Garet, Cronen, Eaton, Kurki, Ludwig, Jones et al., 2008). The alternative explored in this study is the use of case studies as the basis for an online program that offers teachers the opportunity to learn to identify and analyze features of lessons that affect the quality of reading instruction. Studying other teachers’ instruction is thought to help teachers adopt an analytic approach to teaching; scrutiny of features that contribute to the quality of teaching in others’ lessons has the potential to influence teachers’ evaluation of their own practices (e.g., Hiebert, Morris, Berk, & Jansen, 2007).

Specifically this study explores teachers’ use of, and responses to, a PD program called Case Studies of Reading Lessons (CSRL). This online pro-

gram is made up of a series of case studies of elementary reading lessons; the program guides teachers in close analysis of reading instruction. Case study methods have been used extensively and effectively in the preparation of teachers since the 1980s (e.g., Merseth, 1996), but they have not been used as the basis of PD for practicing teachers. Because CSRL is an online program for practicing teachers, the study of CSRL reported herein examines the design features that hold the promise of bringing about improvements in teachers' ability to evaluate effective features of reading instruction as a step toward improving their own practices. These design features include video and online affordances, resources for study of the cases, guidance and systematic procedures for analysis of instruction, and alternative conditions for study (i.e., independent or with the addition of work with a study group). Each of these is discussed below.

Video-Based Cases and Affordances of Online Programs

Recently, researchers have made use of videos of instruction, software programs, and the Internet to create richly endowed and accessible programs, particularly for preservice teachers (e.g., Borko, Whitcomb, & Liston, 2009; Santagata & Angelici, 2010). Videos are ideally suited for study of cases because they can be watched numerous times, paused for comments or discussion, and reused with different purposes for studying the lesson (e.g., Harrison et al., 2006; Rosaen, Lundeberg, Cooper, Fritzen, & Terpstra, 2008). Web-based video cases offer the possibility of self-guided study in a multidimensional format (e.g., Santagata, Zannoni, & Stigler, 2007; van Es & Sherin, 2006). Online technologies facilitate the use of interactive tools for examining cases. Further, data storage and management affordances make it possible to store teachers' responses to case study tasks (e.g., written evaluations) and to study characteristics of teachers' analysis of lessons (e.g., Borko et al., 2009).

The accessibility and ease of use of web-based programs may be particularly important for practicing teachers who are very likely to be studying cases during their free time (Borko et al., 2009; Hatch & Grossman, 2009). One advantage of a flexible, interactive learning environment for practicing teachers is that they can decide what and how to study a given lesson.

Resources for Study

Case studies offer a situative perspective on teachers' learning (Putnam & Borko, 2000). They give teachers the opportunity to study teaching as it naturally occurs in real classrooms. Practicing teachers are likely to view online case studies as an appealing opportunity to study reading instruction because they are authentic and, as such, inherently interesting. They learn to identify and evaluate features of lessons that affect the quality of students' opportunity to learn within the complex dynamics of classroom events (e.g., Merseth, 1996; van Es & Sherin, 2002). In addition, teachers gain experience observing and studying reading instruction in different classrooms in which lessons on various literacy topics are taught with a variety of methods, materials, and activities.

Teachers need to know about the context in which a given lesson was taught in order to make informed judgments about the quality of instruction. For this reason, case study programs designed for preservice mathematics teachers have included documents related to the planning and content of lessons (e.g., Santagata & Angelici, 2010). An added feature in CSRL is that each case is made up of 2 to 4 lessons, so that program users can study how the classroom teacher planned and carried out instruction in a series of lessons on a literacy topic (e.g., characteristics of nonfiction texts). We asked contributing classroom teachers to do what they would ordinarily do in planning and teaching lessons for their case study. The 17 case studies in CSRL vary on many dimensions (e.g., topics, materials, grouping arrangements). Such variation gives users of CSRL ample experiences studying the complexity of teaching reading in diverse contexts. Appendix A lists the topics and number of lessons for the 8 case studies used in this study.

Along with videos of lessons, teachers have the following resources to aid in their study of the lesson: (a) the *Context* in which the lesson was taught (i.e., information about school, classroom, and students); (b) *About the lesson*, including the classroom teacher's explanation of the goal(s) of the lesson and the selection of materials; (c) *Materials* (photocopies of texts and other instructional materials); (d) the *Thinking Questions*, which provide a framework for analysis of the lesson. The screenshot from CSRL in Figure 1 shows resources the program user could explore before, during, or after watching the lesson video. In this screenshot, the program user is viewing "About the lesson" (e.g., the purpose) while also watching the lesson video. Note that a transcription of dialogue in the lesson runs underneath the video.

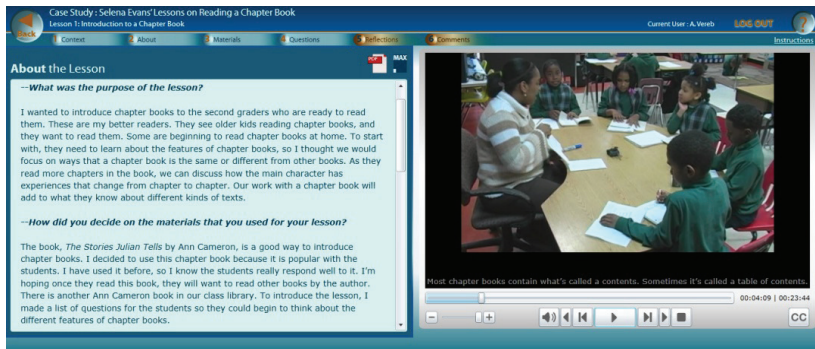


Figure 1. Screenshot of CSRL User Interface.

Guidance for Study of Cases

Teachers vary considerably in their ability to notice and analyze telling features in videos of instruction (Rosaen, Carlisle, Mihocko, Menick, & Johnson, 2013; van Es & Sherin, 2002, 2006). Directions that guide teachers' examination of instruction help them learn a systematic, analytic approach to studying teaching practices (e.g., Santagata & Angelici, 2010; van Es & Sherin, 2002). In studies of teaching mathematics, researchers have used cases embedded in a software program that guided teachers' understanding and interpretation of classroom interactions (e.g., van Es & Sherin, 2002, 2006; Santagata, et al., 2007). For example, Santagata and Angelici (2010) studied a program called Lesson Analysis Framework in which pre-service teachers were directed to work on the mathematics content of the lesson and other documents before examining the practices in the videotaped lesson. Like van Es and Sherin (2002), teachers were required to present their analysis of a lesson in writing, responding to particular prompts. Written evaluations are thought to help teachers explain and document their perceptions of the quality of instruction in the videotaped lessons (e.g., Harrington, Quinn-Leering, & Hodson, 1996; Lai & Calandra, 2010).

CSRL provides instruction in the process teachers should use to study a lesson and gives teachers a framework for systematic analysis of lessons. This framework, called "Thinking Questions", is made up of questions that represent critical dimensions and features of effective pedagogy in early reading. After completing analysis of the lesson, program users can read the classroom teacher's reflections and comments about the lesson by two experts in reading instruction. The experts' comments provide a way for teachers to compare their views of instruction in a lesson with those of others knowledgeable about early reading.

In developing the Thinking Questions framework, we were influenced by a model of teacher learning advanced by Hiebert et al. (2007). Their purpose was to help prospective teachers learn to analyze their own teaching. They suggested that teachers needed to acquire four skills that are “deeply rooted in the daily activity of teaching” (p. 48); these included setting learning goals for students, assessing whether these goals are being met during a lesson, specifying hypotheses for why a lesson did or did not work well, and using these hypotheses to consider revisions to the lesson. Similarly, Shulman (1987) emphasized the importance of teachers’ pedagogical reasoning—in particular, developing a way of thinking about teaching that takes into account processes involved in planning, teaching, and evaluating instruction.

Following these models, the Thinking Questions framework in CSRL focuses teachers on three dimensions of the teaching process: (1) the classroom teacher’s purpose and design of the lesson, (2) methods of instruction, and (3) attention to student engagement and learning. In choosing features to represent each of these dimensions, we drew from research on effective instruction (e.g., Porter & Brophy, 1988; Pressley, Rankin, & Yokoi, 1996; Roehler & Duffy, 1991; Rosenshine & Stevens, 1984; Shanahan, Callison, Carriere, Duke, Pearson, Schatschneider, & Torgesen, 2010; Snow, Griffin, & Burns, 2005; Taylor, Pearson, Peterson, & Rodriguez, 2003).

There are two parts to the Thinking Questions. The first involves responding to questions focused on key features of effective instruction in reading, using a six-point scale ranging from yes to no. The second part involves writing responses to two open-ended questions. One open-ended question asks CSRL users to comment on effective features they observed in the lesson, and the other asks them to provide suggestions for improving the lesson. Each lesson includes only one of the three dimensions so that the task of analyzing the lesson does not lead to cognitive overload. Examples of questions in each of the three dimensions are as follows:

Purpose and Design:

Did the teacher help students understand what they would be learning and why?

Was the design of the lesson appropriate, given what you know about the students’ literacy capabilities and background knowledge?

Instruction:

Did the teacher provide clear explanations of literacy concepts and processes?

Did the activities in the lesson advance students’ learning?

Students' Engagement and Participation:

Did features of the lesson engage the students' interest and participation?

Did the teacher monitor students' understanding of and participation in the lesson? (e.g., provided feedback about their work)

Alternative Conditions for Study of the Cases

Two issues that seemed likely to affect teachers' response to the program can be framed as questions: (a) does the length of the program and number of case studies teachers complete influence program users' views of the value of CSRL as an opportunity to learn about effective instruction? and (b) while the website makes it possible for teachers to study reading instruction on their own, does participation in group meetings to discuss the case studies contribute additionally to teachers' sense of the value of CSRL as a professional learning opportunity?

With regard to the first issue, Garet and his colleagues (2001) have recommended that effective PD programs should take place over a sufficiently long period of time for teachers to understand, integrate, and evaluate what they are learning. This recommendation suggested the importance of having teachers work on a reasonably large number of case studies, featuring different teachers and classrooms over time. In this way, they would have opportunities to notice patterns and telling features across the complexities and diversities of instruction in different classrooms. On the other hand, the time needed for extended study of cases would be hard to come by, given the demands on teachers' time in today's schools. Extensive work on the program might result in a drop off in completion of assigned work or interest in thorough study of the cases. Therefore, it seemed wise to compare the response of teachers who worked on just 2 case studies (a total of 5 lessons) over a month to the response of other teachers who worked on 8 case studies (a total of 24 lessons) across a school year. This comparison would provide insights into teachers' response to the program, particularly the value of analysis of cases over a sufficiently long period of time to carry over analysis of instruction to their own teaching.

The second issue is the extent to which a web-based program, such as CSRL, offers a satisfying learning opportunity for teachers who complete the program entirely on their own. Responses to CSRL might be more beneficial if teachers could also participate in a school-based discussion group. Further, experts have suggested that participation in discussion of instruction with peers is critical if teachers are to become fully engaged in analy-

sis of their own practice (e.g., Bransford, Derry, Berliner, Hammerness, & Beckett, 2005; Merseth, 1996). A practical problem is that a periodic study group discussion within a school setting would need to take place either during the school day (with permission from the school administration) or after school (requiring more use of teachers' personal time). Thus, the study was designed so that some teachers who worked on 8 case studies worked entirely on their own, while other teachers in the 8 case studies condition first studied the case independently and then participated in a group discussion in their school.

Study Design and Research Questions

Because case studies offer a promising approach for teachers to become more experienced at using an analytic approach to teaching, this study of CSRL was designed to shed light on critical issues of the design and delivery of the program for practicing teachers. While technological advances have led to the development and availability of programs to improve teaching (Borko et al., 2009), Dede, Ketelhut, Whitehouse, Breit, and McCloskey (2009) expressed the concern that too often these are released and put to use before research has been conducted to examine their effectiveness. With this issue in mind, the study we report herein focuses on teachers' response to the program; we address the following questions:

1. Did teachers who worked on CSRL independently or with the addition of group discussion differ in their perceptions of the value of resources for learning about and evaluating effective early reading instruction?
2. Did teachers who worked on CSRL independently or with the addition of group discussion view the Thinking Questions as valuable for analysis of others' and their own instruction? Further, how different were teachers' responses to CSRL when they engaged in study of 2 versus 8 cases?
3. How did study group teachers respond to the opportunity to discuss the cases in CSRL?

METHOD

Study Design

Three groups of teachers worked on CSRL under different conditions. One group of teachers completed 2 case studies on their own in a short time period (referred hereafter as IU2, which stands for "independent users for

2 case studies”). This group completed the first and last case study that the two other groups of teachers worked on (shown in Appendix A). The remaining two groups completed 8 case studies in the same order on a schedule of about one every three weeks between October and the end of March. Twelve of these teachers worked on CSRL solely in the website environment (hereafter, IU8 for “independent users for 8 case studies”); 35 teachers were members of seven study groups in five schools (hereafter SG for “study group”). Study group meetings were held during school hours. Each group had a recorder who completed a log of events for each meeting.

Upon completing their assigned case studies, teachers were sent an electronic survey; responses were returned electronically and were anonymous. The research questions were answered through analysis of survey responses, log data from the study group recorder, and paradata that indicated the online resources teacher users accessed when completing their assigned case studies in CSRL.

Participants

Seventy practicing teachers from 10 school districts located in Midwestern United States consented to participate. Five school principals chose to use the CSRL program as an opportunity for groups of teachers to study effective reading instruction. These SG teachers worked with CSRL independently but also attended SG meetings to discuss each case study. In one of these schools, the principal used CSRL as a school-wide professional learning opportunity for all teachers in K-5. In two schools, the literacy coach facilitated the study group; in the remaining schools, a teacher volunteer facilitated the discussion and filled out a log to record the event. Study group membership ranged from 3 to 7 teachers. In those schools not involved in the SG condition, we randomly assigned teachers to one of two conditions: IU2 or IU8.

Of the 70 participants who began the study, 59 (84%) completed their work in CSRL (IU2, 12/12 or 100%; IU8, 12/19 or 63%; SG, 35/39 or 90%). The 11 teachers (7 IU8 and 4 SG participants) who did not complete their work gave various reasons, including maternity leave, retirement, additional responsibilities in and out of school, and inability to commit the amount of time needed to complete the study. Data from these teachers were not used in the study. Most of the teachers had taught in grades K-3 for at least 4 years (IU2 83%; IU8 100%; SG 71%), and most held a Masters degree or higher (92% IU2; 92% IU8; 77% SG). There was no significant difference on these professional characteristics of the groups.

Procedures for Program Implementation

Eight of the 17 case studies in CSRL were selected for this study on the basis of variety of grade levels and literacy topics. In early October, participating teachers received their user login and password information along with information about their activities and a suggested work schedule. When participants first logged into the website, they viewed a tutorial called “Learning About CSRL”; this provided background information on the design of CSRL, including the Thinking Questions. Next the teachers completed a “practice” case study to learn how to work with the program. They then began work on their assigned cases; they completed the Thinking Questions in each lesson of a case study before going on to the next case.

Data Collection

The following sources of data were used to answer the research questions:

1) *Online Survey*: Upon completion of their assigned case studies in CSRL, each participant was sent a link to take an online survey, which took approximately 10 minutes to complete. The survey was designed to collect information regarding their experiences with the web environment (e.g., about navigating within CSRL) and about the value of CSRL as a professional learning opportunity (e.g., relevance for their practices). It included sets of questions that involved responses on a Likert scale as well as open-ended questions. Factor analyses of two sets of survey questions central to our research questions were carried out. One set of questions (shown in Table 1) asked about the resources the teachers used to respond to the Thinking Questions and about other CSRL resources that led to reflections about effective instruction. Principal components analysis of this scale (with varimax rotation) indicated that two factors explained a significant 63% of the variance. As shown in the table, three questions focused on resources for answering the Thinking Questions loaded on one factor (hereafter, Resources for Thinking Questions), which accounted for 33% of the variance. The three remaining questions loaded on the second factor (hereafter, Resources for Reflection), which accounted for 29% of the variance. The second scale (shown in Table 3) focused on the teachers’ level of agreement with statements about the benefits of working with CSRL (hereafter, Benefits) and its support for teachers’ learning (hereafter, Learning About Instruction). Principal components analysis indicated that 77% of the variance was explained by the items in this scale. One factor included three items

focused on Benefits and accounted for 57% of the variance. A second factor, made up of three items focused on Learning About Instruction, accounted for 20% of the variance. The open-ended questions on the survey involved asking teachers to write about their experience working with CSRL. To answer these open-ended questions, participants typed their response into a text box. In addition, they completed several multiple-choice items to provide general information regarding their background (e.g., years teaching, highest degree obtained).

Table 1
Teachers' Reported Use of CSRL Resources

Survey Questions	Always/Often			Sometimes/Rarely		
	IU2	IU8	SG	IU2	IU8	SG
When answering the thinking questions, I considered the instructional context. ^a	100	100	97	--	--	3
When answering the thinking questions, I considered the teacher's planning of the lesson. ^a	92	92	91	8	8	9
When answering the thinking questions, I considered the reading materials. ^a	92	75	83	8	25	17
The teacher's reflections about the lesson provided me with further insight about the lesson. ^b	92	83	60	8	17	40
The literacy specialists' written comments provided me with insights about the important aspects of the teacher's reading instruction. ^b	92	91	86	8	8	14
The literacy specialists' video discussion of the case studies prompted me to reflect further on the features of effective early literacy instruction. ^b	75	83	56	25	17	44

Note. Percent of teachers in each condition, out of 59 total: IU2, N=12; IU8, N=12; SG, N=35. Response options included always, often, sometimes, and rarely.

^aItems that loaded onto the Resources for Thinking Questions factor. ^b Items that loaded onto the Resources for Reflection factor.

2) *Paradata*: CSRL paradata are computer-generated measures of teachers' actual use of the resources in each case study. Users' clicks on resources (e.g., Materials) within the website are captured as date/timestamps.

These timestamps shed light on the extent to which teachers used the resources in CSRL to learn about the context of the lesson (specifically, *Instructional context, About the lesson*) or to examine others' reflections about the lessons (specifically, the *Teacher's reflections*, and the *Literacy specialists' comments*).

3) *Study Group Logs*: Each SG met once a month. Each SG had a "recorder" who completed a log for every group meeting. The log asked for the time, date, place, and duration of the meeting; the number of teachers attending the meeting; the case studies and lessons discussed at the meeting; and activities that were part of the meeting (e.g., watching a lesson video again). The log data came from 38 logs submitted by the seven study group recorders.

Procedures for Analyses of Written Responses to Open-Ended Survey Questions

Written responses to questions presented in the survey were coded according to broad categories that emerged and were refined through repeated analysis (Corbin & Strauss, 2007). The analysis proceeded in three stages. In the first stage, two members of the research team read the responses to a question to identify themes offered by the teachers. Broad descriptive categories were identified (e.g., features that stood out to the teachers when reflecting on their work on CSRL). Within these broad categories, sub-categories were identified to describe the content of the comment. Two researchers compared their sub-categories and, as needed, identified and resolved any discrepancies. In the final stage, the broad categories and their sub-categories were further organized to identify patterns in teachers' responses; researchers identified representative examples of the responses in each sub-category.

RESULTS

Taking Advantage of Resources to Study Lessons

The first research question focused on the extent to which teachers perceived the resources in CSRL as contributing to their ability to analyze reading lessons and to their understanding of effective instruction. The results (shown in Table 1) indicate that almost all of the teachers reported

always reading about the instructional context; a very large percent of the teachers in all three conditions also *always* or *often* used the teacher's planning of the lesson to answer the Thinking Questions. However, as this table also shows, some IU8 and SG teachers indicated that they only *sometimes* or *rarely* considered the materials in the lesson (42%). A one-way ANOVA, using the factor loadings, indicated that the three groups of teachers did not differ, overall, in their use of the Resources for Thinking Questions. While not statistically significant, there was a trend for greater use of information for planning lessons and materials by IU2 teachers than IU8 teachers, and by IU8 teachers than SG teachers.

Next, paradata from case studies the teachers worked on in the beginning, middle, and end of their program were analyzed. Teachers in the IU2 group very consistently made use of the resources for studying instruction. Specifically, 100% accessed the *Instructional context* for the first case study, and 92% of them accessed the *Instructional context* for the second and last case study. All of the IU2 teachers made use of *About the lesson* for both case studies; similarly, 92% examined the *Literacy specialists' comments* for both case studies. Table 2 shows the percent of teachers in the IU8 and SG groups who accessed the *Instructional context*, *Teachers' reflections*, and *Literacy specialists' comments*. Results show that the use of these resources dropped somewhat between the first and middle case studies for these two groups. The decrease was greater for the SG group than for the IU8 teachers.

Table 2
Paradata for First, Middle, and Final Case Studies

CSRL Resources	First Case Study (KK)		Middle Case Study (KS)		Last Case Study (RC)	
	IU8	SG	IU8	SG	IU8	SG
Instructional Context	92	91	67	63	75	71
About the Lesson	92	77	92	80	83	74
Teacher's Reflections	92	80	58	51	67	46
Literacy Specialists' Comments	75	83	67	51	83	49

Note. Each cell shows the percent of teachers in that condition who accessed that resource; IU8, N=12; SG, N=35. The "Instructional Context" is the same for each lesson in a given case study, so we counted this feature if the participant accessed it at least once for each case study. For the remaining features of CSRL, we considered whether the teacher accessed these when evaluating the first lesson of each case study.

It is not possible to compare directly the teachers' perceptions of their use of resources with the paradata. Survey responses were global impressions of resource use after teachers completed work on their assigned case studies, while the paradata showed actual use of resources in studying a given lesson. However, some general patterns were evident. IU8 and SG teachers' survey responses suggested that overall they felt they made good use of the resources in the case studies, but the paradata for the middle and last case studies suggested that they were less likely to make use of resources than they had been when working on the first case study. The trend over time was decreased use of available resources in CSRL, particularly by the SG teachers.

Guidance in Learning to Analyze Reading Lessons

The second question asked about the extent to which teachers in the three conditions found the Thinking Questions helpful in their analysis of and reflection on other teachers' and their own practices. One survey question asked teachers about the extent to which the analytic framework in the Thinking Questions was useful in evaluating their own instruction. Their responses showed a significant difference by study condition. All of the IU2 teachers, 84% of the IU8 teachers, and 97% of the SG teachers indicated that the Thinking Questions *always* or *often* prompted them to think about their own teaching. However, SG teachers were less likely than the IU8 teachers to report that the Thinking Questions *always* led them to think about their own teaching: $X^2(4, N = 58) = 12.80, p < .05$.

A related question was whether teachers found the classroom teacher's and literacy experts' comments useful in reflecting on their evaluation of the lessons using the Thinking Questions. ANOVA using the Resources for Reflection factor (see Table 1) showed that the mean difference in responses of the three groups of teachers was marginally significant, $F(2, 58) = 2.75, p = .073$. Post hoc analyses (LSD) suggested that SG teachers were less likely than their peers to feel that the classroom teachers' and literacy specialists' comments contributed to their insights about the quality of instruction. This pattern can also be seen in the paradata, as SG participants accessed these two sets of comments in CSRL less often than the IU participants.

The two factors from a scale focused on the value of CSRL were used to examine issues of program use by teachers in the different conditions, one focused on Benefits and the other on Learning About Instruction. Table 3 shows the three groups of teachers' ratings on the items in this scale. One-

way ANOVA indicated that the groups did not differ in their views of the personal benefits they derived from working with CSRL. While overall their responses were very positive, there was a trend toward a meaningful difference in the three groups' response to the questions concerning Learning About Instruction, $F(2, 58) = 2.63, p = .08$. Post hoc analyses (LSD) suggest that the SG teachers were somewhat less enthusiastic about CSRL as a worthwhile opportunity to study effective reading instruction.

Table 3
Participating Teachers' Views of the Value of CSRL

Indicate your agreement with each statement:	Strongly Agree			Agree			Disagree		
	IU2	IU8	SG	IU2	IU8	SG	IU2	IU8	SG
I benefited professionally from working with CSRL. ^a	73	75	46	27	17	54	--	8	--
Working in CSRL gave me ideas about changing aspects of my own practice. ^a	55	84	51	45	8	49	--	8	--
I would recommend CSRL to other teachers. ^a	67	75	49	33	8	51	--	17	--
There is a lot that can be learned from examining teachers' reading instruction. ^b	92	100	77	8	--	23	--	--	--
The lessons seemed like real-life classroom instruction. ^b	83	83	63	17	17	34	--	--	3
The CSRL website would work well as a distance learning professional development tool. ^b	92	92	62	--	8	38	8	--	--

Note. Percent of teachers from each condition who responded to these questions (out of a total of 59): IU2, N=12; IU8, N=12; SG, N=35

^a Items that loaded onto the Benefits factor. ^b Items that loaded onto the Learning About Instruction factor.

The table in Appendix B shows teachers' perceptions of features of the case studies they found valuable; 54 out of the 59 participants provided a

written response (IU2, N = 12; IU8, N = 11; SG, N = 31). Among the most commonly mentioned strengths were the following: useful professional learning through observing and evaluating others' instruction (48%); varied and realistic videos of classroom instruction (41%); and helpful resources for evaluating instruction (37%). For example, one teacher said: "Having the thinking questions available helped me focus on what I should be studying." In addition, about a third of the respondents mentioned that CSRL was convenient to use, flexible, organized, and easy to navigate. Teachers commonly indicated that CSRL was applicable to their own practice and provided them with an opportunity to reflect on their own instruction. Their written comments indicated that teachers found their analysis of CSRL lessons applicable to their own practice—more so than other PD programs they had experienced. One representative comment was as follows: "This PD was more reflective and I was able to apply it more to my teaching practices."

Across conditions, analysis of teachers' written comments showed reasons for their positive responses to the learning opportunity provided by the cases. One teacher said: "This is the first time that I've actually seen other teachers teach. We NEVER do that as professionals because we simply don't have the time. But I learned so much from this experience. To watch different strategies in action was invaluable." Commenting on the resources in the case studies, another teacher wrote the following:

I liked the real classrooms, the background, the teacher's explanation of the lesson, the thinking questions during the video, and the reflections by the teachers and the specialists. I felt that these experiences were similar to the problems and challenges I face as a teacher too. Therefore, it made me think about what these teachers were doing and what I was doing and what worked and didn't. The lessons dealt with real classroom challenges.

When asked to suggest ways to improve CSRL, 52 teachers provided written responses (IU2, N = 12; IU8, N = 11; SG, N = 29). Our analyses showed that teachers primarily offered specific suggestions for improving the website design (31%) and the presentation of the video (33%). For example, they would have liked to know ahead of time how long each video was going to last so that they could manage their time accordingly. Others suggested improvements that involved technical or navigational aspects of the website design (e.g., alter the scrolling mechanism within the text boxes). Thus, while the video and the website were regarded as strengths of CSRL, they also presented some challenges associated with ease of use.

Study Group Activities and Responses

The third question focused on teachers' views of their participation in a study group in their school. The logs submitted by the recorders after each SG meeting showed that each group met five or six times during the year (about once a month); their meetings lasted anywhere from a half hour to an hour. Responses to one set of survey questions showed their views of participation in study group meetings. All of the SG participants expressed enthusiasm for their group meetings, and 97% agreed or strongly agreed that their group had ample time to discuss the case studies. All of them (100%) found the discussion relevant to their daily practice and *agreed* or *strongly agreed* with the statement that discussion about the case studies helped them think more deeply about instruction and about ways to improve their own practice.

One question in the SG log asked the recorders to indicate whether the discussion at each SG meeting was worthwhile and productive. In 79% of the logs, the recorder commented that the teachers seemed to benefit from talking about the lessons. They often reported that SG teachers discussed ways that lesson features were applicable to their own classroom practice. The following is a representative comment from one SG log recorder, "Yes, we feel that the discussion was productive because we were able to hear other professional opinions and ideas about the lesson. Positive points were made to help clarify strategies that may be used with ESL students. It was helpful to produce professional dialogue."

DISCUSSION

The purpose of this study was to investigate teachers' responses to an online PD program that used case study methods to engage teachers in analysis of reading instruction. Advances in the fields of web-based and video-based technologies have made it possible to develop case study programs that give practicing teachers rich opportunities to analyze instruction in real classrooms, taking into account the context in which lessons are taught. In theory, guided analysis of cases made up of several lessons should engender reflection on their own approaches to teaching reading (Hiebert et al., 2007). While online case study programs, such as CSRL, have the potential to improve teachers' analysis of the quality of instruction in reading, a first step is determining whether teachers see the program as providing the kind of learning opportunities that advance their professional expertise.

As an online program, CSRL offers various options for using the program for PD. In designing the study, we focused on four aspects of case study methods used in CSRL to explore teachers' responses to the program: video and online affordances, resources for study of the cases, guidance and procedures for analysis of instruction, and alternative conditions for study (i.e., independent or with the addition of work with a study group).

Video and online technologies may have many advantages, as discussed earlier, but may not always work as smoothly as they should (Borko et al., 2009). Therefore, it is important to point out that very consistently teachers perceived CSRL as accessible and well organized. They offered a variety of suggestions for improving certain features (e.g., providing information about the length of the video), but they clearly liked studying authentic lessons through video and accompanying resources, made possible through the interactive nature of the website. Results of the study suggest that programs such as CSRL may offer particularly engaging opportunities for professional advancement from teachers' perspectives.

Teachers' Response to the Resources in the CSRL Program

Analysis of instruction in reading lessons is only meaningful and authentic when the context in which the lesson was taught is taken into account (e.g. Hatch & Grossman, 2009). Asked on the survey to indicate whether they valued the interactive resources and made use of these in studying lessons, teachers responded positively; they liked both the videos of instruction and the resources for studying these. Their comments suggested that they liked the way lessons challenged their thinking about features that contributed to effective instruction. One teacher's comment showed the enthusiasm expressed in many teachers' written comments: "This is meaningful, real teacher-student interaction/time, focused opportunities for reflection, able to use immediately with own students, professional advice/input very helpful, able to read teacher's purpose/goal and opinions about lessons-so many bonuses!"

Survey results also suggested that the teachers felt the resources in CSRL helped them analyze instruction in the lessons. However, the teachers made better use of some resources than others. As Table 1 shows, they noted that the teacher's plan for the lesson was valuable in responding to the Thinking Questions, but they did not see the classroom teacher's reflections or the literacy specialists' comments as consistently valuable. This may be because they could access these resources only after they carried out their analysis of the lesson. They also did not always feel a need to look at the

materials used in the lesson. This may reflect variation in the lessons themselves—for example, in some cases texts were shown on a white board and so could be examined as they watched the video of the lesson.

The paradata provided a different view of teachers' use of CSRL resources because they showed whether teachers actually made use of the resources while working on a given lesson. The results showed that the teachers tended to use most of the resources when they worked on the first case study (see Table 2). This was also true for the IU2 teachers' work on their second (and last) case study. However, there was a drop off in use of resources by the IU8 and SG teachers for the middle and last case study. For example, in the final case study, 75% of the IU8 teachers accessed the *Instructional context*, and 83% accessed the teacher's plan for the lesson. Thus, despite their positive attitudes toward the value of the resources in CSRL, prolonged work with CSRL was associated with a decrease in the extent to which teachers carried out thorough study of the lesson. This was particularly the case for the teachers in the SG condition. They may have relied more on group discussion than on CSRL program resources to evaluate the lessons.

Teachers' Responses to the Thinking Questions Framework

The Thinking Questions were intended to provide guidance in analysis of instruction. Results suggest that a theoretically based system for analysis of instruction may be critical for teachers' individual learning or group discussions, as it focuses their attention on features associated with effective practice. In CSRL, the Thinking Questions framework focuses on three aspects of instructional pedagogy: the purpose of and plans for lessons, the method(s) of instruction and delivery, and the way(s) that the teacher attended to and facilitated students' learning and engagement (e.g., Hiebert et al., 2007; Shulman, 1987). Results of a recent study of CSRL's Thinking Questions indicated that teachers with more and less expertise in early reading differed in their evaluation of lessons (Carlisle, Kelcey, Rosaen, Phelps, & Vereb, 2013). In the present study, responses to survey questions by teachers in the three conditions were quite similar in that they found the Thinking Questions helpful in analyzing instruction in the lessons. Still, the SG teachers were less likely to indicate that the Thinking Questions helped them think about their own teaching. In part, this may have come about because the principal of one school strongly urged all teachers to participate, and in this situation, the teachers who did not teach reading might be expected to see CSRL as not particularly relevant for their job.

As analysis of the Benefits factor indicated, the three groups of teachers did not differ in their view that they benefited professionally from work on CSRL. However, the IU8 and SG teachers may have lost interest in using the Thinking Questions as time went on. Written comments from some teachers suggested that they reached a point where they felt able to analyze the lessons without using the Thinking Questions. Perhaps after guided analysis of a few lessons using the Thinking Questions, teachers become accustomed to examining key dimensions of instruction, but this possibility needs to be explored in future study.

Issues of Delivery Systems: Duration and Conditions for Study

Survey results suggested that teachers consistently valued the opportunity to work independently on the case studies. In their written comments, they spoke about being able to work on the lessons on their own time and in their own homes (see Appendix B). The following comment is representative of the IU2 and IU8 teachers' views.

It was nice to work independently mostly because of time constraints. I was able to work on the studies at times that were convenient for me. It gave me a chance to really think about how I could use some of the strategies to improve my own teaching.

Still, some IU2 teachers indicated that they would have liked the opportunity to talk to other teachers about the cases. For example, one teacher had this to say:

I think working with other teachers would be most valuable although there is a lot to be learned when teachers read the cases independently. Talking with others allows the teacher to explore instructional moves presented in light of the context of the schools in which they teach. I always find value in talking with others.

Overall, teachers in the three study conditions were surprisingly similar in their use of resources and views of the value of CSRL. However, results showed some difference in completion of their assigned work; 63% of IU8 teachers and 90% of the SG teachers completed the study. The reasons teachers gave us for stopping work before the end of the program related to challenges in their personal or professional lives. Participation in a study

group might have given the teachers a reason to stay with the program. A larger percent of the SG teachers stayed with the program, but they were also less diligent in studying the case studies carefully.

Participation through discussions of case studies with other teachers has been associated with effective PD programs because sharing ideas helps teachers learn to articulate and provide reasons for their views, as well as considering other teachers' analyses of instructional features (Bransford et al., 2005). However, in the survey factor called Resources for Reflection, compared to teachers in the other conditions, the SG teachers were much less likely to see the classroom teachers' reflections or the literacy specialists' comments as helpful in reflecting on the effective features of instruction. Their SG discussions may have served a similar purpose. A representative statement from one SG teacher is as follows:

It was great working with other teachers on the case studies especially because we had a variety of grade levels and perspectives. We did not agree on everything but we talked about why we felt certain ways. We also were able to share additional ideas with one another to further improve our practice.

It is important to note that teachers in the three conditions did not differ significantly on the factor, Benefits of CSRL. A representative comment about the benefits of independent study and group discussion made by one SG teacher is this: "There is value to either approach. Either way I am able to look at teaching methods, planning, resources and get ideas for my own teaching."

Many of the SG meetings were of short duration (on average 45 min)—a potential source of concern. It seems unlikely that thorough discussion of the lessons could have taken place. While it was beneficial to have group meetings take place during the school day, the limited time available for discussion raises a question about the feasibility of implementing CSRL as a PD program in schools. Teachers might have participated in longer discussions, had it been possible to hold the meetings outside of the school day or over the summer. For example, van Es and Sherin (2006) reported that teachers in their Video Club meetings met outside of school 10 times across a year, with each meeting lasting an hour. Despite our concerns, the log recorders' notes indicated that the topics of discussion in the SG meetings were meaningful to the teachers. Over half the SG teachers strongly agreed that they felt comfortable stating their opinions, and 65% strongly agreed that the discussion led them to think more about their own teaching.

Limitations and Issues for Future Study

The study has several limitations. The relatively small number of teachers in two of the three conditions needs to be taken into consideration. A second limitation is the lack of documentation of the actual discussions held in the discussion group meetings. A future study might examine teachers' analysis of the lessons during group discussions. The choice of 8 case studies to ensure opportunities to integrate new learning was somewhat arbitrary. Here, too, further studies might explore the value of work on fewer case studies.

The positive response to CSRL as a method for studying teaching of reading suggests the need for an efficacy study. Such a study might examine whether work on a case studies program, such as CSRL, is associated with changes in teachers' analysis of reading instruction and in their practices – and whether these contribute to improvements in students' achievement (Desimone, 2009). A study that addresses such questions is needed before it is appropriate to suggest implications for educational policy and practice. Nonetheless, as others have reported (e.g., Hatch & Grossman, 2009), providing teachers with rich opportunities to study records of practice is a promising way to ensure that teachers can continue to develop their understanding of effective practices in early literacy.

Finally, important questions concerning the implementation of case studies as a PD program remain to be answered. There may be tension between what is desirable for optimal learning and what is practical, given the busy professional and personal lives of the teachers. Researchers and educators need to consider how to offer teachers opportunities for professional growth that fit within the school day and advance their knowledge and their collaborative efforts to improve instruction in schools.

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APPENDIX A

Overview of the Assigned Case Studies for IU8 and SG Teachers

Timeline	Case Study	Grade	# of Lessons
October	Tanya Brown: Models Self-Monitoring Strategies (practice case study)*	Reading Specialist	2
November	Kate Kaufmann: Character Study*	1 st and 2 nd	3
	Linda Drinan: Navigating Informational Texts	2 nd	4
December	Leena Zaban: Building ELL Students' Language and Literacy	2 nd	2
January	Karla Smith: Integrating Literacy and Social Studies	3 rd	3
	James Harris: Two Guided Reading Lessons	2 nd	2
February	Diane Richards: Using Text Features to Support Comprehension	2 nd	2
	Nancy Ireland: Facilitating Students' Participation in a Book Club	3 rd	3
March	Rachel Coulter: Supporting Comprehension of Non-Fiction Texts*	1 st	3

Note. *The IU2 teachers completed the practice case study (Tanya Brown) in October, Kate Kaufman's case study in November, and Rachel Coulter's case study in December.

APPENDIX B
Practicing Teachers' Views of the Strengths of CSRL

Strengths of CSRL	% of Teachers	Representative Responses
Website and Design (e.g., easy to navigate, organized, convenient)	30	"The website was easy to use..." "...not having to complete all in one sitting, ability to go back and forth between tabs/components of assignments"
Resources (e.g., Literacy Specialists, teacher reflections, 'Thinking Questions')	37	"...Having the thinking questions available helped me focus on what I should be studying..." "...The context, materials, reflections, etc. make a package that provides more to consider as we view the videos."
Video (e.g., lesson quality, lesson variation, realistic lessons)	41	"...it provided a variety of reading lessons and strategies..." "...seeing real teachers working within real classrooms..."
Professional Learning (e.g., opportunity to observe, evaluate others instruction)	48	"I loved being able to watch the videos of other teachers teaching reading in their classrooms." "...it gave me an opportunity to view and evaluate different teachers and their teaching styles."
Applicability (e.g., applicability to own practice, aids personal reflection)	43	"...The total package helped me become better at guided reading. It made me think about the purpose of guided further and deeper." "...I got some great ideas especially from the first case study (KK) and have already taught her week long unit on character traits to my second graders. It went really well."
Professional Development	19	"...I learned a lot and would like a chance to view more case studies for my own professional development." "...would be helpful for any K-2 teacher"
Discuss with Colleagues	13	"...It was interesting to hear other professional opinions and many times there was always something mentioned in our group discussion by another member that I would have not focused on independently." "...It is VERY helpful for teachers to discuss best teaching practices with each other with what they had observed."

Note. Percent of teachers who commented (out of a total of 54): IU2, N=12; IU8, N=11; SG, N=31