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Using Peer Collaboration to Support Online Reading, Writing, and Communication: An Empowerment Model for Struggling Readers

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This comparative case study investigated the implementation of an empowerment model for struggling readers that utilized the Internet as a context for reading, writing, and communicating in 3 different classroom contexts. Through student-centered techniques, such as flexible grouping and peer teaching, we designed Internet Reciprocal Teaching to support the development of the new literacies of online reading comprehension among elementary and middle school students. Results suggest that peer collaboration was the primary means of strategy exchange and that students who were previously perceived as struggling readers became active in coaching, leading, and sharing new strategies. In effect, peer collaboration appeared to reconceptualize struggling readers' role in the classroom and set the context for greater engagement in literacy activities and investment in learning.

Struggling readers are found in nearly every public K–12 classroom in the United States; thus, addressing the needs of struggling readers is an important

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educational issue. For decades teachers have looked to literacy experts to provide strategies to help these readers further develop their reading fluency and comprehension skills. Extensive research that addresses the needs of struggling readers in offline reading contexts is found at every grade level, including elementary school (e.g., Dahl, 1979; Dowhower, 1987; Tingstrom, Edwards, & Olmi, 1995), middle school (e.g., Herman, 1985; Mathes & Fuchs, 1993; O'Shea, Sindelar, & O'Shea, 1987; van der Leij, 1981) high school (e.g., Carver & Hoffman, 1981; Heckelman, 1969), and even the college level (e.g., Levy, Barnes, & Martin, 1993; Levy, Newell, Snyder, & Timmins, 1986). Yet year after year teachers are challenged to find appropriate instructional strategies that will help the struggling readers in their classrooms transform into thriving readers (Greenleaf & Hinchman, 2009).

Research suggests that this educational problem is not improving. For instance, reading performance levels as measured by the National Assessment of Educational Progress (NAEP) have remained stagnant since the first administration of the NAEP in 1971. For instance, "The national average grade 4 reading score was 2 points higher in 2005 than in 1992, and 1 point higher than in 2003" (Perie, Grigg, & Donahue, 2006, p. 3). The results in this same report for Grade 8 showed that "the national average reading score was 2 points higher in 2005 than in 1992 but 1 point lower than in 2003" (p. 3). The results of the 2009 NAEP indicated that 33% of the nation's 4th graders and 26% of the nation's 8th and 12th graders read below grade level, with only modest gains at the eighth-grade level in the most recent administrations (National Center for Education Statistics, 2009). Thus, addressing the needs of struggling readers is of national concern.

The study presented herein attempts to address this concern through the exploration of a promising new instructional model, Internet Reciprocal Teaching (IRT; Leu et al., 2008) which combines a successful collaborative learning model for reading instruction known as Reciprocal Teaching (RT; Palincsar & Brown, 1984; see also Brown & Campione, 1996) with Internet-based texts to teach the new literacies required for online reading, writing, and communicating (Leu, Kinzer, Coiro, & Cammack, 2004). The framework for this study was based on the tenets of a new literacies perspective along with empowerment theory and the use of collaborative learning models. This case study was part of two distinct, larger mixed methods studies and focused on the following research question: How does IRT impact students' roles in the classroom?

THEORETICAL FRAMEWORK

Empowerment Theory

Researchers make use of empowerment theory to explore relationships between individuals within specific social, organizational, educational, and political environments (Conger & Kanungo, 1988; Cummins, 2001; Freire, 1972/1986; Perkins & Zimmerman, 1995; Rappaport, 1995; Shor, 1992; Speer,

Jackson, & Peterson, 2001). Empowerment theory focuses on participation and collaboration of individuals within an organizing structure to focus their efforts on an identified outcome or common goal. Empowerment is the “process by which individuals and groups gain power, access to resources and control over their own lives. In doing so, they gain the ability to achieve their highest personal and collective aspirations and goals” (Robbins, Chatterjee, & Canda, 1998, p. 91). Social scientists often draw upon empowerment theory as a means to counteract feelings of powerlessness among particular groups of individuals, including women, certain ethnic populations, and individuals with disabilities (Conger & Kanungo, 1988). In the field of education, empowerment theory is often associated with the classic work by Freire (1972/1986), *Pedagogy of the Oppressed*. In this seminal text, Freire expresses the need to empower disenfranchised individuals by taking control over their own learning and developing a deeper understanding of their own position within a community through active participation and engagement.

Empowerment is both process and outcome based (Swift & Levin, 1987). Processes, such as an individual’s actions and activities of engagement within a particular social context, can result in an outcome of either empowerment or disempowerment. When an individual feels empowered, he or she has a greater sense of intrinsic motivation and self-confidence; alternatively, a feeling of disempowerment can result in decreased levels of motivation and self-confidence. As is often the case with struggling readers, continuous failures during reading activities can result in outcomes of disempowerment, a lack of motivation to read, and decreased self-confidence as a learner (Rosow, 1989; Seifert, 2004).

Empowerment theory also emphasizes the importance of issues related to control. For instance, it draws attention to power structures, such as who has control in a given situation (the teacher or the student) and how an imbalance in control might impact individuals. Conger and Kanungo (1988) discuss the implications of “primary/secondary control... internal/external locus of control... and learned helplessness” (p. 473; see also Abramson, Garber, & Seligman, 1980; Rothbaum, Weisz, & Snyder, 1982; Rotter, 1966). When one is working with struggling readers, it seems that these issues are at the heart of the disempowerment or powerlessness that is often experienced by the individual. In this sense, power often resides in an individual’s motivation to learn, his or her self-determination (Deci, 1975), or his or her self-efficacy (Bandura, 1986) within a particular context. By finding an instructional technique that positively impacts self-determination and self-efficacy, a struggling reader is likely to feel an increased sense of power and ultimately an increased level of motivation to learn. Thus, Conger and Kanungo “propose that empowerment be viewed as a motivational construct” (p. 474). They argue for empowerment as an enabling process. Similar to Bandura’s (1986) notion of developing self-efficacy, empowerment is achieved through an experience in which the

outcome results in an increase to the individual's self-efficacy and motivation. Viewing empowerment as an enabling process has shown important results, as it targets self-determination, self-efficacy, intrinsic motivation, and engagement (Anderson & Sandman, 2009; Spreitzer, 1995) and may help transform struggling readers into striving readers in the classroom.

Another important premise of empowerment theory is the emphasis on an individual's strengths or competencies as opposed to his or her deficits (Perkins & Zimmerman, 1995). In much of the research that seeks to address the needs of struggling readers, too often the reader's deficits are emphasized as teachers look for "fix-up" strategies to help increase reading competency. Kuhn and Stahl (2003) reviewed several such studies that focused on deficits in fluency, sight-word development, automaticity, and prosody by using remediation to address these deficits. Instead, empowerment theory focuses on the identification of an individual's capabilities and seeks to "provide opportunities for participants to develop knowledge and skills, and engage professionals as collaborators" (Perkins & Zimmerman, 1995, p. 570). Some researchers look to empowerment theory to help develop successful collaborative teams as roles and responsibilities among group members are built and maintained within an organizational community (Beckhard, 1969; Nielsen, 1986). Similarly, the research on interventions for struggling readers illustrates the power of collaboration with instructional models that focus on collaborative reading partners as previously described; hence, one could argue that as a struggling reader further develops his or her knowledge about a topic and reading skills through a collaborative interaction, a feeling of empowerment may follow.

A New Literacies Perspective

A new literacies perspective focuses on the new literacy skills and strategies that are required when using information and communication technologies (ICTs), and the Internet specifically, as information resources. It builds upon the premise that individuals need to develop knowledge and skills in the functions of online reading, writing, and communicating, which is informed by theoretical work in new literacies (Coiro, Knobel, Lankshear, & Leu, 2008; Cope & Kalantzis, 2000; Gee, 2003; Kress, 2003; Lankshear & Knobel, 2006; Leu, O'Byrne, Zawilinski, McVerry, & Everett-Cocapardo, 2009; New London Group, 2000; Street, 2003). New literacies theory suggests that the nature of literacy is rapidly changing and transforming as new ICTs continually emerge.

Within this broader context of new literacies theory a more specific theory of online reading comprehension has also emerged (Castek, 2008; Coiro, 2003; Henry, 2007; Leu et al., 2009). This theory frames online literacy as a process of problem-based inquiry with major skill sets clustering in four areas: (a) locating information; (b) critically evaluating information for relevancy, accuracy, and bias; (c) synthesizing information across multiple text

formats; and (d) communicating information to others using multiple modes. Additional online and traditional offline literacy skills are both required, often in complex and interrelated ways. Instruction in these new literacies together with the application of empowerment theory in the classroom may have beneficial implications for the future success of thriving readers.

DEVELOPMENT OF A NEW INSTRUCTIONAL MODEL

Because reading performance in the United States has remained flat for decades, it is important that educators capitalize on instructional models that have shown some success. We present here two such examples: the power of collaboration and the use of technology to motivate reluctant readers. When combined, they provide the foundation for a new instructional model for online literacy development, IRT (Leu et al., 2008).

Collaborative Models That Support Struggling Readers

One example of a successful model for improving the reading ability of struggling readers is the use of assisted reading (Heckelman, 1969). Assisted reading, also known as partner reading (Hoskisson & Krohm, 1974) or paired reading (Topping, 1987; Topping & Whitley, 1990), uses a dyad approach that pairs a struggling reader with a more capable reader. In a similar vein, the use of cross-age reading partners has also shown to be a successful way to increase reading performance among struggling readers (Labbo & Teale, 1990; Sutton, 1991).

One of the most successful collaborative learning models for supporting struggling readers is RT (Palincsar & Brown, 1984). RT is a widely used and extensively researched approach to teaching strategic reading comprehension strategies during which a group reads a shared text (e.g., Brown & Palincsar, 1989; Hacker & Tenent, 2002; Palincsar & Brown, 1984; Rosenshine & Meister, 1994). This instructional model begins with teacher modeling of reading strategies in small collaborative groups. Eventually the teacher relinquishes control and students model reading strategies and lead the discussion of content in a collaborative group setting.

These models all utilize collaborative partnerships to help struggling readers build upon and further develop their reading skills. Active engagement during authentic, collaborative learning tasks has shown to benefit all learners and is at the crux of student motivation (Nastasi & Clements, 1991). Lowyck and Pöysä (2001) explain how social contexts and interpersonal relationships “[influence] student motivation in terms of increased students’ self-efficacy, learning goal orientation, and intrinsic valuing of the learning task” (p. 509). When students work in collaborative groups, they realize the benefits of peer support during the learning process (Lave & Wenger, 1991; Slavin, 1990), most often through the use of group learning

tasks directed at facilitating the academic success of each individual as well as all members of the group (Slavin, 1996).

Motivating Struggling Readers with the Internet

Research also shows that the use of digital texts may benefit struggling readers, as embedded comprehension support tools such as images, videos, and audio clips can help compensate for poor reading skills (Castek, Zawilinski, McVerry, O'Byrne, & Leu, 2009; McKenna, Reinking, Labbo, & Kieffer, 1999). Digital texts may also motivate struggling readers to engage in literacy activities, as there is often a high level of interest among students to use computers in the classroom. Gambrell (2006) asserts that "technology, particularly the use of the Internet, has the potential to enhance literacy engagement and motivation to read" (p. 292). Similarly, some argue that technology-based reading environments increase student motivation and competency (Kamil, Intrator, & Kim, 2000). In fact, Dalton and Strangman (2006) believe that "technology and computer-mediated text have the potential to support struggling readers in two important ways: as a compensatory tool, providing access to text; and as a learning tool, helping students learn how to read with understanding" (p. 75). By tapping into this phenomenon and using technology, and the Internet specifically, we have discovered that students do in fact become more engaged in literacy activities in the classroom (Leu et al., 2008).

Teaching the New Literacies of Online Reading, Writing, and Communicating Using IRT

A promising instructional model, IRT (Leu et al., 2008), draws on collaborative models of instruction and the use of digital texts combined with the proven intervention of RT to teach the new literacies required for online reading, writing, and communicating (Leu et al., 2004). Adaptations were made to RT that can be categorized into three general areas: the texts used, the strategies taught, and the phases of instruction.

USE OF CONSTRUCTED TEXTS

In IRT, as students read on the Internet, they construct their own texts as they search for information and click on links that lead them to different Web pages (Coiro & Dobler, 2007). therefore, the texts used while one is teaching through IRT vary from student to student, whereas in RT the students all read from a common text. In addition, the student-constructed texts in IRT are most often information-based texts. Although teachers using RT can use non-fiction texts, most often they use narrative materials.

ONLINE LITERACY STRATEGIES

Making sense of digital information requires skills and strategies that are complex and in some cases unique to online reading and writing contexts (Afflerbach & Cho, 2009). Online texts and their associated literacy practices are diverse, are multiple, and evolve based on the evolving ways in which learners read, write, view, listen to, compose, and communicate information in the 21st century. A sampling of strategies taught through IRT include, but is not limited to, (a) strategies for reading and interpreting search results pages by attending to URLs and the descriptions under link titles; (b) strategies for making inferences about where different links might take a person and whether clicking on a link might provide relevant information or detract from meeting a specified goal; (c) strategies for critically evaluating information based on evaluating relevancy, accuracy, and reliability; and (d) writing strategies for using a blog, wiki, or other socially networked technology to spark an exchange of ideas. Additional skills and strategies are listed in the IRT Phase I and Phase II checklists (see Leu et al., 2008, pp. 342–346), however this list is not exhaustive of the skills and strategies needed to read, write, and communicate in online spaces, as new contexts are developed continuously.

PHASES OF INSTRUCTION

An emerging model of IRT suggests that there are three phases of instruction that differ in degrees of strategy complexity, level of student responsibility for teaching, and degree of independent inquiry. Phase I is largely teacher directed, and instruction focuses on basic computer and Internet use, such as file saving, browser basics, and features of e-mail interfaces. During Phase II, the teacher and students share responsibility for teaching while students are engaged in problem-solving activities using the Internet. Lessons focus on locating and critically evaluating information, synthesizing information, and communicating on the Internet. Phase III integrates independent inquiry, in which students use the Internet to investigate self-selected questions and share within and beyond the classroom via Internet communication tools. These three phases use variations in scaffolding to support students as they take greater responsibility for their own learning over time as a role reversal ensues in the classroom from teacher-directed to student-centered teaching and learning.

IRT and Struggling Readers

Offline literacy instruction has traditionally largely focused on teachers scaffolding students, especially struggling readers, as they acquire literacy skills (Duke & Pearson, 2002). With the IRT instructional model, however, responsibilities for teaching online strategies quickly shift from a teacher-delivery

method to students scaffolding one another as they complete various online tasks. The implementation of IRT has shown promise for struggling readers as they take greater ownership of their own learning (Castek et al., 2009). Results of this study reveal that “many struggling readers appear to benefit in important ways from online reading experiences and instruction in the new literacies of online reading comprehension” (p. 16). The authors go on to discuss how students who struggle when reading traditional, static print text perform better with the dynamic, multimodal texts found on the Internet. This is due in large part to features of Internet-based texts that may help scaffold the reader more than print-based texts. In addition, the emphasis on collaborative modeling of online literacy strategies, in which students work together to demonstrate skills and strategies they have learned, along with inquiry-based learning in small groups may further support a struggling reader (Leu et al., 2008).

Second Graders Shane and Brittany Illustrate the Main Tenets of Empowerment Through IRT

We first recognized the positive impact of pairing IRT with empowerment theory in a second-grade classroom. The following vignette illustrates the potential of this pairing with two students using technology as a motivator. Shane, a struggling reader, is seated next to Brittany, one of the strongest readers in the classroom. The teacher has set up a literacy center using Kid Pix as a post-reading activity for the popular children’s picture book *The Mitten* by Jan Brett. The students use this software tool to produce an artifact related to the story that requires them to draw an outline of a mitten, summarize the story within the outline, and create a decorative border similar to the way the author illustrates this classic tale. Prior to the exchange between the students, the classroom teacher teaches Shane how to use Kid Pix, thus empowering him as the “expert” in using this new technology tool for writing.

Shane is eager to share his new knowledge in the use of Kid Pix with his classmate Brittany. The teacher balances scaffolding and fading (Lowyck & Pöysä, 2001) to enhance the exchange between these two students. At first, Shane appears reluctant to share his new knowledge and skills in using Kid Pix with his classmate and continually glances toward his teacher for reassurance. He can be seen as eager and willing to help, but in the presence of the teacher he seems to hold back and wait for her direction. As the teacher confirms to Brittany that Shane has the skills to help her, Brittany begins to shift her attention toward Shane’s computer screen. Only until the teacher fades out of the immediate activity does Shane attempt to fully assist Brittany, pointing to his classmate’s computer screen and guiding her with the computer’s mouse. As the teacher relinquishes control and steps away, Shane is empowered to guide his classmate, and Brittany is more easily accepting

of his assistance in the teacher's absence. The teacher in this vignette is masterful in promoting the empowerment of this struggling reader through an intentional learning process (Allington, 2001; Bereiter & Scardamalia, 1989). She begins by providing some direction to Brittany and identifying Shane as the expert in using Kid Pix for this particular post-reading activity. A video clip of this vignette can be viewed at http://newliteracies.uconn.edu/shane_brittany.

Based on this initial observation, we began to see how struggling readers could use new knowledge related to technology skills for reading, writing, and communicating to enhance a feeling of empowerment and transcend their previous identity as struggling readers. Thus, the main tenets of this instructional model include (1) establishing a collaborative, student-centered learning environment in which students work collectively to reach a mutual learning goal; (2) using technology as a motivational tool to increase student engagement; (3) empowering a struggling reader as an expert with a technology-based literacy skill; and (4) providing an authentic, goal-oriented learning task (Leu et al., 2008; see also Brown et al., 1993; Brown & Campione, 1996).

METHODS

This section provides details about the hypothesis-generating case studies (Lijphart, 1971) included in this study. According to Lijphart (1971), the main goal of this type of case study is as follows:

Hypothesis-generating case studies start out with a more or less vague notion of possible hypotheses, and attempt to formulate definite hypotheses to be tested subsequently among a larger number of cases. Their objective is to develop theoretical generalizations in areas where no theory exists yet. (p. 692)

Thus, we drew from what we learned in the initial exchange between second graders Shane and Brittany to make generalizations about what we had witnessed. The cases described and analyzed herein were used to further explore and support our hypothesis that combining empowerment theory with IRT would result in a successful intervention to use with struggling readers. Using George's (1979) model for structured, focused case comparisons, we honed in on the following explanatory variables: development of online literacy skills and strategies, examples of engagement and empowerment that were observed, and relational changes between the students and their peers.

Participants and Contexts

We selected three distinct cases across three different contexts: a fourth/fifth-grade combination classroom and two different seventh-grade language

arts classrooms. Our case selection was intentional in order to select comparable cases that provided some variation across subgroups (Kaarbo & Beasley, 1999).

CASE A: KYLE

Kyle (a pseudonym) was a seventh-grade student in an urban middle school located in an economically challenged district in the northeast region of the United States. Kyle had an Individualized Education Plan (IEP) in place for severe speech and learning disabilities. Because of his speech impediment, other students often tormented him. Low scores on the Connecticut Mastery Test (CMT) documented Kyle's status as an emergent reader and writer. The seventh-grade CMT Degrees of Reading Power and Direct Assessment of Writing showed that Kyle was reading and writing at a first-grade level. The school district assigned an aide to support his academic achievement and to assist when social interactions prevented him from performing academically.

Kyle proved to be an engaging, thoughtful young man who seemed frustrated by the disabilities that impeded his ability to share his ideas, thoughts, and feelings. Despite his speech impediment, Kyle was a very loquacious student. Problems occurred when classmates began to pick on him because of his speech, which often resulted in physical confrontations. These confrontations occurred more regularly throughout the year. The school determined that it could not provide a safe learning atmosphere for Kyle and, with the support of his parents, decided to move him to a self-contained classroom setting.

CASE B: ALEX

This case study was collected as part of a larger study that examined the classroom contexts and conditions that supported students' acquisition of online reading comprehension (see Castek, 2008). The classroom where this study took place was housed in a public Title I elementary school in an urban area of Northern California. The classroom had 28 students (16 boys and 12 girls), 14 of whom were fourth graders and 14 of whom were fifth graders. The class was both ethnically and linguistically diverse; many students were English language learners. Alex (a pseudonym) was a fourth-grade student whose first language was Spanish. Though Alex actively and enthusiastically participated in classroom discussions, he rarely completed assignments. His report card grades indicated that he was not meeting grade-level standards. He scored at the basic level on the California state reading comprehension test (CA Standards ELA) and below proficient on the California state writing test (CA Standards Writing).

Alex was personable, outgoing, and friendly to both classmates and adults. Despite his academic challenges, he participated in class by expressing his unique sense of humor, sharing jokes, and telling stories that made the classroom erupt in laughter. When given the opportunity to work collaboratively, Alex chose his partners carefully. Even though other students shared his native language of Spanish, Alex partnered with Andrew (a pseudonym), an English-only student who was one of the strongest students in reading, writing, content knowledge, and work completion.

CASE C: ANNIE

The student highlighted in this case, Annie (a pseudonym), was a participant in a seventh-grade language arts classroom in an urban middle school located in the northeastern region of the United States. Approximately one third of the students in this group were English language learners, and another third had special education profiles. Annie, one such student, had an IEP in place for a documented literacy disability. Her state reading and writing assessments were the basis of this classification. Annie scored at Below Basic (193) in reading and at Basic (194) in writing.

Annie was a quiet student, rarely volunteering to answer questions or share insights for a whole-class audience. Her classroom teacher described her as “very self-conscious about her emo appearance and . . . reluctant to socialize much.” *Emo* is a term used to describe hardcore, punk rock music and the subculture associated with it (see <http://en.wiktionary.org/wiki/Emo>). Annie donned punk clothing, streaked blue or pink hair, and Hot Topic t-shirts that were complemented by her black glitter nail polish. She seemed to have few friends within the classroom and rarely socialized during class time. Annie’s teacher shared that attendance was a continual problem that compounded Annie’s academic difficulties in school.

Annie was adept at many computer and Internet searching skills. The desktop background on her classroom laptop was covered with photos she found on the Internet of a singer for the band Fall Out Boy. She located many photos/images of her favorite band with speed and efficiency. Annie said she learned most of her Internet skills from her older brother. She was most proficient at communicating on the Internet through instant messenger (IM), which is a text-based program that allows students to type, send, and receive messages almost instantly.

Description of IRT Instruction

IRT was used in all three cases and was implemented in a similar manner across all three instructional contexts. As IRT instruction moved from Phase I (teacher-led instruction) to Phase II (collaborative modeling) and Phase III (inquiry of the IRT model), the instructors were expected to keep “teacher

talk-time” to a minimum and allow students to work within their collaborative groups. Students self-selected their work groups with the instructors regrouping students if a situation warranted it.

Drawing from a new literacies of online reading comprehension perspective (Leu et al., 2004, 2009) instruction was focused on the strategies that were essential to online reading, including formulating questions, searching for information, critically evaluating information, synthesizing ideas across resources, and communicating ideas in a variety of different formats. Additional strategies were introduced as students needed them, to make sense of the content they were reading and to guide the products they created. A few of these strategies included reflecting on the adequacy of resources for a particular purpose, skimming and scanning to extract important information, organizing ideas gleaned from resources examined, verifying information found at one site with another resource, and using techniques for participating in content-focused online discussions.

Within the IRT model, students were regularly recognized as “experts” who could support others in completing a given task or enacting a certain strategy. For example, if a student knew how to copy and paste a piece of text, he or she would show other students in the class how to do this. In future situations, the instructor would call upon this student expert to help other students use the strategy to fulfill a specific instructional goal.

Although this description of the instructional model applies to all three cases, variations to the intervention were used at each research site to account for variations in the classroom contexts as described here.

CASE A: KYLE

In Kyle’s case, the IRT instruction took place in the English/language arts class twice a week for 90 min. Two researchers along with the classroom teacher followed the IRT model (Leu et al., 2008) and worked to embed the seventh-grade English curriculum in a one-to-one laptop environment. IRT instruction lasted for approximately 20 weeks in total.

Because of the difficulty Kyle had working with others, his group was composed of three other boys and was kept intact throughout the duration of the instruction. The researchers embedded various tools to scaffold all learners in the IRT process and Kyle specifically. One of the basic tools was a paper-based graphic organizer that students and groups were encouraged to use to document their learning while working online. For most assignments, Kyle had to record information he located while searching on the Internet, including the number of results obtained, the addresses of Web pages, and brief abstracts about the information located on those Web pages. The instructional model also used a number of graphic organizers using word-processing files, e-mail, and blogging interfaces. These required students to take notes using Microsoft Word and then e-mail their

responses or post to a blog. All of these resources were embedded into the IRT model to scaffold the learners. In Kyle's case, these scaffolds further helped him to keep track of what he had accomplished. This allowed the instructor to quickly gauge which parts of the assignment were finished and let Kyle know what still needed to be completed.

CASE B: ALEX

Instruction in online reading comprehension occurred across three instructional units. Instruction across the first two units provided the conditions for students to acquire a wide range of online reading strategies. The final unit utilized an inquiry approach during which students independently used their developing online reading skills to conduct research online and create a product that showcased what they had learned. The inquiry project examined the history, geography, and environmental concerns within a U.S. National Park that was self-selected. Ultimately, students shared the products of their inquiry using a layout they customized. Throughout all three units, the Internet was used as a primary resource for information.

During the two units leading up to the final inquiry unit, students completed curriculum-based information challenges posed by their teacher. Curriculum-based information challenges were 20-min, teacher-designed activities in which students responded to a question or problem. These information problems were designed so that students would use targeted online reading strategies that they enacted collaboratively. As students partnered to address these challenges, they developed an emerging set of online skills and strategies that they used with increasing sophistication over time. Because students were given a limited amount of time to complete each challenge, they needed to work cooperatively and efficiently. When the work period expired, students shared the processes used to arrive at their solutions. Gradually, students took control of the sharing sessions and demonstrated their ideas in small groups. Completing these challenges created opportunities for students to collaborate with others who possessed varying levels of skills and experience in using the Internet. This classroom routine involved high levels of challenge, students taking on greater authority for their own learning, and strategic peer collaboration to achieve a common goal.

CASE C: ANNIE

Instruction included the embedded use of a class set of laptops twice weekly for approximately 90 min. A university graduate student served in the capacity of coteacher with the English/language arts teacher. Annie participated in IRT for 20 weeks, practicing effective strategies and teaching others (including the teachers) strategies for online reading comprehension.

Although online reading comprehension skills like locating, critically evaluating, synthesizing, and communicating were the main focus, instruction also included opportunities to build background knowledge about authors, settings, or important themes at the center of the novels as well as to study current events. All students in the class had a version of IM available to support their group work and strategy sharing. Although all students were connected to the Internet, the IM program connected each of them within the classroom's wireless network. Only those students on laptops within the classroom were able to communicate with one another via IM, which provided them with a platform to share hyperlinked Web resources and coordinate project goals.

As mentioned earlier, an important structure within IRT is treating students as experts in the use of a variety of skills and strategies. An important tenet of IRT is that responsibility for teaching is shared between teachers and students. During IRT within Annie's classroom, students who used a strategy correctly or demonstrated a new, effective strategy would be asked to interrupt the class, demonstrate the strategy through a mini-lesson, and then add their name to an ongoing list of experts, thus enabling others to know who could provide support for specific strategies. The regular use of the experts listed in the classroom explicitly demonstrated that all of the students were also teachers, which in turn emphasized the reciprocity inherent to this instructional model.

Data Sources

CASE A: KYLE

Data related to Kyle included informal classroom observations documented by researcher field notes, transcripts of video- and audio-recorded group interactions, and evidence generated during IRT tasks (e.g., paper-based documents, electronic documents, blog posts, other electronic communications, teacher–student engagements).

CASE B: ALEX

Alex's development of new literacies was tracked over time using a series of screen captures and audio recordings of his interactions with online texts (see Castek, 2008). In addition to analyzing Alex's performance at these points in time, we collected three 10- to 15-min individual interviews over the course of the study. Alex also participated in two 30-min focus group interviews made up of all beginning–intermediate-level English language learners in his class. Alex's comments and reflections shared during individual and focus group interviews were transcribed and analyzed to examine his

skill development and self-efficacy. A strong theme that emerged from these data was Alex's growing empowerment as an online reader.

CASE C: ANNIE

Data included the following: transcripts of messages exchanged via IM, video clips of group work, screen capture video and audio data gathered during IRT tasks completed in the latter part of the 20 weeks of instruction, and classroom observational data. Informal classroom observations of focal students, labeled by the school district as *learning disabled*, focused on the documentation of small-group interactions and strategy sharing.

Data Analysis

Using George's method of structured, focused comparison (George, 1979, as cited in Kaarbo & Beasley, 1999), we analyzed data for the purpose of answering our central research question: How does IRT impact a student's role in the classroom? This focused comparison centered on our identified research question allowed us to minimize the number of variables that would contribute to our analyses (Lijphart, 1975). Next we focused our analyses on specific explanatory variables (King, Keohane, & Verba, 1994), including empowerment, engagement, and the development of new literacy skills and strategies during the use of the IRT instructional model. The final stage of the analyses sought to identify patterns or themes within and across the three cases (George & McKeown, 1985).

FINDINGS/RESULTS

Case A: Kyle

The most pronounced example of empowerment and engagement as it relates to the case of Kyle is his mere presence and immersion in a general education classroom with his peers during the instructional intervention. Recall that he had been removed from the general education classroom and placed in a self-contained setting for his own safety. Video capture of group work, screen captures of his personal computer screen, and interviews support his ability to interact but also collaborate with peers using ICT tools. IRT afforded Kyle, when working with peers, the opportunity to express his ideas to others, collaboratively complete tasks, and act as a valued member of the classroom community.

While working with peers in a group using one-to-one laptops, Kyle was able to use the computer screen as a visual to express his findings. Because of his verbal impediment, his voice frequently became the source of ridicule as other students ignored what he was trying to share or question.

Kyle was able to assist members of his group in finishing Internet inquiry projects. Video of Kyle working with members of his group searching for information about zoos and whether they were examples of cruelty to animals documents these collaborative exchanges. In the video, Kyle calls out to a member of the group to share a website that he found that would help answer the problem. After multiple attempts to get someone's attention, Kyle slides his computer over to his partner Jake (a pseudonym) to show the website he found.

Kyle: Jake, I found something, it says against zoos by Dale Jamison.

Jake: Oh, that's good. What did you use to find this?

Kyle: Ask.com.

Jake: What did you type?

Kyle: Umm . . . people against zoos.

Here we can see that Kyle shares his success in locating specific information for the task at hand. Jake then goes on to work with Kyle on Kyle's laptop to further investigate additional search results. The two students discuss the search results obtained from the keywords and possible ways to use these. Jake then goes back to the graphic organizer the group is using to collect ideas and writes down Kyle's findings. At the completion of this synthesis, Jake shares with the other two members of the group Kyle's findings and suggests that they also use this tactic to locate relevant information.

Kyle also showed some success working collaboratively with members of the classroom to complete additional tasks. As documented by his IEP, Kyle would often fail to follow through and complete assignments for a variety of reasons. Working within the IRT model, Kyle had two elements of scaffolding built in to help him succeed. The first of these layers was the Internet and the specific affordances of the laptop as a tool. While reading online, Kyle was frequently exposed to information that he had difficulty comprehending. Because of the multimodal nature of online texts, Kyle was able to use graphic elements (e.g., charts, images, videos) to assist in comprehension. Kyle was also able to use hypertext links to investigate any deficiency in prior knowledge that may have affected his reading comprehension. These skills were taught to Kyle by a member of his group who noticed that Kyle was getting frustrated while searching and sifting through the vast amount of information online. This sharing of expertise and skills is the final way in which Kyle was scaffolded while working collaboratively in the IRT model. Members of Kyle's group supported him when he would get off track but also provided instant, positive feedback when he had answered a question correctly.

Working in groups in a one-to-one laptop classroom provided opportunities for Kyle to not only succeed but also survive in a traditional classroom. Because the school district believed the only way to provide a safe

environment for him was to keep him by himself, Kyle was being deprived of what mattered most to him: the opportunity to socialize with peers and adults. Placement in an instructional model like the one described here gave Kyle the opportunity to practice social interactions on a basic level. Video of Kyle working with his group also shows an interaction in which Kyle asks the instructor for assistance. The instructor reminds Kyle to seek out his group members as a valuable resource and to refrain from always turning to the instructor for support.

Instructor: What's wrong?

Kyle: I can't find these websites . . . watch.

Instructor: Okay, should you be using me for help and support, or your partners? Who is more knowledgeable? Who do you trust more; do you trust your partners or me?

Kyle: I trust both of you.

Instructor: I appreciate that, but who are you set up to work with today?

Kyle: My partners.

Instructor: Use your partners. You've got three awesome . . . every single one of these people in your group is very good at working online . . . and so are you.

The empowerment of feeling like a valued member of a group provided Kyle with the needed support to continue working on tasks in the classroom environment.

Case B: Alex

Though Alex was not a strong reader online when the IRT instruction began, his online reading ability increased, as did his range of strategies, his overall persistence, and his confidence in his academic abilities. In large part because of Alex's frequent and enthusiastic participation in peer-led collaborative strategy exchanges, his proficiency level continually grew. Alex emerged as an instructional leader skilled with online reading, writing, and communication tasks. High levels of challenge and extended opportunities to collaborate with his classroom peers to complete challenging tasks provided the context through which Alex acquired strategies for online reading he may not have otherwise come to utilize skillfully.

As was the case with several of the other students in this class, Alex appeared to learn online reading comprehension skills best from his classroom peers within the context of challenging activities designed by the teacher. When Alex was asked about collaborating to learn new things, he explained, "Me and my friends, we know the same amount of things but different things. You show them, then they can try it, or they tell you, or you do it together." This response indicates that the collaborative context encouraged reflection and supported empowerment.

Analyses of Alex's online reading seem to suggest that the direct, explicit instruction by teachers, typically provided to struggling readers, may not be the optimal approach for online reading comprehension. Alex, for example, appeared to learn online reading comprehension when given a challenging problem and provided with multiple and extended opportunities for collaborative exchanges. This suggests that online reading instruction requires a greater reliance on collaborative learning settings in which students explain strategies, model, and teach one another. When asked about working with a partner to complete information challenges, Alex shared,

You challenge yourself to do something, and you're like, "I can find a way to do this." Challenge makes you want to do it better. Having it challenging is fun. If it's too easy it's not fun, if it's too hard it's boring, but if you can figure it out you feel like, like an expert.

The tasks Alex was given to complete were challenging and required sustained effort. They required that he and his classmates stretch their thinking and continually move beyond their current level of online reading competency. Through the act of completing challenging work in collaboration with his peers, Alex began to identify as a skilled, competent online reader. When asked about his overall attitude toward learning, Alex stated,

I love doing the information challenge 'cuz instead of just learning it once by ourselves, we can learn it twice. We get help and we give our partner help and instead of just giving up, we keep trying. We try it and do it together.

This quote suggests that the social aspect of learning that accompanied online reading comprehension instruction was a motivating factor for Alex and may have encouraged commitment, engagement, and participation in all learning activities. This case study suggests that providing students with the tools to teach one another more effectively, and the opportunity to work collaboratively as they read online, may lead to increased academic self-confidence.

Case C: Annie

The most prominent and frequent examples of empowerment and engagement are found within Annie's IM use. Video of group exchanges and screen capture data suggest both competence with and reliance on IM for social and academic purposes. Annie exchanged IMs using IM-speak (shortcuts for words) and emoticons (typed symbols used to express emotions or thinking, like \,/>_< \, / meaning "rock on"). During IRT, Annie used IM for three

main purposes: to organize group work, to share information and links, and to socialize.

While working in a group to solve an information problem on the Internet, Annie frequently shared links and snippets of information with her group members. She copied and pasted links and text that proved helpful directly into IM and then sent these to her partners and any other students in need of assistance. In one example of her IM use, the class was reading *Miracle's Boys* by Jacqueline Woodson as part of their regular language arts curriculum. On the IRT days, students used the Internet to bolster their background knowledge about the author, Jacqueline Woodson. Annie shared a number of IMs with a classmate, providing links and information about Woodson's birthplace, previous occupations, and family details. The following IM exchange provides an illustration of her offer of information to others: "annie (08:32:02): Jacqueline Woodson currently resides in Brooklyn, New York."

When three or more students were part of Annie's group, a number of IM exchanges demonstrated her use of IM to organize group work by checking in with others on their progress and providing direction when they were stuck or asked her for help. Annie delegated responsibilities and sought to include all voices within group decisions. This leadership role began to spill over into face-to-face group work as well. In the following oral exchange, Annie tries to include all voices in the decision-making process.

Annie: Beth, what do you think?

Kendra: [inaudible]

Annie: Let Beth choose too. It's not only up to you, mister.

Annie: So, Pedro, what do you think?

During IRT instruction, Annie was more engaged in learning and school. She completed assignments, led group projects, and was an asset to other classmates seeking her help whenever they became stuck. These contributions contrasted her group participation when working outside of IRT. When IRT was being implemented, Annie was seen as a leader whenever group projects were involved. Her classmates often turned to her when they needed direction on the Internet or with accomplishing group assignments. Although Annie was reluctant to share with the whole group, her name often appeared on the "Experts List" on the board, and classmates would turn to her for help with tasks and technology issues. These concrete examples demonstrate a shift in Annie's role from quiet observer with little to share during non-IRT days to that of leader and teacher during IRT instruction. Focusing on her strategy use and strengths provided Annie the opportunity to feel empowered to organize her group, share information, and teach others in the classroom. Annie was observed by her teacher as being more engaged in school during IRT.

In addition, Annie's school attendance changed, and she rarely missed school on IRT days. This was yet another contrast to non-IRT days. Her

teacher reported that frequent absences adversely affected her grades. Unfortunately, IRT assignments and sessions were only a small part of her English/language arts curriculum, and thus they did not have a positive impact on her academic success. Although her role within the classroom shifted during IRT, her academic performance outside of it declined. Her report card grades spiraled downward over the year. She began the year with a B+, but each subsequent quarter was lower (B, C, and finally a D+). The classroom teacher suggested, though, that IRT offered Annie opportunities she would not otherwise have had. The teacher stated, "The computers, in my opinion, offered an area to excel and she communicated a lot in iChat. She was able to do think-alouds and discuss the work she was doing on the computer." Although Annie did not show improvement academically, she was able to excel in other important areas. Annie, the quietest and least proficient in off-line literacy, was placed by her classmates in a role of leadership over the more vocal and proficient students because of the skills and strategies she demonstrated while reading and communicating online.

DISCUSSION

In this discussion, we present three themes that arose out of the data analyses during the case comparisons. The presentation of each theme includes reference to specific examples related to each of the three cases that document each identified theme.

Development of Online Literacy Skills and Increased Academic Achievement

Previous research focused on the use of IRT as an instructional model has shown that struggling readers in traditional print-based literacy contexts may in fact be more successful in online literacy engagements (Castek et al., 2009; Leu et al., 2008). The three struggling readers in our cases had been identified as reading below grade level on assessments of traditional reading skills. However, there was a stark contrast to this performance when these students engaged in online contexts for reading, writing, and communicating.

In the case of Kyle, the presence of the Internet and other communication technologies in the classroom acted as an equalizer in the classroom, providing Kyle with an opportunity to not only attend but also contribute with peers. Kyle scored at basic levels on the state standardized reading and writing tests (i.e., the CMT). Although he showed modest improvement on the state writing test by improving his total scale score by 10 points on the posttest, Kyle's online reading assessment showed the greatest growth, which advanced him to a total posttest score of 8 up from a pretest score of 5. Kyle's achievement on work done during IRT instruction was supported by the fact that the Internet in many

ways acted as an advocate for the child. ICTs provided Kyle with opportunities to learn collaboratively while directly impacting the motivation and social cohesion of all students in the group and larger classroom setting.

Although Alex scored at basic levels on standardized reading comprehension tests (CA Standards ELA) and below proficient in writing (CA Standards Writing), his gain score on a measure of online reading comprehension (ORCA-Elementary) was higher than the class average. From pre- to posttest, his total score increased by 13 points, whereas the class average was 10 points. In addition, Alex scored 4 points above the class mean on his Internet inquiry project.

Annie did not experience gains in academic achievement; however, another important result was Annie's increased level of attendance during the IRT instruction. This increased attendance rate provided a chance for Annie to become valued for her expertise on the Internet and with communication technologies to complete academic assignments.

Increased Levels of Engagement and Motivation to Learn in Collaborative Groupings

The students depicted in this study began with a lack of self-efficacy and low levels of engagement and motivation to learn. These are typical characteristics related to struggling readers (Allington, 2001). Research has shown that the use of collaborative learning groups with peers can increase student motivation and engagement to learn (Nastasi & Clements, 1991; Slavin, 1990). This was the case with our three struggling readers, Kyle, Alex, and Annie. The implementation of IRT in the classroom along with the use of empowerment theory had a positive impact for these students. As the focus turned to the strengths of these students, and as they were empowered as classroom experts with online literacy strategies, their affect and attitude toward learning began to change for the better.

With Annie, this was documented through a decrease in school absences and increased contribution and leadership in the classroom. Kyle was seen as more engaged with learning activities, as his attention span seemed to lengthen and his off-task behavior decreased with the right scaffolds in place to support him during collaborative work. Through the use of the Internet coupled with peer collaboration, Alex appeared more engaged in classroom instruction and more confident with his emerging online reading skills. As a result, his work when the Internet was used showed an increase in production and quality in his classroom work.

Role Reversals and Shifting Peer Relationships

One common element of traditional models of RT that enhance the learning process for students is opportunities for students to share both strategies

and information with one another (Brown & Palincsar, 1989; Palincsar & Brown, 1984). A key focus of successful RT models includes empowering students to lead strategy-based discussions. The teacher begins by modeling comprehension strategies, then gradually relinquishes instructional control to the students as they model comprehension strategies in collaborative groups. Students taking on the role of teacher was also seen as a powerful way to empower struggling readers across IRT classrooms. To best support student strategy exchange and a gradual release of responsibility for teaching from the teacher to students, the classroom teacher and researchers highlighted student experts as part of the IRT instruction. Students who demonstrated proficiency with related online literacy skills or skills specific to using laptop computers were featured on an Experts List in the IRT classroom. These experts were utilized to teach their classmates how to use a strategy that would increase their efficiency or accuracy when reading, writing, or communicating online.

Kyle, Alex, and Annie all took on the role of expert, teaching their classmates important online literacy strategies. This role reversal, in which a struggling reader becomes an expert with a particular skill, played out in all three of our cases. All three students were showcased as experts and developed increased levels of self-confidence and self-efficacy as a result of increased engagement in learning due to the collaborative learning environment inherent to the IRT model.

Another benefit of the role reversal from teacher to student was a shift in peer relationships within the learning context. Rappaport (1995) asserts that in order to fully understand empowerment it is critical to “attend to the *role relationships* between people, programs, policies, and professionals, and across levels of analysis including individuals, organizations, and communities” (p. 800). As witnessed in the opening vignette with our second graders, Shane and Brittany, the relationships between these two students and their teacher certainly appear to change and shift. Brittany, an advanced reader in her classroom community, can be observed at the start to turn to her teacher for guidance and assistance. But once she learns that Shane possesses the skills she requires to be successful with the task at hand, Brittany eventually relinquishes her reliance on the teacher, or “professional” in this community, and relies more heavily on Shane for assistance. Similar to the IRT models, the teacher slowly fades away from this exchange, which results in a shift in the relationship between the two students.

Similarly, dramatic changes were documented in our cases in regard to peer relationships. Kyle, who suffered relentless teasing because of his speech impediment that resulted in the school placing him in a self-contained learning environment, was able to successfully work in a collaborative group with three of his classmates in the general education classroom. Although he still needed continual support from the instructor to ensure he maintained attention on the task at hand, the level of social exchanges with his peers shifted from constant torment to working together toward a common goal. For Annie,

engagement in the IRT classroom also had positive changes on her peer relationships. Before the IRT intervention, Annie was seen as an off-color, introverted, and often despondent member of the class. Once she was empowered as the expert of a myriad of online literacy strategies, her status in the classroom was elevated as she became eager to assist her classmates by sharing her knowledge and expertise. A similar pattern was found in Alex's classroom participation. Not only did his teacher recognize a shift, but also Alex himself indicated a greater commitment to learning. He stated, "I want to learn new things so that I can show them to the class and say, see I learned this and now I want everybody else to do it too." IRT instruction in effect transformed Alex from a disengaged struggling reader to an empowered instructional leader.

Struggling readers are often characterized as nonparticipatory members of the learning environment; therefore, it is critically important for teachers to find a way to motivate these students to engage in literacy-based activities. We have seen success in combining empowerment theory with IRT in several different classroom contexts. Using peer collaboration as one method of strategy exchange showed positive results. When struggling readers were empowered as experts in the classroom, they became more active members of the learning environment who led their classmates' learning by sharing their newly developed online literacy strategies. These struggling readers became more engaged and invested in learning during literacy activities. Although these results are based on a few case studies, the opportunity to change the long-term forecast for struggling readers cannot be denied.

CLASSROOM IMPLEMENTATION

We conclude this article with recommendations for getting IRT started in classrooms. In developing, testing, and refining this instructional model, Leu et al. (2008, pp. 342–346) outlined a comprehensive set of skill and strategy checklists that can be used as a roadmap for instruction. The skills and strategies listed in Phase I inform and guide instruction, but they are not intended to limit instruction. New skill and strategy needs will emerge within each classroom, and each teacher must be responsive to what students bring and what they have learned to determine what future instruction should look like. Noting the strengths and responding to the unique needs students exhibit will maximally promote student growth during the year. Both the Phase I and Phase II checklists can serve as benchmarks for pacing instruction and will effectively guide educators on what to look for when tracking for specific learning outcomes.

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