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Teaching and Learning in Reading

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Our goal in writing this chapter for the second edition of the *Handbook of Educational Psychology* has been to document, interpret, and critique the research on teaching and learning in reading published between January 1996 and February 2004 in refereed journals. Prior to beginning our search for suitable articles, we agreed on a set of common search procedures (keywords, data bases) and developed criteria that would provide guidance when we had to make decisions about which articles to include or exclude. Those criteria can be found in Table 1. Briefly, they allude to our intention to limit our review to research reported in peer-refereed journal articles (not books, chapters, lit reviews, or tech reports) on reading instruction that took place in “regular” classrooms spanning kindergarten through college. The “regular classroom” stipulation was on the setting and not the participants. For instance, if a study reported on students with learning disabilities taught in a mainstream classroom, the study was included; but if a study reported on students with learning disabilities taught in a resource room or pullout program, the study was not included. Further, because we sought to differentiate our chapter from one being developed on a similar topic and co-authored by Michael Pressley and Karen Harris (see this volume), we defined reading instruction as that which focuses on teacher action or teacher-student interaction during a classroom-administered literacy intervention.

Another stipulation was that such instruction had to be provided by actual classroom teachers rather than researchers. Finally, the intervention could not consist of “scripted” commercial programs or computer-assisted interventions in which teachers played secondary or non-essential roles. A major reason for focusing on teacher action or teacher-student interaction within regular classrooms where instruction consisted of more than “scripted” programs was our desire to steer clear of evaluation studies that tend to be directed more toward market research than theory development. In electing to report on studies having interventions that were

teacher administered rather than researcher administered, we attempted to avoid problems associated with classroom validity and low-transfer effects.

The chapter is divided into six major sections. In the first section, 28 reading instructional studies conducted in kindergarten through fifth grade met our criteria for inclusion. In the second section, 13 reading instructional studies conducted in sixth through twelfth grade (the middle and high school level) met our inclusion criteria. In the third section, 10 reading instructional studies at the college level met our inclusion criteria. In the fourth section, we provide separate critiques and recommendations for research and theory development at each of the three grade level categories. Implications for classroom practice follow in the fifth section, again by grade levels. The final section pulls together the grade-level categorical information by looking at cross-grade trends and issues.

In the first three sections, divided by grade level, we use the following organizational structure: first, we state the number of studies in a particular category along with a brief description of the researchers' purpose; second, we summarize the theoretical bases for the studies; third, we synthesize across studies to the extent we were able to do so; and fourth, we provide a brief annotation for each study, relating selected features of study design, nature of assessments used in the study—whether they were teacher/researcher-made or published, the extent to which reliabilities were reported, and if reported, the type of reliability estimate given—such as “interrater” or “split-half”, the range of reliability estimates; and a brief statement of the main finding(s).

Kindergarten through Grade Five Studies

One-hundred-and-seven kindergarten through fifth-grade research reports on reading-instruction research were retrieved. Twenty-eight reports met our inclusion criteria. The issues addressed in the 28 reports coalesced into five broad categories, with 4 studies addressing characteristics of exemplary early reading instruction, 8 having a focus on word- or sound-level instruction, 8 having a comprehension, fluency, or affective instructional focus, 7 examining overarching reading instruction in relation to student reading, and 1 addressing how reading instruction is the same or different for children with learning disabilities.

Characteristics of Exemplary Early Reading Instruction

Four sets of researchers examined characteristics of first- through fifth-grade teachers' reading instruction in an effort to delineate most effective instructional practices for student reading achievement (Pressley et al., 2001; Taylor et al., 2000; Taylor, et al., 2003; Wharton-McDonald et al., 1998). All four designs were observational and were supplemented with other data sources, such as teacher interviews.

As for theoretical bases for the studies, Taylor and colleagues (Taylor et al., 2003) suggested a set of teacher behavior variables that might theoretically be related to different student literacy outcomes. However, rather than providing explicit theory about such teacher and student characteristics, investigators in the remaining studies in this group tended to ground their work rationales in findings from effective teaching or effective schooling research.

Summarizing a single set of "most effective practices" from these four studies is difficult, in large part because only Taylor and colleagues used the same or similar observational systems across two studies. That is, in these four studies, there were three different means of coding or creating categories for what was observed. Since decisions about coding or categorization set boundaries upon findings, subtle and not-so-subtle differences in these analytical decisions affected how findings were stated. However, collectively the findings from the four studies suggest that classroom teachers considered "effective" in their reading instruction practices teach using a wide array of practices, perhaps most notably: teaching in a "balanced" way so that students may develop a wide array of reading subprocesses, dispositions, and attitudes toward reading; teaching a wide range of ways of "getting" words; encouraging self-regulation; integrating reading and writing, doing high density instruction; doing small-group instruction, enabling independent reading, having strong home connections, coaching, and using higher-level questions.

Fifteen "most-effective-for-locale" first-grade teachers versus 15 "least-effective-for-locale" teachers were each observed between 15 and 30 hours, and they were also interviewed (Pressley et al., 2001). The investigators labeled the study "qualitative," and provided detailed description of the analytical procedures, citing "methodological triangulation" and construction of "grounded theory." No student assessments were given. The "most-effective-for-locale" teachers were distinguished by: exhibiting excellent classroom management; creating a positive, reinforcing, cooperative environment; balancing skills instruction with "whole

language;” at the word level, teaching students to attend to a variety of cues, such as letter/sound cues, pictures and semantic content, and syntax; matching accelerating demands to student competence, with a lot of scaffolding; encouraging self-regulation; making strong connections across the curriculum; and emphasizing process writing.

Nine first-grade teachers nominated by language arts coordinators as either “outstanding” or “typical” were observed approximately twice a month during Language Arts lessons for seven months, and they were also interviewed (Wharton-McDonald, et al., 1998). No student assessments were given. Constant-comparison analysis was used. Characteristics of the three teachers whose students demonstrated the highest levels of achievement were that they exhibited: coherent and thorough integration of skills with high-quality reading and writing experiences; high density of instruction (integration of multiple goals in a single lesson); extensive use of scaffolding; encouragement of student self-regulation; thorough integration of reading and writing activities; high expectations for all students; masterful classroom management; and awareness of their practices and the goals underlying them.

Seventy first- through third-grade teachers in 14 schools across the United States were rated on degree of accomplishment and were observed teaching reading, each for an hour five times across five months (Taylor et al., 2000). Teachers also completed a written survey and a weekly log of reading/language arts activities for two non-consecutive weeks in the spring. In addition, principals completed a questionnaire, and there were several student reading assessments, some of which were research-constructed. Reliabilities (ranging from 80% to 100% interrater agreement) were given for some, but not all, of the child-, classroom-, and school-level variables that were created. Teachers determined to be “more accomplished” were distinguished by spending more time in small-group reading instruction, allowing more independent reading, establishing high levels of on-task student behavior, having strong home communication, supplementing explicit phonics instruction with coaching for strategic thinking during reading of connected text, using higher-level questions, and requiring considerable writing in response to reading.

Taylor and colleagues (Taylor et al., 2003) examined the effect of 88 first- through fifth-grade teachers’ instruction on 792 students’ reading and writing growth. The teachers, who were in nine high-poverty schools

across the United States, were interviewed and observed three times across the school year during reading lessons. Children were assessed in the fall and spring on several standardized and research-made literacy measures. Interrater reliabilities were provided for variables created from coded observations and for a child writing assessment (all were at least 80% agreement). Key findings were: higher-level questioning was positively related to student growth on many literacy outcomes; explicit phonics skills instruction in grades two through five was associated with lower reading achievement growth; routine practice-oriented comprehension instruction was associated with slower growth in comprehension; passive student responding was negatively related, and high engagement was positively related, to comprehension growth; coaching and involving students in active reading enhanced fluency growth; and teacher telling was negatively related to writing growth, while modeling was positively related to writing growth.

Word- or Sound-Level Instruction

Eight studies focused on word- or sound-level instruction. Five were quasi-experimental/experimental, and three sets of researchers classified teachers' behaviors in order to examine those behaviors in relation to children's reading behaviors. As for theoretical grounding of the investigations in this section, two studies stood out as offering explicit discussion of theoretical bases, both psycholinguistic in outlook—Juel and Minden-Cupp (2000) and Jiménez and Guzmán (2003). Each suggested possible linkages between key teacher behaviors and child psycholinguistic processes. Juel and Minden-Cupp hypothesized about particular child reading processes that might be promoted by phonics instruction, and Jiménez and Guzmán theorized about how words would be recognized in a transparent orthography (Spanish) and what instruction would best influence those psycholinguistic processes. The remaining researchers tended to build rationales for their investigations based upon prior research, though in some cases, theoretical relationships among key variables of interest were inferable. For instance, one might infer an implicit theory in the reports by Mathes and colleagues (Mathes & Babyak, 2001; Mathes et al., 2001)—phonological processing is a necessary antecedent to comprehension processing, “explicit” instruction can “implant” phonological processing in children's minds, and that once that is accomplished, word recognition will be enhanced.

Phonological awareness and phonics instruction. Five studies investigating effects of phonological awareness and phonics instruction in kindergarten and first grade revealed that overall, that there was a strong tendency for such instruction to be associated with enhanced phonological awareness and word-level reading and spelling abilities, as well as, in at least one case, comprehension. In two studies, children with lower literacy levels at first-grade entry received particular benefit from early and heavy exposure to phonics, but in one of the two studies, once they could read independently, other types of instruction were beneficial.

One-hundred-twenty-eight kindergarten children participated in an 11-week phoneme–awareness program followed by a first-grade reading program (extended to second grade for a subsample of children) that emphasized explicit, systematic instruction in the alphabetic code (Blachman, et al., 1999). Several child assessments were given, both published and experimenter-designed. Reliabilities were reported for all except one, and they ranged from .91 to .99. There were 41 15- to 20-minute lessons conducted in small heterogeneous groups of four or five children. The format for the lessons was: a phoneme-segmentation activity in which children moved disks to represent the sounds in one- to three-phoneme-words spoken by the teacher; a segmentation activity, such as grouping words on the basis of shared sounds; and one of a variety of activities to teach letter names and sounds of eight letters. The experimental children outperformed control group children on measures of phonological awareness, letter name and letter sound knowledge, three measures of word recognition, and two measures of spelling. On average, the subset of children who had extended experimental instruction in second grade outperformed control group children at the end of second grade on four measures of word recognition.

Juel and Minden-Cupp (2000) observed four first-grade teachers and 72 students and then classified teachers' reading-instruction behaviors and examined their relationships to repeated child literacy outcomes. Some assessments were published, and some were experimenter-designed. Either interrater or statistical reliabilities were reported for coding observations and all but two outcomes, and the range was .78 to .98. Children with lower literacy levels at first-grade entry benefited from early and heavy exposure to phonics, but once they could read independently, they profited from other types of instruction.

Two sets of researchers examined first-grade Peer-Assisted Literacy Strategies instruction focusing on phonological elements and reading of connected text (Mathes & Babyak, 2001; Mathes et al., 2001). There were 28 and 36 teachers, respectively, and 130 and 183 students, respectively. A wide array of assessments was given, nearly of all of which were published, with the few remaining assessments experimenter-designed. Authors either provided reliabilities (that ranged from .68 to .98) or gave citations for “strong psychometric properties.” Peer-Assisted Literacy Strategies instruction was done in 30-minute sessions, three times a week, for 14 weeks. Across the two studies, in relation to comparison groups, Peer-Assisted Literacy Strategies instruction enhanced students’ reading performance, but not equally for all learners, with a tendency for lower-achieving students to benefit more. Significant effects for lower- and average-achieving students were found for word identification, word attack, basic skills, and passage comprehension subtests of a standardized reading test, and for low-achieving students relatively consistently across time for Curriculum Based Measurement for selected indicators of Fluency (Mathes and Babyak, 2001). Moreover, Computer Assisted Instruction added to Peer Assisted Learning Strategies did not impact student performance beyond that achieved by Peer Assisted Learning Strategies alone (Mathes et al., 2001).

As part of a larger study of 186 kindergarten teachers, Baker and Smith (1999) reported that children who had teachers focusing on phonemic awareness and alphabetic understanding outperformed a control group during a “sustainability” year on a standardized test of phonemic segmentation (no reliability cited). (Baker & Smith, 1999).

Other. Two sets of researchers found for first- and second-grade children in Spain and in the United States that word- and/or letter-sound oriented instruction, on average, benefited students’ word recognition processes and attainment, and in one case, that more isolated word work was more beneficial than word work accomplished in predictable texts (Jiménez & Guzmán, 2003; Johnston, 2000). A third set of researchers, however, found few effects of instructional approach (“whole language” versus “phonics/skills-based”) on third-graders’ word reading abilities (Wilson & Norman, 1998).

Specifically, in a cross-sectional design, Jiménez and Guzmán (2003), working in Spain, used researcher-designed lexical-decision and naming tasks to analyze first- and second-graders’ reaction times and

error performance. They also used a questionnaire and a structured interview to categorize teachers regarding their reading-instruction orientation. Agreement for teacher classification was “over 90%,” and no reliabilities were given for other variables in the study. Students who had teachers who used a meaning-oriented approach had difficulty naming words in conditions that required “extensive phonological computation” (Jiménez & Guzmán, 2003, p. 75), and as well, when teachers emphasized letter-sound correspondences, children showed rapid development of “the alphabetic route” (Jiménez & Guzmán, 2003, p. 75).

Using predictable books, Johnston (2000) compared the effectiveness of three reading treatments that reflected different components of a whole-to-part instructional model. Three first-grade teachers taught 56 students in three conditions involving repeated readings, sentence contexts, or word banks. Tasks appeared to be both publisher- and experimenter-designed, and no reliabilities were given. Children who had teachers who provided word work in a modified word bank activity learned more words than students of teachers who had children work with sentence strips. Students using sentence strips learned more words than students in instructional conditions where they simply read and reread books. In short, “beginning readers learn[ed] more words when those words . . . [were] removed from the supportive context offered by predicatable texts” (Johnston, 2000, p. 248).

Finally, comparing two groups of 54 second-grade students whose teachers differed in reading-instruction approach, Wilson and Norman (1998) explored potential differences on various word recognition tasks. Teachers were categorized as “whole language” or “phonics/skills-based” instructors, based on a word-completion-in-a-cloze procedure. Tasks were both standardized and experimenter-designed, and no reliabilities were given. On a cloze procedure, students who had teachers categorized as “whole language” teachers outscored those who had teachers categorized as “phonics/skills-based.” There were no other significant effects between the two groups of students, including for assessments of word identification, grapheme substitution or comprehension. In short, teacher’s instructional approach, as defined in this study, had little effect on word recognition strategies.

Comprehension, Fluency, or Affective Instruction

The eight studies in this category could be described in three categories—studies addressing the question, “Does comprehension strategy instruction affect children’s reading outcomes” (three studies), “How do teachers and students learn to do literature discussions or classroom theatre and what are the effects on children’s thinking and reading” (two reports), and “How do teachers and students together construct literacy activity, and how does that affect students’ motivations” (one study). There was quite a bit of variation in study methodology in this category, with: three quasi-experimental/experimental studies; two studies using observation, interview, and constant-comparison analyses; one using teacher observation during an intervention and then conducting statistical analyses; another labeled “ethnographic” by the author, and one in which a qualitative method was well detailed. Three sets of investigators (Chinn et al., 2001; Nolen, 2001; Wolf, 1998) specifically referenced sociocognitive, social constructivist, or social constructionist theoretical grounding for their work, delineating the importance of social understandings to literacy teaching and learning. Two sets of investigators (Brown et al., 1996; Wolf, 1998) referred to Rosenblatt’s (1991) reader response theory or her term, “transactional,” with Brown and colleagues suggesting that “transactional” refers to readers’ construction of meaning by using strategies to link text to prior knowledge and to represent co-determination of meaning. Wolf (1998) also grounded her study in theories of nonverbal communication, referencing Stanislavski (1961), stating that “interpretation depends not only on an analysis of the inner life of a text, but on the external physical action that accompanies the words and demonstrates meaning to others” (p. 386). The remaining four investigators (Bogner et al., 2002; Dolezal et al., 2003; Janzen, 2003; Vaughn et al., 2000) developed rationales for the research based on findings from prior research.

Three sets of investigators examined *comprehension strategy instruction*. The overall results of the three studies suggest that strategy instruction enhanced students’ awareness of such strategies (Brown et al., 1996; Janzen, 2003). However, there were mixed effects of such instruction on reading abilities. One set of researchers (Brown et al., 1995) found significant impact upon comprehension and word study skills, and one (Vaughn et al., 2000) found an effect for rate of reading, but in two cases (Janzen, 2003; Vaughn et al., 2000) there were no significant effects on comprehension and/or word identification.

Specifically, Brown and colleagues (Brown et al., 1996) studied 10 second-grade teachers and 60 low-achieving students. Five experimental groups of six low-achievers were matched to five control-groups of six low-achievers. The experimental students received “transactional strategies instruction” which had multiple facets such as instruction in prediction, alteration of expectations according to unfolding text, questioning, visualizing, and summarizing. Control students received “more conventional second-grade reading instruction,” described as “eclectic.” Teachers completed a survey and a questionnaire and were classified as to theoretical orientation to reading. Students completed researcher-constructed tasks and published assessments. Reliabilities (statistical and interrater) for all assessments were provided, and they ranged from .85 to .94. Students receiving strategy instruction exhibited greater awareness of strategies by year-end than did the other students (Brown et al., 1996). As compared to the other group, strategy-instruction students also learned more information, both literal and interpretive, from stories read during their reading groups, and evidenced richer, more personalized understanding of the stories.

Janzen (2003) examined effects of strategy instruction in a Navajo setting for 2 teachers and 39 third graders. A treatment class was compared to a control class. A standardized reading assessment was given, students completed think-alouds, and a researcher-made questionnaire about strategy use was done. No reliabilities were reported. Experimental students were taught to predict, preview, ask questions, identify purpose for reading, and think about what was already known. Students’ instruction in the control group focused on “decoding” and word meaning. Strategy instruction resulted in enhanced awareness of strategic thinking and demonstrated increases in the size of the repertoire of reading behaviors (although the experimental students did not display some of the strategies they were taught).

With 8 teachers and 111 third-grade students, Vaughn and colleagues (Vaughn et al., 2000) conducted an experiment to compare the effectiveness of Collaborative Strategic Reading (CSR) instruction, designed to affect students’ comprehension, to Partner Reading, designed to affect students’ fluency. CSR focused on teaching students to preview, read chunks of text and then use fix-up strategies to figure out word meanings, gist-making, and summarizing. In Partner Reading, students took turns reading aloud and using word-correction procedures on one another. Both interventions were done two to three times per week for 12 weeks

during the spring. Published assessments were given to the children for fluency and comprehension, with references cited for reliability for fluency (but no reliability figures stated), and statistical reliabilities for the remaining variables ranging from .88 to .91. Both 12-week long Partner Reading and Collaborative Strategic Reading enhanced fluency.

Turning now to the question, “How do teachers and students learn to do *literature discussions or Readers’ Theater* and what are the effects on children’s thinking and reading,” in a seven-week-long intervention, 4 fourth-grade teachers and their 84 students (Chinn et al., 2001) were generally able to learn about and implement Collaborative Reasoning, an instructional frame designed to transfer much control over discourse in reading lessons to students. Four key parameters defined differences between Collaborative Reasoning and recitation-type lessons: the stance to be taken; who holds interpretive authority; who controls turn-taking; and who controls the topic of the discourse. Videotapes of discussions were coded for several features, including cognitive processes involved in the instruction and student and teacher questions. Reliabilities for coding ranged from 91% to 94% agreement. Descriptive and statistical analyses were done. Compared to recitation-type lessons, Collaborative Reasoning discussions were associated with greater engagement and enhanced use of higher-level cognitive thinking.

In a year-long effort (Wolf, 1998), a teacher of 17 third- and fourth-grade remedial readers used classroom theatre as means of encouraging interpretation of text and to enable children to “negotiate among texts, their own ideas, and other players’ interpretations as well” (p. 385). Wolf collected data twice a week for a full academic year, using participant observation along with audio- videotape recordings, site documents, and informal interviews. Using qualitative analyses, Wolf analyzed the teacher’s instruction and children’s reading over time, and she created interpretive categories and patterns from the data. She documented instructional shifts away from round-robin reading toward more intensive use of classroom theatre as well as shifts in children learning to see themselves as characters, actors, and readers.

Finally, regarding the question, “*How do teachers and students together construct literacy activity, and how does that affect students’ motivations,*” 4 teachers and their 20 at-risk kindergarten children (5 “target” children per teacher for the study) together constructed literacy activity that framed the children’s motivation

(Nolen, 2001). The investigator took field notes during six to eight observations per classroom over one year, along with teacher and student interviews. Using coding and analysis of patterns in the data, the researcher concluded that in classrooms where reading and writing were used for multiple purposes, children's initial motivations and interests were maintained and positively shaped throughout the year, but where reading and writing were more narrowly defined children saw school literacy tasks as different from real-life literacy.

Overarching Reading Instruction and Overarching Instruction in Relation to Student Reading

The seven studies in this cluster addressed, in various ways either descriptions of overarching classroom reading instruction or whether overall classroom reading instructional approach was related to students' reading. The studies in this cluster also reflect a wide methodological range within the kindergarten through fifth-grade group, with one study using observation and questionnaire methodology, another using factor analysis, cluster analysis, and analysis of variance to reanalyze data from a large database, three others using "qualitative" methods, and two being quasi-experimental/experimental studies.

As for theoretical bases for this category of studies, two sets of researchers (Asselin, 1997; Scanlon & Velluntino, 1997) rooted their investigations in theories of how instructional "code emphasis," "meaning emphasis" (or whole language), or "strategic thinking" emphasis would be related to student reading outcomes. Three other sets of investigators (Fitzgerald & Noblit, 1999, 2000; Neufeld & Fitzgerald, 2001) studying English-language learners tended to refer to the lack of explicit theories or models of young second-language learners' reading development and its relation to instruction as well as constructivist and sociocognitive outlooks such as a sociocognitive model of reading that accounts for instruction. Another set of researchers, Koskinen and colleagues (2000), referenced three "models:" "expert theory" suggesting that teachers who create learning environments where students read with understanding and are motivated (among other features) will be better readers; the teacher creates a classroom culture that fosters reading motivation by being a reading a model, having lots of books, and providing student choices; and home reading experiences influence English-language learners' English reading development. Finally, Roehrig and colleagues (2001) built a rationale for their study based upon outcomes of prior research.

It is difficult to summarize results across the seven studies, at least in part because the seven studies straddled a wide array of topics. Findings from two studies using qualitative methodology suggested that first-grade balanced reading instruction, consisting of attention to word-level, comprehension, and affective processes, tended to be associated with students taking on a balanced understanding of reading, including for English-language learners (Fitzgerald & Noblit, 1999, 2000). In a third qualitative study, a first-grade teacher's writing instruction appeared to influence two English-language learners' writing development, and lack of explicit instruction in sounds and patterns in words in reading may have been related to the children's lack of manifestation of such knowledge in reading development (Neufeld & Fitzgerald, 2001). A fourth set of researchers found that book-rich classrooms enhanced students' comprehension and that audio models provided particular benefits to English-language learners (Koskinen et al., 2000). On the other hand, a reanalysis of data from the Reading Literacy Study of the International Association for the Evaluation of Educational Achievement suggested no relationships between instructional approach and student reading (Asselin, 1997). Also, in another study of kindergarten children determined to be at-risk for later reading achievement, cognitive abilities accounted for a greater proportion of variance in their end-of-first-grade word-level abilities than did kindergarten instructional program (Scanlon & Vellutino, 1997). However, those who were better achievers on the word-level tasks at the end of first grade had kindergarten teachers who spent a greater proportion of instructional time analyzing the structure of spoken and words. Last, one set of researchers found that regular classroom teachers trained in Reading Recovery did use Reading-Recovery-type instructional practices (Roehrig et al., 2001).

Specifically, in an I-witnessing, confessional narrative research genre (Geertz, 1988; Van Maanen, 1988), Fitzgerald and Noblit (1999) used observations, field notes, the teacher's journal, and other data sources such as audio and videotapes to examine two English-language learner first-grade children's cognitive literacy development over the course of a year in relation to the first investigator's balanced reading approach. The balanced reading approach entailed four central components: word study, writing workshops, reading good literature, and "putting it all together." Numerous child data sources in English were collected, including published and researcher-designed assessments of sight words, oral reading of graded passages to understand

instructional reading level and reading strategies, writing vocabulary, number of sounds heard in spoken words and knowledge of correct letter/sound relations (from writing dictation), receptive vocabulary, oral English fluency, decontextualized descriptive oral language, and decontextualized formal and informal oral definition ability. Additionally the latter three indicators were also obtained in Spanish oral language. Reliabilities, some interrater and some publisher-provided, were reported for all measures, and they ranged from .72 to 1.00. The teacher's balanced reading approach appeared to be associated with the literacy cognitive development of two English-language learners, and their development appeared highly similar to that portrayed in prior research and theory for native-English speaking young children.

In another study involving that same teacher's classroom, a participant-observer and the teacher as co-researchers asked what first-grade children could learn about reading within a balanced approach to emergent reading instruction and whether a balanced approach to emergent reading instruction could be used successfully in first-grade classrooms with high proportions of low-income or minority children, including English-language learners (Fitzgerald & Noblit, 2000). Data sources were the same as those used in the previous Fitzgerald and Noblit (1999) study. Labeled as a "naturalistic study," they used qualitative constant-comparison analysis to examine patterns and themes in the data. The authors concluded that the teacher's year-long balanced reading approach was associated with children's constructions of a balanced view of reading processes and purposes, regardless of ethnicity or language status (Fitzgerald & Noblit, 2000).

One first-grade teacher's instruction over the course of a year appeared to be influential in three English-language learners' reading and writing development across the year (Neufeld & Fitzgerald, 2001). The three boys were in the teacher's "low" reading group. Observations, interviews, and field notes were done, and then case analyses were conducted. Coding categories were created, and themes were drawn. Triangulating procedures were used. Student assessments across the year were the same as those used in studies reported by Fitzgerald and Noblit (1999, 2000). A central feature of the teacher's instruction was whole-class work on during writing instruction on sound-to-letter matches. Also, during that writing instruction, products were emphasized over processes and rote learning over strategic thinking. Over the year, the three boys tended to grow in writing ability, particularly in manifesting more understanding of the sound-to-letter match-ups and

correct spellings that the teacher emphasized. However, the teacher provided the boys with very little reading instruction, and instead, the boys were assigned the teacher assistant who did homework checks with them, used flash cards to memorize sight words, and attempted oral round robin reading. The boys reading development over the year was modest, and the knowledge of letter-sound match-ups that they displayed in their writing was not manifested in their reading. In short, the boys learned well what they were taught, but failed to learn what they were not taught.

Koskinen and colleagues (Koskinen et al., 2000) randomly assigned 16 first-grade classrooms to one of four treatment conditions—a book-rich classroom environment, a book-rich environment and daily rereading of books at home, a book-rich environment and daily rereading of books with audiotapes at home, and unmodified reading instruction at school. In the book-rich conditions, 154 multilevel books supplemented the classroom library, and teachers regularly conducted small-group shared reading using those books. The shared reading sessions involved: a five-minute mini-lesson, book introduction, requests for predictions, connections to background knowledge, purpose-setting for reading, the teacher reading aloud, and rereading by both the teacher and students. The rereading at home part of the intervention involved rereading two or three times the same multilevel books that were used in the small-group sessions. The audiotape part of the intervention involved the same home rereading component as just described, but in addition, students were given pre-recorded tapes of the stories and tape recorders, and they listened to the books on tape. Student assessments included publisher- and researcher-made: oral reading, writing vocabulary, oral story retelling, a Likert-indicator assessment of motivation and literacy behavior, a teacher survey of child behavior, child interviews, a parent survey, and a teacher questionnaire and interview. Interrater and statistical reliabilities were reported for all assessments except the child interview and teacher questionnaire and interview, and they ranged from .64 to .94. Students who had teachers who established book-rich classrooms had enhanced comprehension, both with and without the home component. Home-based rereading increased children's reading motivation and prompted parental involvement. Also, use of audio models provided particular benefit to English-language learners.

A British Columbian reanalysis of data from the 1990-1991 Reading Literacy Study of the International Association for the Evaluation of Educational Achievement (IEA) was done. In the IEA study, 154 schools, 154 teachers, and 2,813 third-grade students were sampled. There were: teacher and student questionnaires and a student reading achievement. Sources and reliabilities for IEA measures were not cited, but readers were referred to the IEA manual for further detail. For the reanalysis, items were selected from the original data sources, and factor analyses, cluster analyses, and analyses of variance were done. Reliabilities were cited statistical reliabilities were provided for student achievement variables that were created for the reanalysis study, and they ranged from .21 to .95. Two approaches to reading instruction were identified—teaching comprehension strategies in communicative contexts, and teacher-centered instruction of hierarchical skills. Eighty percent of the teachers used “eclectic” approaches, and there were no relationships between instructional approach and teacher background, student background, and student achievement (Asselin, 1997).

One study result suggested that children’s cognitive abilities might play a greater role in first-grade reading success than would the type of kindergarten reading instruction (Scanlon & Vellutino, 2000). During the school year, Scanlon and Vellutino (2000) observed each of 38 kindergarten classrooms with “approximately 1,000 children,” five or six times, for a full day each time. A subsample was drawn of 151 children defined as at-risk on the basis of letter-name knowledge at the beginning of kindergarten. A battery of published and researcher-made child assessments was given to the kindergarten children, measuring: world knowledge, semantic development, syntactic comprehension, letter identification, phoneme segmentation, rapid automatized naming, sentence memory, word memory, visual-auditory learning, visual memory, block design, matching familiar figures, target search, print awareness, and print conventions. Reliabilities for coding from observations were at or above 85% agreement. No other reliabilities were reported, but a prior publication was cited as providing further details about the measures. Children who were more successful in reading, as defined by “skill in word identification and phonetic decoding,” at the end of first grade had kindergarten teachers who spent more instructional time on sound and spelling aspects of words and on writing. Also reading-related

cognitive abilities accounted for more variance in end-of-first-grade word-reading achievement than kindergarten instructional emphasis, although both were influential.

Roehrig and colleagues (2001) observed ten kindergarten through second-grade classrooms in which teachers had been trained in Reading Recovery. Teachers were observed during Language Arts instruction from one to seven times for approximately 45 minutes each time. Teachers also completed a questionnaire about integration of Reading Recovery techniques into their regular classroom instruction. No student assessments were given. Observations were coded using a “grounded theory approach.” Interrater agreement was 73% for instructional practices and 92 % for assignment of strategies to particular teachers. No reliability was provided for variables that resulted from the questionnaire. All 10 teachers used instructional practices and teaching strategies typical of Reading Recovery.

Children with Learning Disabilities

Only one study examined the extent to which regular classroom reading instruction tends to be the same or different for different for children with learning disabilities. The researchers rooted the investigation in a rationale based upon prior research and writing that documented a trend to inclusive, heterogeneous grouping for children with special needs. Three times across the school year, for 90 minutes each time, Schumm and colleagues (2000) observed language arts instruction of 29 regular third-grade teachers in classrooms with 147 children. They also took field notes, did interviews, and obtained teacher self-reports about grouping practices. Student assessments were publisher- and researcher-made: reading achievement, self concept, and attitude. Interrater reliabilities of .80 or higher were reported for observations. Statistical reliabilities were provided for some, but not all of the remaining assessments, with the reported ones ranging from .42 to .96. Students with learning disabilities and their peers received the same reading instruction because their teachers tended to use whole-class reading instruction.

Summary of Kindergarten through Fifth-Grade Findings

On the whole, the findings from the research and the implications for teachers do not tend to move in directions that are remarkably “new” or “different” from those of prior years. Rather, they push toward a balanced instructional outlook in which teachers engage children’s cognitive mechanisms and self regulation as

well as affective dispositions. Main findings from the 28 studies of kindergarten through fifth-grade studies of classroom reading instruction may be summarized as follows. a) Classroom teachers considered “effective” in their reading instruction practices teach using a wide array of practices, perhaps most notably: teaching in a “balanced” way so that students may develop a wide array of reading subprocesses, dispositions, and attitudes toward reading; teaching a wide range of ways of “getting” words; encouraging self-regulation; integrating reading and writing, doing high density instruction; doing small-group instruction, enabling independent reading, having strong home connections, coaching, and using higher-level questions. Among the various findings in this category, we might highlight one in particular—because of its timeliness in relation to a general contemporary emphasis on early phonological awareness and phonics instruction and because it may shed light on findings from studies in our second category of issues. That is, across 88 first- through fifth-grade teachers’ instruction with 792 students, explicit phonics instruction *in grades two through five* was associated with *lower* reading achievement growth. b) In general, in kindergarten and first-grade, sound-, letter-, and word-level instruction, such as phonological awareness and phonics instruction, were associated with students’ enhanced phonological awareness, word-level reading and spelling abilities, and in one case, comprehension. In two studies, such instruction was particularly beneficial for children with lower literacy levels at first-grade entry, but in one of those two studies, once the children could read independently, other types of instruction were beneficial. But in a study involving third graders, few effects were found on word reading abilities when a “whole language” versus a “phonics/skills-based” approach were compared. c) Comprehension strategy instruction enhanced students’ awareness of strategies, but effects of such instruction on reading abilities were unclear. d) In one study, teachers and students were able to learn about and implement an instructional frame for student control over discourse in reading lessons, and such discussions were associated with greater engagement and enhanced use of higher-level cognitive thinking. e) Classroom theatre enhanced children’s ability to see themselves as readers, and in classrooms where reading and writing were broadly defined, children’s motivations and interests in reading were positively shaped. f) From studies of overarching reading instruction: first-grade balanced reading instruction tended to be associated with students, including multilingual learners, taking on a balanced understanding of reading; book-rich classrooms enhanced comprehension and audio

models were especially beneficial for English-language learners; a first-grade teacher's lack of reading instruction may have been related to three English-language learners' lack of progress in reading; no relationships were found between instructional approach and students' reading in one study, and in another, cognitive abilities in kindergarten accounted for a greater proportion of variance in end-of-first-grade word-level abilities than did kindergarten instructional program; and in one study, Reading-Recovery-trained teachers used Reading-Recovery-type instructional practices in their regular classrooms. g) In one study, third-grade students with learning disabilities and their peers received the same reading instruction because their teachers tended to use whole-class reading instruction.

Middle and High School (Grades 6-12) Studies

Adolescent literacy is a topic of increasing interest as evidenced by the number of position papers commissioned in the last five years by professional organizations, such as the International Reading Association (Moore, Bean, Birdyshaw, & Rycik, 1999), the National Reading Conference (Alvermann, 2002), and policy groups in the private sector, such as the Alliance for Excellent Education (see Kamil, 2003, available at <http://www.all4ed.org>) and the RAND Reading Study Group (2002). Although there is a growing consensus in the United States that early intervention reading programs, while necessary, are not sufficient to the task of ensuring that students at the middle and high school levels are able to comprehend a wide range of texts (print, visual, and digital) required by the various states' curriculum standards, the number of published research reports has not kept pace. This is especially the case for studies that report instructional effects on adolescents' reading achievement.

Of the 44 secondary school studies that matched the focus of the chapter, only 13 met our inclusion criteria. Most were disqualified on the basis of having someone other than the teacher in charge of instruction. Hand searches of the *Journal of Educational Psychology*, the *American Educational Research Journal*, the *Journal of Literacy Research*, and *Reading Research Quarterly* turned up several additional studies whose titles did not contain the keywords we had initially defined as setting the parameters for our search, but only three fit our criteria. Among the final 13 studies included here, 1 fit into the category of characteristics of exemplary

literacy instruction, 5 in the category of comprehension and conceptual/strategic instruction, 5 in the category of discipline-specific reading instruction, and 2 in the category of instruction for students with reading disabilities.

Characteristics of Exemplary Literacy Instruction

The single study (Langer, 2001) included in this category focused on 88 English/language arts classrooms in 25 schools that had been trying to increase student achievement in reading, writing, and English. Its purpose was to investigate the characteristics of literacy instruction in demographically comparable schools, some of which had made more progress than others toward their goal of higher student performance. Langer (2001) anchored her work in Bakhtin's (1981) concept of dialogic thinking and Vygotsky's (1986) sociocognitive framework as a way of offering insight into the reciprocal nature of teaching and learning. She also used Gee's (1996) conceptual framing of primary and secondary discourse communities to interpret what counts as appropriate knowledge and how it gets taught and learned. Constant comparison analysis of multi-case qualitative data (both within and across cases) identified six instructional features that distinctively separated higher performing ("beat the odds") schools from more typically performing schools. These features included: a) systematic skills instruction; b) test preparation integrated into ongoing goals, curriculum, and lessons; c) knowledge and skills overtly connected across classes and grades, and connected between in- and out-of-school applications; d) overt teaching of strategies for planning, organizing, completing, and reflecting on content and activities; e) teachers moving students to deeper understanding of content once a learning goal was met; and f) teachers encouraging students to work together to develop deeper understanding of content.

Comprehension and Conceptual/Strategic Instruction

The five studies that comprised this category were known from previously research on instructional strategies to be effective in improving students' comprehension and vocabulary in pull-out programs and content area classes where researchers or specially trained assistants taught them. Used either singly or in combination, these strategies included: Reciprocal Teaching (Alfassi, 1998); teacher-posed questions (Lapkin & Swain, 1996); explicit instruction in prior knowledge activation and main idea (Spires & Donley, 1998); guided discovery using class discussion (Echevarria, 2003); and a combination of structured strategy instruction

(Schorzman & Cheek, 2004) that included the Directed Reading/Thinking Activity (Stauffer, 1975), the Pre-reading Plan (Langer, 1981), and graphic organizers (Barron & Earle, 1973). Although the literature on the effectiveness of these instructional strategies is fairly abundant (Dole, Duffy, Roehler, & Pearson, 1991; National Reading Panel, 2000; Palincsar & Brown, 1984; Pearson & Gallagher, 1983; Pressley & McDonald, 1997), there have been relatively few studies conducted in middle and high school content area classrooms where regular teachers actually provided instruction in the use of such strategies. Thus, the group of five studies presented here are somewhat unique in their focus.

Three of the five studies could be said to draw most heavily on social constructivism, a theory of learning as opposed to a theory of teaching. In its most general sense, social constructivism can be defined as learning that is both social and constructed through participation in the cultural and linguistic practices of any given community (e.g., a school). The theory's relation to teaching can best be discerned in its central metaphor—a *scaffold* that supports a building under construction, until such time that the building is finished and can stand by itself. Teachers (as well as students' more capable peers) can provide instructional scaffolding when socially interacting to develop new knowledge structures (Wood, Bruner, & Ross, 1976). A point worth noting about this metaphor is that it encourages generalizing about social constructivism in ways that are often contradictory (Hruby, 2002). This seemed to be the case with the present group of studies. For example, Echevarria (2003) and Spires and Donley (1998) relied on social constructivist theory as a rationale for investigating socially-oriented inquiry learning and guided practice, whereas Lapkin and Swain (1996) used the same theoretical construct to study a more didactic form of content-oriented instruction. The other two studies (Alfassi, 1998; Schorzman & Cheek, 2004) drew from theories of comprehension that suggest the need for actively monitoring one's understanding while reading (Brown, 1980; Cross & Paris, 1988).

The researchers in all five of the studies reported that strategy instruction was effective. The three experimentally-designed studies found evidence supporting the superiority of the intervention group over the control group on a variety of comprehension measures. For example, Alfassi (1998) reported that Reciprocal Teaching strategy instruction (using 350-500 word expository passages with 53 students of average ability who were experiencing comprehension problems) produced superior results on experimenter-designed tests when

compared to traditional remedial reading instruction with 22 students who served as the controls. Consistent with previous research on Reciprocal Teaching, however, no differences were found between the two groups on standardized measures of reading.

Spires and Donley (1998) conducted a true experiment in which equal numbers of high, average, and low achieving readers (as determined by their scores on a standardized achievement test) were assigned to each of 4 treatment groups using random stratified sampling; teachers were also randomly assigned to treatment groups. After six days of explicit instruction in prior knowledge activation (PKA) and main idea (MI) strategies, students in the PKA and the MI-PKA combination groups statistically significantly outperformed the MI and control groups on application-level comprehension questions. All three experimental treatment groups outperformed the control group on the delayed measure of literal level comprehension questions. All comprehension questions were based on three social studies passages (natural texts reduced to about 1200 words each), plus one literary text (a short story).

In Schorzman and Cheek's (2004) examination of structured strategy instruction, three 6th-grade teachers instructed their students (n=103) in the use of directed reading/thinking activities, a pre-reading plan, and graphic organizers over a period of seven weeks. Results of this pretest/posttest study revealed that compared to the control group, structured strategy instruction produced a statistically significant difference ($p < .05$) on an informal measure of reading comprehension; however, no statistically significant difference was found between the experimental and control groups on a formal measure of reading comprehension.

In a mixed-methods study involving a comparison of two seventh-grade science classrooms, Echevarria (2003) used content analysis and non-parametric statistics to measure the effectiveness of instruction that involved guided discovery and class discussion. The specific purpose of the study was to examine students' knowledge construction and scientific reasoning when presented with anomalies found in simulation software on Mendelian genetics. The science teacher, selected for her expertise in inquiry-oriented instruction, made use of guided discovery and class discussion to develop students' mental models of dominant trait transmission. Qualitative and quantitative data analyses showed a significant shift in students' mental models of dominant

trait transmission at the end of the 3-week inquiry unit. Findings were discussed in light of earlier work on conceptual change instruction (Posner, Strike, Hewson, & Gertzog, 1982).

Lapkin and Swain's (1996) descriptive case study of a French immersion class in Toronto, Canada, analyzed the teacher's question-posing strategy for instructing eighth-grade students in the use of passive and pronominal verbs. This instruction took place in the context of teaching students to take notes on the greenhouse effect. Although the study's design did not permit the researchers to draw any conclusions about the teacher's instruction relative to students' expanded lexicon, they did note instances of mastery in certain vocabulary items and associated structures that elude many beginning level immersion students.

Discipline-Specific Reading Instruction

The five studies in this category are representative of a larger literature on reform-minded efforts directed at curriculum change through the implementation of instructional models based on previously validated reading approaches. Factors that made these particular studies interesting were the scope of their efforts, the variation in their design features, and their outcomes.

Theoretically speaking, the five studies were grounded quite differently in this category. Applebee and his colleagues (2003) situated their work in a long line of studies that borrowed from the sociocognitive tradition, and that were, in turn, informed by literary theory (Scholes, 1985) and the work of linguists, such as Cazden (1988) and Gee (1996). In developing their Reading Apprenticeship framework, Greenleaf et al. (2001) also relied on the sociocognitive tradition, and especially on the research on metacognition (Brown, 1980; Palincsar, 1986; Palincsar & Brown, 1984). Stevens (2003) drew from Slavin's (1990) work on collaborative learning that takes into account early adolescents' orientation toward peer-socialization practices. The National Reading Panel (2000) found instruction that took advantage of collaborative learning activities resulted in improved student comprehension. Hobbs and Frost (2003) looked to a cultural studies perspective (Luke, 1997; Masterman, 1985) for theoretical support in terms of expanding the concept of literacy to include the comprehension of media messages and authentic learning in student-centered environments.

The researchers in all of the five studies in this category reported findings that favored student-centered instruction and/or collaborative learning. Agee's (2000) in-depth study of how five high school English

teachers' defined and gauged effective literature instruction used data from classroom observations, videotaped lessons, and audiotaped interviews with the teachers to triangulate her findings. The profiles of the five experienced teachers were mini-case studies and reflected the researcher's decision to seek participants who represented a range of pedagogical perspectives and identity markers, such as ethnic and racial backgrounds. The schools varied by locale (two states) and size (both large and small high schools). Agee used Strauss and Corbin's (1990) open coding system as the first level of analysis; this was followed by an examination of the relations between each teacher's definition of effective literature instruction and the characteristics of the students he or she taught. A third level of analysis, which consisted of viewing videotaped lessons, involved the teachers in reflecting on their instruction and answering questions about the typicality of such instruction. Analyses of the five profiles suggested that teachers who were flexible and defined effective literature instruction within a student-centered model were able to address student differences and needs more effectively than were teachers who were inflexible and favored a teacher-centered model of literature instruction.

Applebee and colleagues (2003) conducted a year-long naturalistic, classroom observation study of 64 middle and high school English classes in 19 schools spread across 5 states. The classes represented roughly one honors, one remedial, and two regular classes per school. Principal components analyses and a series of hierarchical linear models revealed that discussion-based approaches were effective (controlling for Fall performance and other background variables) across a range of teaching situations for both low- and high-achieving students. Overall, the results suggest that discussion-based approaches in the context of high academic demands benefit students by enabling them to internalize the knowledge and skills needed for engaging in challenging literacy tasks on their own.

Like Applebee and colleagues, Greenleaf and her colleagues (2001) were interested in studying the effects of academic literacy instruction in natural settings. Their year-long study focused on an urban, low-SES high school in which the entire 9th grade class was enrolled in a required academic literacy course that made use of the Reading Apprenticeship framework. Explicit instruction in Reciprocal Teaching (Palincsar & Brown, 1984), think alouds (Baumann, Jones, & Kessell, 1993), sustained silent reading (SSR), notetaking strategies,

graphic organizing, identifying text structure, and vocabulary strategies took place in two 90-minute blocks each week, plus one 50-minute period per week for 7 months. Using a pre/post design that included analyzing normative data on a standardized test, Greenleaf et al. found that the students enrolled in the academic literacy course caught up to the national norm on that test for 9th graders. They started the year scoring at late 7th-grade and finished at late 9th-grade (a gain of 2 years growth in reading proficiency in only 7 months). Illustrative case studies showed how low-performing readers can develop metacognitive monitoring and strategic control of their reading processes.

In the other two studies in this category, quantitative analyses of overarching literacy reform efforts produced statistically significant differences that favored the instructional intervention group over the control group in both instances. Stevens (2003) used a quasi-experimental (pre/post) design to study the effects of implementing Student Team Reading and Writing (STRW) in two middle schools located in a large urban district. Three comparison schools were matched to the intervention schools on ethnicity, SES, and scores on a widely used standardized achievement test. STRW, which is a cooperative learning approach that uses literature-related activities and direct instruction in comprehension and writing related to the literature selections, was compared to a more traditional approach that uses basal reading materials and literature anthologies. Following 4 months of implementation and coaching teachers in the use of STRW, the researchers observed each of the intervention teachers on 3 randomly selected days to assess the fidelity of the treatment. A class-level MANCOVA (nesting class within treatment) revealed that STRW classes scored statistically significantly higher on measures of reading vocabulary, comprehension, and language expression. For three statistically significant main effects, effect sizes ranged from +.25 to +.38.

Hobbs and Frost (2003) used a non-equivalent groups design to study the effects of a media literacy curriculum on 293 eleventh grade students' comprehension, critical thinking, and writing. The entire junior class was enrolled in a year-long English/media/communication course taught by 7 regular classroom teachers who integrated critical analysis of print, audio, and visual texts into their instruction. A comparison group was matched on demographic variables and randomly selected from a group of students who had not been exposed to instruction in critically analyzing media messages. Content validity for the course was established by using a

five critical questions model that supported student-centered instruction and routine learning tasks in the teachers' English language arts classrooms. A series of ANCOVAs revealed statistically significant differences that favored the intervention group over the control group on researcher-developed measures that evaluated students' ability to comprehend media messages, think critically, and write about what they had learned.

Instruction for Students with Reading Disabilities

Although a primary assumption of early intervention research is that the number of students experiencing reading difficulty later on should decrease significantly as a result of such intervention, in reality, there are currently large numbers of middle and high school students needing assistance due to reading disabilities and inadequate instruction (Deshler et al., 2001; Strickland & Alvermann, 2004). The two studies included in this category are part of the larger literature on learning disabilities associated with reading difficulties among adolescents.

Researchers in only one of the two studies included here provided a discussion of the theoretical perspective that informed the study. Bulgren and her colleagues (2000) acknowledged their debt to Ausubel (1963) and other learning theorists whose work informed their own and led to the development of certain instructional procedures thought to be effective with students who have reading disabilities. Although the researchers in the second study (Fuchs et al., 1997) did not refer to a specific theoretical perspective, they appeared to draw from earlier research on peer tutoring (Cohen, Kulik, & Kulik, 1982) and instruction in reading comprehension (Dole, Duffy, Roehler, & Pearson, 1991).

Both studies employed quantitative methodologies, but only one (Fuchs et al., 1997) was quasi-experimental in design. The other study (Bulgren et al., 2000) used an ABAB reversal design. In the Fuchs et al. study of 120 middle and upper elementary students from 40 classrooms in 12 schools, the researchers investigated the effectiveness of Peer-Assisted Learning Strategies (PALS) on three types of readers' (LD, low performing, and average achieving) comprehension. Teachers trained in PALS provided instruction in 35-minute blocks per day, 3 days per week for 15 weeks. The PALS intervention consisted of partner reading with retell, paragraph summary, and prediction relay. The materials that students read were primarily narratives (400-word folktales) taken from basals, supplemented by some content area texts and Weekly Readers. A series

of ANOVAs on each of three researcher-developed tests revealed that LD, low performing, and average achieving students in PALS classrooms made statistically significantly greater progress than students in the control group (No-PALS classrooms).

In the Bulgren et al. study (2000), a general science teacher trained in the use the Concept Anchoring Routine (cue, do, and review with analogical instruction of known/new concepts) taught 18 seventh-grade students in a heterogeneous-grouped classroom that included students with learning disabilities. Four parallel, equivalent forms of a 9-item open-ended test were created by the researchers to measure student recall of information related to four targeted science concepts. T-tests were used to assess mean test performance differences between Concept Anchoring Routine instruction and non-enhanced instruction. Statistically significant differences were found that favored the anchoring routine.

Summary of Middle and High School (Grades 6-12) Findings

Thirteen instructional studies at the middle and high school level were grouped into four categories: characteristics of exemplary literacy instruction, comprehension and conceptual/strategic instruction, discipline-specific reading instruction, and instruction for students with reading disabilities. Findings from these studies can be summarized as follows. First, adolescents' comprehension of content area reading materials was enhanced when teachers overtly and systematically taught them strategies that required organizing, integrating, and reflecting on informational and/or narrative texts. However, it should be noted that statistically significant differences between experimental and control groups' performance on comprehension tasks as a result of strategy intervention were more frequently associated with researcher-designed assessments than with standardized reading measures. Second, teachers who were student-centered in their instructional approaches (e.g., encouraged class discussion and student inquiry) maintained high expectations for student performance on outcome measures. This included teachers who taught students with learning disabilities in regular content area classrooms. Third, teachers who were experienced in using Reciprocal Teaching (Palinscar & Brown, 1984) and prior knowledge activation strategies were equally effective in teaching high-, average-, and low-achieving readers. Students in these teachers' classrooms outperformed their control-group peers on a variety of comprehension measures. It is worth noting, too, that Reciprocal Teaching combined with instruction in think

alouds, notetaking strategies, graphic organizing, text structure, and vocabulary produced a gain of two years growth in reading in only 7 months in one of the studies reported here. Finally, exemplary literacy instruction at the middle and high school level included much more than the explicit, systematic teaching of reading strategies. These strategies were often embedded in larger efforts aimed at establishing and maintaining collaborative learning environments, teaching for conceptual learning, and connecting youth's knowledge and experiences across time and space. In keeping with the findings from Langer's (2001) large-scale study of the characteristics of exemplary literacy instruction, effective middle and high school teachers encouraged students to work together to develop a deep conceptual understanding of content and to make real-world connections between old and new knowledge across the curriculum.

College Level Studies

Although the improvement of students' reading comprehension remains an important issue at the college level, the number of instructional studies focusing on this issue is quite limited. Initially, over 70 studies were identified that tackled this topic in some manner, but only 10 met our inclusion criteria. Most were disqualified because they were either descriptive (e.g., college students are not monitoring what they read) or the researchers chose to compare one comprehension technique to another (e.g., mapping versus summarizing) without providing any direct instruction on the technique. These 10 studies fell into three basic categories, with 7 studies focusing on the improvement of recall and basic comprehension, the first category. The second category, the improvement of students' metacognition and self-regulatory processes (e.g., planning, reflecting, calibrating, and evaluating), included two studies. One study was in the third category, instructional studies focusing on students' critical thinking about single texts and multiple sources.

Instruction to Improve Recall and Basic Comprehension

In the seven instructional studies included in this category the researchers/instructors focused on teaching students the strategies or techniques of summarization, organizing, self-explanation, and reciprocal teaching. Each of the studies provided a theoretical rationale pertinent to the particular strategy being investigated [e.g., summarization based on the theories of van Dijk and Kintsch (1983)]. Although not stated explicitly, most of the studies in this category were embedded within a constructivist perspective. In general, the

findings from these experimental or quasi-experimental studies indicated that instruction in the targeted strategy or technique improved the students' recall or assisted the students in performing better than a control group that received no instruction. When other dependent variables were included in the studies the findings were not as robust (i.e., DeSimone, Oka, & Tischer, 1998; O'Reilly, Symons, and MacLatchy-Gaudet, 1998). For instance, in the study conducted by DeSimone and colleagues, the experimental group who constructed networks performed significantly better than the control group on the free recall measure, but no significant differences between the groups appeared on multiple-choice measure.

Summarization. In a study of summarization as a means to improving recall and comprehension, Friend (1999) employed a direct instruction model to teach college students how to form generalizations or argument repetitions or how to self-reflect on what they had read. Once the instruction was completed, the subjects read a short expository passage and wrote their summaries. Using five indicators, two independent raters scored the summaries. If the raters' agreement in scoring fell below 80% they met to discuss and resolve differences. The generalization group's summaries were judged to be significantly better in terms of thesis statements. In terms of an overall summarization skill, the two experimental groups produced summaries significantly better than the self-reflection group's. Friend notes that the scores for all treatment conditions certainly did not indicate that students had attained summarization mastery. Sanchez, Lorch, and Lorch (2000) also examined the impact of teaching students to summarize, but they added the variable of having students read text with headings or texts without headings. Students read an expository passage about energy and participated in a free recall. These free recalls were scored using four indicators, yielding an interrater reliability of .95. The participants with training and/or headings tended to have higher recall than the students who received no training or read a text without headings.

Organization. Three instructional studies focused on organizational strategies, teaching students how to create their own spatial displays using specific nodes and links (i.e., maps, networks). Using the early work of Diekhoff, Brown, and Dansereau (1982) on networking, Chmielewski and Dansereau sought to determine, in two different experimentally-oriented studies, whether knowledge mapping implicitly improves the manner in which students interact with expository text. In their first experiment one group of students was trained to

construct and evaluate maps while the control group completed a variety of assessment measures. During the last day of training both groups also completed a self-report questionnaire to determine how they read the expository texts. Five days later the two groups took a free recall test that was scored using a propositional analysis. The interrater reliability for the second scorer ranged from .93 to .94. Although the free recalls were low for both groups, the trained participants recalled significantly more macro-level information. No differences, however, occurred between the groups on how they responded to the questionnaire. The second study was similar to the first except that one question about students' level of motivation was added to the questionnaire. In Experiment 2 the trained group recalled significantly more macro and micro-level information, but no differences appeared on the self-report questionnaire.

DeSimone, Oka, and Tischer's (1998) study, a pretest/posttest nonequivalent control group design, tackled the question of whether students who mentally construct networks can satisfactorily recall and recognize information from what they have read. Unlike the studies discussed thus far, these researchers administered prior knowledge tests on the targeted passages and a baseline measure of the students' abilities to network. After participating in ten hours of training, the subjects read a short expository text and completed a researcher-constructed multiple-choice test and a free recall. Using idea units as the criteria, two coders scored the free recalls and produced an interrater reliability ranging from .85 to .95. The results indicated that the participants recalled significantly more key ideas from the pre to posttest, but the trained participants made significantly greater gains on the recall measure and were more time efficient. No differences were discernible on the multiple-choice measure.

Verbal, interactive. In contrast to the previous strategies that have emphasized written artifacts, O'Reilly, Symons, and MacLatchy-Gaudet (1998) examined the impact of elaborative interrogation (Stein & Bransford, 1979) and self-explanations (Chi & Van Lehn, 1991), two strategies capitalizing on verbal rehearsal. With the elaborative interrogation strategy students answered "why" questions (e.g., "Why is this fact true of ...and not of...?") on what they had read in order to make new connections between their prior knowledge and novel information. With the self-explanation strategy students were asked to explain or summarize information (e.g., "Explain what it means to you..." or "Does it raise a question in your mind?"). After the practice phase

subjects read a biology text containing 22 factual sentences that were presented to them on a computer screen. They then took a fill-in-the blank and matching test, predicted their score, and completed a questionnaire that assessed their subjective opinions of the strategies they had been trained to use. The 2X3 ANOVA indicated that the self-explanation participants performed statistically significantly better than the elaborative interrogation and control group on both comprehension measures. No differences occurred across the groups in terms of prediction accuracy, but the self-explanation participants rated their strategy as significantly more effective and attractive in terms of future use.

The last study in this category focused on reciprocal teaching (Palinscar & Brown, 1984), a strategy or heuristic that embodies many of the reading processes studied in the previous six studies in this category (i.e., summarizing, clarifying). Using a quasi-experimental nonequivalent group design, Hart and Speece (1998) investigated the impact of training college students, enrolled in two different required assistance courses, to engage in reciprocal teaching or a control condition they dubbed cooperative discussion (i.e., interactions but no explicit emphasis on reading comprehension processes). The instruction in the former was characterized by intensive modeling and guided practice. The participants completed a standardized reading test, a learning strategy self-report inventory, and a task asking them to apply the four processes embedded in reciprocal teaching to two different brief passages. Two independent raters scored the transfer task, yielding an interrater reliability of .80. The results indicated that the reciprocal teaching participants performed better on the standardized reading test and the strategy application task, but there were no statistically significant differences on the self-report strategies inventory.

Instruction to Improve Metacognition and Self-Regulation

Research in the area of metacognition and self-regulation is not as prevalent as research conducted with specific comprehension strategies such as summarization. Perhaps this is due, in part, to the difficulties researchers have in identifying measures that are valid, reliable, and practical to use in a classroom setting. We located two studies for this review, one a quasi-experimental study and one a descriptive case study. Both appeared to be working from a constructivist perspective. As with the previous studies, these two studies also provided theoretical rationales for the strategies and techniques they were investigating. Although the studies

were conducted in two different content areas, psychology and history, it is noteworthy that both of them concluded that students who were more successful on their content area exams were also the ones who improved their metacognition or self-regulation.

Hacker, Bol, Horgan, and Rakow's (2000) quasi-experimental study capitalized on the previous work of researchers such as Glaser and Epstein (1985) and Maki and Berry (1984) who have investigated students' metacognitive judgments. Specifically, Hacker et al. sought to determine if students enrolled in educational psychology courses could improve, over a semester period of time, their metacomprehension judgments or test prediction accuracy. The 99 students made pre and postdictions estimating their performance and reported the amount of time they spent studying for three different researcher-constructed, multiple-choice unit exams. Throughout the course the students also received instruction on the importance of reflection and accurate self-assessment and participated in this reflection after each exam. The findings indicated the higher performing students increased their accuracy in pre/postdictions, but the low performing students did not and continued their overpredictive tendencies. In addition, the results suggested that study time was not related to students' test performance.

Hubbard and Simpson (2003) focused their descriptive case study in a history course to document the changes students made over a semester in terms of the strategies they chose to employ, their accuracy in knowledge monitoring, and the type of calibrations they made as they evaluated their performance. Using a model of instruction embedded in self-regulation theory, the researchers also wanted to characterize the students' practices to see if any patterns existed across performance levels. Over a 16-week period of time, the 24 students in the study were taught task appropriate strategies and techniques designed to generate self-reflection and internal feedback. To document possible changes, the participants reflected upon their performance after each exam and made grade postdictions, described the strategies they employed, and recounted the time spent studying. Findings indicated that the most successful students calibrated global planning processes and the type and level of self-selected, task-appropriate strategies sooner than the less successful students. Except for the A students, knowledge monitoring did not improve, but students' explanations did shift from external to internal ones.

Instruction to Improve Critical Thinking

The one study representing this last category was a descriptive study conducted by Manuel (2002). Although Manuel does not explicitly identify a guiding theoretical perspective, it appears from the article's introduction that the study was influenced and guided by a media literacy perspective. In the study 63 students enrolled in an information literacy course were taught how to identify and evaluate types of information and use appropriate search strategies. After an 11-week period, they were randomly assigned to read articles from *Popular Science* and to complete a one-page paper that discussed the nature of the information, the documentation, the article's purpose and intended audience, and the author's credentials. Manuel's analysis indicated that the participants had difficulties identifying problems with the sources (e.g., biases, lack of credentials, lack of documentation). More specifically, 57% could not identify the article's thesis, 61% could not pinpoint the evidence the author used to support the thesis, and 68% could not make any connection between the author's credentials and areas of possible personal interest in their topics. In her conclusions Manuel suggests that students need numerous opportunities for close reading, modeling, and feedback if they are to improve their critical thinking skills.

Summary of College Level Findings

Ten studies were identified that focused on reading comprehension instruction for college students. In general, the four main findings from these studies were as follows. First, the five classroom instructional studies that focused on teaching college students how to summarize or organize what they have read determined that these students outperformed others who received no instruction or who employed alternative techniques. However, it should be noted that the scores on the dependent measures were low, indicating that more instructional time was necessary for students to master the skills of summarizing and organizing. Second, the two classroom studies that focused on verbal rehearsal (i.e., self-explanation) and interactive heuristics that embody several reading processes (i.e., reciprocal teaching) found that students trained in these strategies performed better than their counterparts on employing alternative strategies. Third, the two studies on metacognition and self-regulation (i.e., planning, reflection, strategy calibration) determined that students who were more successful on content area exams were the ones who improved their metacognitive judgments and

calibrated global planning processes and strategy choices sooner than the less successful students. Finally, the one study that trained students to think critically about information determined that over half of the students continued to have difficulties in identifying and evaluating the authors' viewpoints, credentials, and arguments. Again, the importance of sustained instructional time was noted, as was the necessity for students to receive numerous opportunities for modeling and feedback on their work.

Critiques and Recommendations for Research and Theory Development

In this section, we provide separate critiques and recommendations for research and theory development at each of the three grade level categories. Implications for classroom practice follow in the next section of this chapter.

K through Grade Five

We begin our critique of the kindergarten through fifth-grade studies by attending to theory. Fewer than half of the reports provided explicit discussion of theoretical bases for the studies. For research on classroom early reading instruction to make a difference, it is likely that greater reliance upon theory-building or theory-grounding is needed. When researchers specifically focus on the theoretical relationships that might occur between particular instructional variables or constructs and specific student outcomes, the studies are most likely to be clearly focused on the hypothesized relationships in ways that enable greater precision in design and methodology. "Tight" research, across the range of possibilities of kinds of research, is most likely to lead to dependable outcomes that in turn can have greater potential for impacting classroom practices. In the ideal, some "grand" theory detailing a host of instructional variables as they relate to a wide array of particular child reading outcomes and processes would be useful for guiding a program of research on classroom reading instruction. Collective sets of studies conducted around hypotheses entailed in such a "grand" theory, could lead to theory refinement as well as to enhanced practices. Ruddell and Unrau's (1994) sociocognitive model of reading comes to mind as one example of such a "grand" theory effort. In that model, classroom reading instruction is featured as a construct that affects children's reading. Short of relying upon a "grand" theory, some of the researchers among those in the lower-grades category, did provide their underlying hypothetical theoretical relationships between constructs of interest in their studies. Among the several possible exemplars of

researchers who explicitly provided such underlying theory in our report, here we reference just a few:

Taylor and colleagues (Taylor et al., 2003), who carefully laid out a set of teacher behavior variables that might hypothetically be related to different student literacy outcomes; Juel and Minden-Cupp (2000) and Jiménez and Guzmán (2003), both of whom explicitly hypothesized about which child reading processes might be promoted by particular kinds of instruction; Wolf (1998), who thoughtfully led the reader through ways in which teachers, students, and texts might co-construct meanings through social interaction.

A second noteworthy point about theory in the early-grade studies is that, among those researchers who did provide explicit theoretical undergirding, a wide array of constructs was represented, ranging from explicit teaching behaviors such as asking higher-level questions or coaching in relation to a child's internal mental representations, to particular forms of nonverbal communication, including external physical actions that accompany words, in relation to ways in which children demonstrate meanings.

Next, we move to an overall critique of the methodologies used in the K-5 studies. Notably, there were quite a few qualitative studies relative to the total number, and it is interesting that such work is appearing in some journals, such as the *Journal of Educational Psychology* and *Cognition and Instruction*, which traditionally have singularly published quantitative work. For researchers investigating effective teacher practices, greater use of a common coding scheme across studies would enable better comparison across samples and reports and also would facilitate meaningful aggregation of results across studies. Further, echoing our earlier point about the need for more theory-based methods, it would be helpful if more observational coding schemes were built in relation to explicit theoretical underpinnings about the relationships between particular teacher behaviors and particular student outcomes.

What topics and groups of children need further exploration in the future? Perhaps it is not surprising to find in our early-grades section more studies of word- or sound-level instruction than other areas of instruction and not surprising to find that such studies tended to be concentrated at the kindergarten and first-grade levels. Juel and Minden-Cupp (2000, p. 458) have said, "In preparing the grant proposal for the Center for the Improvement of Early Reading Achievement . . . , we asked teachers and administrators what research questions they most needed answered in order to improve primary-grade reading instruction. They raised more questions

about how to teach children to read words than any other area in early reading.” At the same time, reviews such as Adams’ (1990) landmark review of research on reading acquisition and the *Report of the National Reading Panel* (National Reading Panel, 2000) have emphasized the central role of phonological awareness and word recognition in early reading development.

However, the studies of word-level instruction since 1996 that we examined were about phonology. Few studies since 1996 have examined the impact of instruction that emphasizes semantics and syntax in word recognition strategies, such as teaching students how to use context clues for word recognition. It is useful to know that phonological understandings play a critical role in early word learning. At the same time, the utility of instruction in other psycholinguistic understandings, such as deployment of syntactic and semantic knowledge in contextual guessing continues to be debated (cf. Juel & Minden-Cupp, 2000). More research—and theory—that explores the interplay of instruction in more than one linguistic system (phonological, syntactic, and semantic) for word recognition might reveal more about the relative importance of each system and/or about their combinatory impact.

There were few studies in the comprehension, fluency, and affective instruction category, and the six that were found were also scattered across instruction related to the three areas. Perhaps recent public focus on phonology at the lower grade levels has led to lesser effort to understand instruction in other areas? In any case, more concerted study of instruction in such areas at the lower grade levels would perhaps inform the extent to which such instruction is beneficial and warranted. Further, it might be useful to study these instructional emphases in relation to word- and sound-level instructional emphases, so as to better ascertain the benefits and detriments of each, affording a larger picture of instructional needs.

Turning to the category of “overarching reading instruction,” some recent researchers have suggested that elementary classroom teachers’ reading instruction is not easily categorized as emphasizing one domain of reading processes over another (such as word- or code-emphasis versus meaning-emphasis). Rather, more often than not, their instruction tends to perhaps equally emphasize many different reading process, and as well, it tends to reflect an understanding of the connectedness of those processes. Over the last decade, the term “balanced reading instruction” is perhaps one of the most popular labels for such overarching instructional

frames. To some degree, when we researchers decontextualize selected reading instruction of particular reading processes in order to study them, we simplify in ways that have potential for distorting what actual classroom teachers do. Studying the “whole” of instruction, with all of its complexity, is appealing at least in part because it means studying what teachers actually do within the messiness of their classrooms. From this standpoint, the investigations in the “overarching reading instruction” category hit a necessary target in their effort to understand reading instruction in its broader, more layered, frame.

At the same time, investigations of broader instructional frames are perhaps among the most difficult to accomplish—because of what they are—messy, complicated, multi-faceted, and layered. Descriptions of those more complex instructional frames and how they interplay with student reading development are often studied through various forms of qualitative research methods. In these cases, one result is clearer delineation of the broader instructional frames, such as when a teacher’s “balanced reading instruction” is detailed and defined through careful description of its components and their interrelationships. Such delineation may be quite useful to teachers who want to implement similar reading instruction. Inferences about linkages between grand instructional frames and student reading growth might also provide valuable hypotheses for further study. One tentative inference from a subset of the investigations on overarching reading instruction with a small number of students is that what teachers emphasize in instruction tends to be reflected in student understandings about reading, and what teachers fail to emphasize may likewise fail to be learned by students. In short, what you teach matters in relation to what children learn. Although there is ample research at least as far back as the now-famous First Grade Studies (Bond & Dykstra, 1997) to suggest that children’s reading *achievement* is not dependent upon a particular *reading instruction method*, the body of research reviewed in this category provides a further and unique contribution indicating that nuances of *what* children learn *are* related to *what* teachers teach.

Still, correlational, quasi-experimental, and experimental research, done with an eye toward permitting firmer causal inferences between the broader instructional frame and development of student knowledge about reading, is downright problematic. First, the parameters of the overall instructional frame must be very clearly defined, and it is sometimes very difficult to do that. Second, in most of this research, even if significant results

are obtained, what we learn is that something about the overarching instruction mattered. What we generally do not know is whether some particular component(s) in the package might have accounted for the significant results. What might be productive in future research are quasi-experimental and experimental studies that build in controls for the various components so that effects of particular features of the overarching instructional package, and even interactions among them, may be assessed. Additionally, examining shifts in student learning over time in relation to the instructional frame would lend a better sense of whether particular instructional components ought to be emphasized more at different times in a student's reading development. In other words, "grand" repeated measures designs, controlling for, and comparing different components of an overarching reading instructional frame might hold promise for further informing classroom teachers about nuances of their already complex reading instruction. But what would it take to accomplish such research? Most likely, it would require teams of researchers, with considerable funding, and considerable time.

Notably absent were studies of teachers using technology to enhance children's reading—one exception was the study by Mathes and colleagues (2001) in which there was a computer-assisted-instruction condition—studies of vocabulary meaning instruction, and of metacognition instruction. There were but a few studies involving English-language learners or children with disabilities, and no studies of bilingual reading instruction. All of these areas would be fruitful future venues.

Middle and High School Level

As with the early-grade studies, we begin our critique of the research on middle and school reading instruction by attending to theory development. Although we applaud the relatively well-grounded theoretical work that undergirds the qualitative studies reported in this section, we are hard pressed to find the same depth of theorizing in the quantitative studies. Further, regarding the research on instruction for students with reading disabilities, we were disappointed to find that only one of the two studies that met our criteria for inclusion had an explicitly stated theoretical frame. To underscore the need for greater understanding of why a particular intervention works for which students under what conditions, it is essential that researchers move beyond a simple "what works" frame of thinking. We support full disclosure of the theory (or theories) underlying a particular intervention. In addition, we suggest that researchers provide a relatively detailed analysis of the

assumptions inherent in a particular theory and describe why those assumptions could be expected to have an impact on how an intervention is implemented.

Methodologically speaking, it was somewhat rare to find a study at the middle and high school level that included open-ended dependent measures or tasks that required students to think critically or to defend their answers in writing. This, despite the fact that nearly a decade ago, the National Educational Longitudinal Survey (NELS) report (Gamoran, Nystrand, Berends, & LePore, 1995), pointed out that reading instruction that emphasized understanding and analytical writing (as contrasted with instruction that emphasized grammar and lower level processing) was associated with higher achievement gains. On a more positive note, a good number of studies at the secondary level did include natural texts of sufficient length to merit the use of reading strategies. Given these observations, we commend researchers' use of natural texts and call for greater attention to reading-thinking-writing connections in the design of future reading instruction research at the secondary level.

The research on teaching and learning in content area reading classrooms at the middle and high school level varied considerably on several dimensions. Researchers choosing experimental or quasi-experimental designs presented ample evidence in support of their conclusions. Those choosing purely descriptive studies (either from a quantitative or qualitative perspective) were not as convincing in the data they presented. However, researchers who used naturalistic and case study designs tended on the whole to include exceedingly rich and complex data sets. Ethnographic studies of teachers providing content area reading instruction at the secondary level (and that were published between 1996 and 2004) were difficult to find. Although several qualitative studies used ethnographic methods, we did not find a single ethnography that met our criteria for inclusion. This would not have been the case had we considered studies published earlier than 1996 or in books. Thus, our inclination is to call for more rigorously designed and analyzed descriptive studies, as well as a renewed interest in ethnographic work at the secondary level.

Overall, we were not surprised to find that between 1996 and 2004 relatively few researchers have focused on reading instruction at the middle and secondary levels. This may change in the near future, however, with the growing emphasis on adolescent literacy. But for the present, even an expanded literature search that

included keywords such as *content area*, *subject matter*, *comprehension*, *analogical reasoning*, *textbooks*, *struggling readers*, *teaching strategies*, and *vocabulary* (in addition to the agreed-upon terms) produced a very limited data set. In addition, those found were focused largely on English/language arts classrooms. Thus, we recommend that researchers focus increasingly more on instruction that occurs in a broad array of content area classrooms (e.g., social studies, mathematics, science, foreign language, and so on).

We were also not surprised to find only two studies that incorporated media literacy in their design. For the most part, the studies that met our criteria for teaching and learning in reading at the middle and high school levels focused on traditional print materials and depended on paper-and-pencil tasks to measure the effectiveness of an intervention. This seems a bit out of synch with the growing literature on integrating literacy and technology in the curriculum (International Reading Association, 2001). To overcome this limitation in the research literature, we recommend that future research take into account the impact of newer information communication technologies (e.g., multimedia/hypermedia, email, instant messaging) on reading instruction at the secondary level. Doing so may more adequately reflect the multiliteracies youth have available (and make use of) in out-of-school settings.

Although one study focused on foreign language instruction and learning in Canada, we did not find a single study that investigated reading instruction for students who are learning English as a second language in the United States at the middle and high school level. The closest we came to locating such a study was Jimenéz and Gersten's (1999) investigation of the instructional practices of two Latina/o elementary school teachers who provided quality instruction aimed at preparing their students "to benefit from all-English instruction in middle school" (p. 274). This seemed a bit incongruous given the growing number of linguistically and culturally different students in our schools. Taking into account Langer's (2001) work with "beat the odds" schools, it would seem exceedingly important that researchers design studies that take into consideration the reading needs of English language learners in subject matter classrooms at the middle and high school level.

Another underrepresented area of research was that dealing with preservice or beginning level teachers' professional development needs. We did not find a single study that met our inclusion criteria and that also examined how preservice or early induction-year teachers instruct students in content area reading. This seemed

telling to us because it marked a serious gap in the research knowledge base, especially given the grave concerns surrounding the retention issue in the early years of teaching. Highlighting these concerns was a Capitol Hill briefing on June 23, 2004, by the Alliance for Excellent Education, a bipartisan policy group located in Washington, DC. Among other things, the briefing pointed out that “American schools spend more than \$2.6 billion annually replacing teachers who have dropped out of the teaching profession.” This report, which is available at <http://www.all4ed.org/publications/TappingThePotential/index.html>), also pointed out that comprehensive induction, especially in a teacher's first two years on the job, is the single most effective strategy for stemming a rapidly increasing teacher attrition rate. Strickland's (2002) work on the importance of studying professional development and its impact on content literacy instruction would seem to support the Alliance's findings. Given the situation just described, we recommend developing a line of research that examines the specific needs of preservice and induction-year teachers who are expected to assume instructional responsibilities for middle and high school students' reading growth in content area classes.

In contrast to the notable absence of research on beginning teachers' professional development needs, special educators seem particularly active in the area of researching effective reading instruction at the secondary level. To us, this makes sense given that adolescents who struggle with their school reading assignments are often those who have been identified previously as having learning disabilities. One particularly interesting finding was that special education researchers are becoming increasingly focused on studying the instructional needs of students with reading disabilities in general education classrooms. The rationale they give is that teachers in these general education classrooms are often reluctant to implement an intervention that will benefit only a subset of the class. Considering this possibility, we have to wonder why much of the research to date has not been designed to examine the effectiveness of instructional interventions for students of all ability levels in general education classrooms.

College Level

As with the other studies, we begin our critique of the college level studies by focusing on theory. On a consistent basis theoretical rationales and explanations were provided for the strategies and techniques (e.g., summarization, networking) that students were trained to employ. However, what was missing in many of the

studies was an overarching or encompassing theory that detailed a rationale, a set of assumptions, or an explanation as to how the targeted strategy or technique related to other variables having an impact on students' comprehension. To illustrate, an encompassing theory such as self-regulated learning could have been used to explain the possible relationship between students' metacognitive judgments, their self-evaluations, and their subsequent reading comprehension.

The research studies on comprehension instruction at the college level have been limited in scope in two basic ways. First, most of the studies included in this review employed either experimental or quasi-experimental designs. Although we applaud the rigor and quality of these studies, we urge future researchers to consider the use of descriptive case studies, ethnographic studies, and multi-design studies that incorporate both qualitative and quantitative data sources. Second, an overwhelming majority of the studies in this review focused on strategies or heuristics that have been researched extensively. Rather than conducting another study on summarization, we think it would be advantageous to investigate planning, calibrating, or evaluating, higher level cognitive processes critical to college students' reading and learning from (and with) text. Such research endeavors would be unique and a contribution to the field.

Turning to methodology, we were concerned that so many of the studies we read and reviewed were still using free recall measures as a means to measure students' reading comprehension. Because free recall measures are not typical tasks for college students, they lack ecological validity. If we really want to know whether students have improved their reading comprehension, it would be advantageous to incorporate into our studies dependent measures that encourage students to think on higher levels and to apply the techniques they have learned. For example, in the Shanahan, Holschuh, and Hubbard (in press) study on critical thinking about multiple sources, one of the dependent measures, an essay exam, asked students to answer a question that required them to construct a generalization about what they had read during the training period. To investigate transfer in even more depth, Shanahan and colleagues also required students to read and incorporate another text (an excerpt they had been given during the exam) into their essay answer.

If dependent measures need to be more representative and challenging, so do the texts that students read during training sessions and testing periods. In most of the studies we reviewed, participants were reading short

(i.e., 200-1400 words) expository passages taken from psychology or humanities textbooks. Admittedly, some of the studies (e.g., Hacker, Bol, Horgan, & Rakow, 2000) used lengthy text pieces, but that was the exception. One wonders why a student would need to try out a new comprehension strategy technique with such short passages. Given these trends, we recommend that researchers design studies using authentic texts from a variety of academic disciplines (e.g., chemistry, biology) and to consider the use of alternative texts such as magazines and newspapers as Manuel (2002) did in her study.

In a similar vein, it would be refreshing to see more studies that assessed students' progress and improvement after a sufficient period of time, allowing for numerous samples of their behaviors and skills before, during and after the targeted instruction. Measuring students' progress after instruction certainly implies a time frame sufficient to measure their control and transfer of a strategy or technique. In fact, most studies would benefit from multiple data collection methods that converge and provide triangulation for the findings. To illustrate, in Butler's study (1998) of learning disabled students tutored in a clinical situation (and thus not included in our review), the students completed a variety of quantitative and qualitative measures throughout the study to measure their metacognition, reading performance, motivation, and strategy transfer.

Methodologically speaking, it was a bit disconcerting to note that most of the studies did not include an effort to trace or validate whether students had mastered the targeted technique or whether they had actually used the technique during the criterion-testing period. In the one study that did address the issue of how students were actually reading the targeted passages, they were asked to complete a self-report questionnaire at the end of the study. Admittedly, it is difficult to conceive and operationalize a method to trace students' internal processing, strategy transfer, and improvement, but it is an important challenge the field needs to address. Some researchers (Butler, 1998; Nist, Simpson, Olejnik, & Mealey, 1991) have sought a compromise by collecting students' actual work and coding it to reveal patterns of progress, but these tasks are extremely time consuming.

Implications for Classroom Practice

In this section, we discuss implications for classroom practice based on the main findings reported in the summaries following each of the three grade level categories (K-5, middle/high school level, and college level). Taking each of the main findings, one at a time, we draw corresponding implications for classroom practice.

K through Grade Five

First, effective teachers in kindergarten through fifth grade tend to teach in particular ways. Teachers might aim to internalize the cluster of behaviors that were noted in the findings and in the previous summary of main findings. On the whole, the portrait of the effective teacher is of someone who has a “balanced” outlook about teaching students to learn about various internal processes and mechanisms and who teaches students in ways that encourage self-regulation and positive dispositions toward reading.

Second, the findings about explicit instruction in phonics were interesting in that they represent a refinement of some past conclusions. They suggest that, on average, for kindergarten and first grade, explicit phonics instruction is very helpful, and it is particularly helpful for children who enter school at lower literacy levels. However, on average, from second grade onwards, such instruction tends to be associated with lower reading achievement growth or is no more effective than another approach. Taken together, the implication of these findings is that, on the whole, teachers might emphasize phonics more in kindergarten and first grade, and then, from second-grade onward, increase emphasis on other kinds of word recognition strategies as well as on other subprocesses of reading while simultaneously decreasing emphasis on phonics. Of course, there would be exceptions when individual children in second grade and above are reading on lower grade levels and may need instructional emphasis on phonics.

Third, although explicit comprehension strategy instruction has not been clearly shown to enhance reading level or reading achievement, it seems prudent at the present time to suggest that teachers do such instruction as it is likely to broaden children’s repertoire of strategic thinking for meaning making.

Fourth, only one study was found in which student discussion about text was enhanced, and as such, the finding here is quite tentative. However, the results of this study lead to the belief that when teachers learn how

to structure lessons so as to encourage student dialog, enriched understandings are more likely created and learned.

Fifth, one study pointed to the affective impact of joining drama with reading instruction. Here again, we see an implied benefit of teachers' understanding of reading processes as more than just internal cognitive mechanisms involving mental routines and strategies. Wanting to read and liking to read are equally as important as having the cognitive strategies and skills to do it, and classroom theatre may be one useful instructional means of engagement.

Sixth, when we think of overarching reading instruction, we again see benefits of teachers targeting a wide array of goals for their students learning. At least at the lower grade levels, instruction that balances the cognitive with the affective, the child-centered with the teacher-centered, may be associated with students, including multilingual learners, assuming similarly balanced understandings of reading and what it means to be a reader. And to learn to read, children need to do it. Books on tape appear to be particularly beneficial for English-language learners. At the same time, only one study compared the effectiveness of whole reading programs, and so it is difficult to make inferences about the effectiveness of balanced approaches to reading instruction as compared to other approaches.

Seventh, the finding in one study that cognitive abilities in kindergarten mattered more than instructional program for later word-reading abilities, may have more implications for how teachers think about their instruction relative to student individual differences than for what instructional to use. That is, teachers might well consider a student's reading developmental level and adjust and modulate instruction in relation to that level.

Eighth, and here we echo the sentiment just expressed, the one study involving third-grade children with learning disabilities suggests that teachers did not modulate instruction for those children. Given that some of the research on effective reading instruction practices suggests that small-group instruction is related to children's reading progress, it seems likely that students with learning disabilities, might benefit from lessons that are modulated to address the critical features of learning associated with their particular reading levels.

Middle and High School Grades

First, explicit and systematic instruction in the use of a wide range of reading strategies can support students' comprehension of content area texts—whether in print, visual, or digital media forms. This support appears to come from teachers' attention to the importance of helping students organize or summarize information in meaningful ways. Such organizational skills also enhance students' chances of remembering content long enough to integrate it with other subject matter learning.

Second, and here it is abundantly clear that teachers who invite students to take an active role in content area reading and learning base their instruction on students' needs and interests as much as possible. Whether this is done through choosing relevant reading materials, keeping students apprised of the progress they are making toward short- and long-term goals, or simply providing an open forum for discussion, teachers who are student-centered in their approaches to instruction can expect increased student performance on a variety of outcome measures.

Third, teachers at the middle and high school level can be assured that instructional techniques developed for students with learning disabilities to increase their sense of self-competency will benefit students from a wide range of ability levels. This is especially important for inclusion classroom teachers to know. In short, effective instructional interventions such as Reciprocal Teaching and prior knowledge activation are procedures for enabling all students to internalize the knowledge and skills necessary for engaging in challenging literacy tasks on their own.

Fourth, instruction that encourages students to make connections between what they know already and what they are expected to learn that is new from reading a variety of text types will build self-efficacy and a sense of accomplishment. Toward a related end, teachers can capitalize on adolescents' interests in socializing with their peers by building into the school day opportunities for collaborative reading and writing activities. Such activities are likely to foster student engagement by helping them make connections between literacies they value out of school and those they are expected to apply in their content area classes.

College Level

First, the trends from the literature indicated that college instructors can improve their students' comprehension and retention of expository text if they teach them how to summarize and organize information.

When students are summarizing information using their own words and forging relationships between ideas into a format or organizational schema, they are actively engaged in their reading.

Second, explicit instruction in how to conduct verbal rehearsals or self-explanations and how to participate in reciprocal teaching can enhance students' comprehension, especially those students who profit from verbal, interactive opportunities. These findings echo the ones from the studies conducted with middle school and high school students.

Third, two studies suggested that students benefit from being taught how to make accurate metacognitive judgments about their understanding and how to calibrate their planning processes and strategy choices. However, college instructors should remember that initially it will be the higher performing students (i.e., the ones scoring better on content area exams) who will understand and embrace these metacognitive and self-regulatory processes.

Finally, college instructors hoping to improve their students' critical thinking skills should know that it is a difficult, but not impossible teaching task. As determined in Manuel's (2002) study, some students may quickly master the skill of evaluating documents, but others will need a sustained period of time. In fact, it should be noted for each of the strategies, heuristics, and skills outlined in this section that it is important for college instructors to plan their interventions over a sustained time frame and to provide numerous opportunities for modeling, guided practice, and feedback. Moreover, it is important for instructors to stress, sometimes in a recursive fashion, the advantages and costs of each targeted strategy or technique.

Cross-Grade Trends and Issues

Findings from the 51 studies on reading instruction that met our criteria for inclusion in this chapter share some common attributes, namely, the cross-grade trends and issues that we focus on next. Before we do so, however, we make two prefatory comments. First, on the whole, while our inclusion/exclusion criteria may have narrowed the number of studies considerably, we believe that those criteria resulted in a set of studies that were at least reasonably well conducted, and some were clearly representations of research done at its finest. The quality of the research suggests that we may, with some justification, place good faith in the findings. At the same time, a fair number of researchers did not provide complete details about measures and/or about

reliabilities for measures, practices that should become standard in the future—at least for the purposes of informing readers so that they can judge the extent to which findings might be considered reliable and valid.

Second, it is important to point out that despite concerted efforts by researchers, school-based educators, and policymakers across the last decade, reading achievement gaps between and among groups of students stubbornly persist (Alliance for Excellent Education, 2004; Kamil, 2003; RAND Reading Study Group, 2002; Strickland & Alvermann, 2004). It is with these gaps in mind that we wrote the chapter's final section.

A Need for Multiple Frames and Methodologies

The wide array of theoretical constructs in evidence across the studies represented in this chapter might be construed to be a healthy sign. That is, one might argue that diverse theoretical frameworks represent researchers' efforts to work amidst a universe of diverse epistemologies. For example, in the early grades this diversity of effort could reflect researchers' interests in gaining knowledge about (and knowing how) to teach reading in relation to young children's cognitive and social development. Spelled out, this developmental interest might be oriented toward studies of children's internal and mental states (such as their strategic thinking or knowledge about phonology); alternatively, it might be situated between and among teachers' and children's minds and texts, or in some complementary combinations of internal and external representations and actions. At the middle and high school level, a proclivity for diverse theorizing might reflect researchers' attempts to frame their studies in ways that account for teachers' epistemological beliefs about adolescents' multiple ways of knowing. Or, it might reflect researchers' attempts to cast a broad net in looking for answers (partial at best) to complex issues surrounding the acknowledged decline in adolescents' motivations for reading, especially school-related reading. At the college level, the tendency to theorize a variety of specific strategies and techniques (while simultaneously overlooking opportunities to understand the more encompassing relationships among variables of interest) might reflect the field's current views of what counts as college level reading. It seems to us that exploring the fullest array of possible theoretical frameworks holds the greatest potential for furthering understandings about classroom reading instruction and students' reading development.

Just as we suggest that the wide array of theoretical frameworks represented in the 51 studies included here is a healthy sign, we also suggest that diversity in methodologies is welcomed and needed. Different

research questions beg different methodologies; thus, one's question(s) and choice of methodology are inextricably linked. In the early grades, researchers have attended to this linkage by choosing methodologies that enable them to examine a wide-reaching range of issues, stretching from the instructional impact on children's phonological awareness to the ways in which Reader's Theatre enhances children's understandings of what it means to be literate. Equally diverse is the span of methodologies chosen by researchers who conduct their studies at the secondary level. However, we would maintain that the methodologies used in studying adolescent reading instruction reflect a more restricted range of research questions. This might be due to the greater focus during the middle and high school years on "fixing" reading difficulties—a concept that is increasingly shot full with critiques of the notion that teachers should be changing *students* rather than re/mediating the *conditions* in which students learn (Alvermann & Rush; 2004; Flood & Lapp, 1997; Luke & Elkins, 2000). A similar concern for "fixing" students' reading comprehension occurs at the college level. All too often mandated reading strategy courses focus their goals, almost exclusively, on raising students' scores on standardized reading tests. Unfortunately, courses such as these are myopic in that they do not address the academic tasks that students must confront once they score at the specified level on the reading test and exit the mandated course.

A Need for Studies of Content Area Reading Instruction

At the elementary level, no studies specifically involving content area reading instruction and learning were located for this review. Broadening the scope of research into reading in the content areas would likely better inform our understandings of instruction as it relates to helping young children read to learn. It is in the content areas that we most typically find informational texts, and such reading texts can require ways of thinking and knowing that are different from those used when reading narrative texts. Research on elementary-grades reading instruction and learning in the content areas could help us to better gauge the extent to which such instruction has transformative power for shaping students' abilities to ways of considering reading for learning as well as the extent to which such instruction affects students' breadth and depth of content knowledge.

Studies of reading instruction conducted at the middle and high school level have tended to focus overwhelmingly on the English language arts curriculum, if not specifically on the teaching and learning that goes on in English classes. This bias toward the English language arts is perhaps understandable given some rather longstanding beliefs that reading is the primary “subject matter” of elementary teachers and that students should be prepared to read grade-level texts by the time they enter the middle grades. The fact that neither of these beliefs (or assumptions as some might claim) is accurate is even more reason for designing studies of content area reading instruction that encompass more than the English language arts. A further reason for broadening the disciplinary areas in which content reading instruction is studied lies in the increased number of students who speak a language other than English as their first language. Teaching additional languages is a form of instruction that has important implications for content learning at the secondary level; yet it has been largely ignored in the current research.

Because most of the studies conducted at the college level focus on the familiar or comfortable settings of a psychology or literature course, we know very little about reading and learning from (and with) texts in the other academic disciplines such as chemistry, biology, or physics. Moreover, because the research has focused almost exclusively on training students to read single pieces of expository text, we cannot recommend research-validated techniques or suggestions that would assist students as they read alternative texts or as they struggle to reconcile multiple, conflicting sources on the same topic. Shortcomings such as these suggest the need for studies that cut across disciplines and text types.

A Need for Finer Grained Analyses

With few exceptions, the middle-grades and high school studies included in this chapter reflect the research community’s continued reliance on global means of assessment. Without more fine-grained analyses of the influence of individual differences in the research on reading instruction in kindergarten through the postsecondary level, the field is left with partial, at best, understandings of which interventions work and why, as well as which students benefit more or less from such interventions and why.

Middle and high school researchers of reading instruction studies that met our criteria for inclusion tended to be satisfied with global measures of comprehension and vocabulary development. This would come as

no surprise had we limited our review to include only quantitative or large-scale descriptive studies.

However, such was not the case. With few notable exceptions, assessments of student outcomes were mostly limited to standardized reading achievement tests or researcher-constructed measures of comprehension and vocabulary development. Even adolescents' interests in (and attitudes toward) a particular instructional intervention were captured by means of survey instruments that measured only the most surface-level features of the intervention. Finer grained analyses, especially the kind associated with ethnographies and descriptive case studies of classroom-based content area reading instruction, are needed if we are to understand the nuances of such instruction. Practically speaking, however, this is a tall order inasmuch as ethnographies take a long time to do and their findings do not generalize.

As with the studies conducted with elementary, middle school, and high school students, the studies conducted at the college level rely on global measures of comprehension. Because these studies have not included designs and instruments that invite finer grained analyses, we never are sure whether college students are actually employing a particular strategy or technique and if so, why. Descriptive case studies with multiple, overlapping data sources could be conducted in order to trace students' behaviors over a period of time and provide researchers insights into what type of students benefit and what type of students may need a longer period of time to master a targeted skill or strategy.

Table 1. Criteria for Inclusion/Exclusion of Studies

Include	Exclude
Journal articles only	Tech reports, dissertations, theses, ERIC docs, books, book chapters, monographs, Evaluation studies
Publication dates between January 1996 and February 2004	
Span of grade/age levels is Kindergarten through adult	Preschool
Focus is on “ <i>regular</i> ” classroom reading instruction. The stipulation here is upon the setting, not the participants. For instance, students with learning disabilities being taught in a mainstream classroom would be included here.	Supplementary reading instruction efforts—not including: “tutoring,” Reading Recovery or similar supplementary interventions Reading instruction that takes place in “special education” setting. For instance, students with learning disabilities taught in Resource room setting would not be included.
Focus is on classroom <i>teacher</i> reading instruction. The stipulation here is that the research focus on teacher action or teacher-pupil interaction, not upon a “packaged” program Re “whole language” or “dual language” programs, include if researchers report a teacher using either of these as her instruction.	Studies of “pre-packaged programs”
Focus is on classroom teacher reading <i>instruction</i> . The stipulation here again is that the research focuses on teacher action or teacher-pupil interaction, not <i>solely</i> upon student learning.	Studies of student learning in reading where no teacher instruction was studied. Studies of reading assessment where no teacher instruction was studied.
For experiments or quasi-experiments, the study had to have a control or comparison group or normative data. Where comparison groups are used, need to be more than 4 subjects. For quasi-experiments, must be pre-testing of outcomes of interest (with the exception of regression discontinuity	

<p>designs).</p> <p>For correlational studies, samples have to have 20 subjects or more</p>	
<p>Criteria for rigor in qualitative work is dependent upon the particular paradigm used. However, in general, reports of qualitative research should contain all of the following:</p> <ul style="list-style-type: none"> ○ detail how the study was done (e.g., an audit trail); reveal multiple perspectives and/or other forms of complexity; ○ show researcher reflectivity; address alternative explanations (how this is done varies greatly by genre); ○ present primary data, quotes, stories, scenes, and so on; ○ state conclusions about what has been learned, that is, show evidence of learning from the study rather than the study validating the author's original beliefs; ○ point to how the "learnings" relate to a wider discourse (G. Noblit, personal communication, January 18, 2004). 	

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