Results of the 2007 National Assessment of Educational Progress reading assessment revealed that scores have improved only slightly and we still have much work to do. Thirty-three percent of fourth graders and 26% of eighth graders are still below basic level and a substantial gap continues to exist between White students and their Black and Hispanic peers (Lee, Grigg, & Donahue, 2008). In addition, during the 2007–2008 school year, almost 30,000 schools failed to make adequate yearly progress under the No Child Left Behind Act and almost 1 in 5 of the nation’s public schools missed their target for annual yearly progress for 2 years or more and are now facing federal sanctions (Hoff, 2008). Educators, policymakers, families, and communities are concerned about these results, and efforts to improve instruction and education have garnered a good deal of attention from all quarters. Faced with this daunting task, many educators and researchers agree that a primary challenge is to understand and meet the wide range of student needs in reading and, ultimately, improve their performance.

Growing evidence suggests that high-quality reading instruction can be a powerful lever for preventing reading problems, decreasing the number of students identified as learning disabled, and significantly improving reading abilities of students who are low-performing (Allington, 2006; Allington & Wamsley, 2007; Clay, 2001; Johnston, 2002; Langer, 2001; Taylor & Pearson, 2002; Vellutino et al., 1996; Vellutino, Fletcher, Snowling, & Scanlon, 2004; Vellutino & Scanlon, 2002). One of the key features across effective instructional approaches and interventions is the teacher’s ability to differentiate instruction to meet the various needs of different particular populations of students as well as the particular strengths and needs of individual students. This already difficult task is made more difficult when one considers the complexity of the reading process and the ultimate goal of reading instruction—to help students comprehend written text. Reaching this goal requires a complex interactive process that includes cognitive, linguistic, motivational, and affective activity within equally complex situational contexts (Anderson, Hiebert, Scott, & Wilkinson, 1985). Broadly put, among the cognitive skills and strategies readers engage while reading are phonological awareness, visual and auditory memory and processing, semantic and syntactic processing, word reading, oral language, vocabulary, fluency, comprehension, background knowledge, reasoning, metacognition, and the like (NICHD, 2000; RAND Reading Study Group, 2002; Snow, Burns, Griffin, 1998). With such a complex process, it is easy to imagine the difficulty of determining students’ instructional needs.

This chapter reviews one way of thinking about students’ diverse educational needs: reading profiles of students with reading difficulties. In this context, a profile refers to the variability in reading-related skills and strategies within an individual student that characterize patterns of strengths and weaknesses. Calls for this type of multidimensional lens on reading difficulty have come from a broad spectrum of researchers and educators who are concerned that some perspectives on reading difficulty may oversimplify the nature of skilled as well as unskilled reading (i.e., Aaron, Joshi, & Williams, 1999; Carr, Brown, Vavrus, & Evans, 1990; Clay, 2001; Daneman, 1991; Wixson & Lipson, 1991; Spear-Swerling, 2004). Evidence suggests, for example, substantial variability within groups of good readers as well as poor, which likely leads to the equivocal results found in many intervention studies (Lipson & Wixson, 1986). The efforts to understand reading difficulty reviewed here consider multiple factors and interacting paths that appear to contribute to reading difficulty.

The studies reviewed here were selected with an eye toward the perspective of classroom teachers and possibilities for understanding reading instruction and assessment. They include investigations of profile variables such as phonemic awareness, decoding, fluency, and comprehension (reading or listening). To be sure, there are other aspects of reading that could and should be addressed through instruction but,
for the most part, these have not been addressed in studies that profile within-reader differences (see the conclusion for a discussion of this issue). Studies that examined profiles for the purpose of classifying students as learning disabled or comparing approaches to classification (e.g., Fletcher et al., 1994) or those that primarily included more general measures of cognition and perception such as attention, serial memory, cross-modal transfer, knowledge, modality, visual perception, and memory were not included although they may be of interest to some readers (cf. Swanson, Howard, & Saez, 2006; Vellutino & Denckla, 1991; Vellutino et al., 2004).

I take a conceptual approach to this review, rather than an exhaustive one, examining a number of different ways researchers have investigated and thought about reader profiles and various reader subgroups or subtypes. This is motivated, in part, by the fact that “reader profiles” is not a specific area of research such as individual differences, neurological processes, assessment, phonological awareness, and intervention. Therefore, this chapter draws from studies across a range of research priorities and topics with an eye toward those that consider multiple contributors to understanding the reading patterns of individual students. Across these studies, profiles are sometimes referred to as reader subtypes, cognitive profiles, component analysis, or reader types. All are used interchangeably in this review.

The focus for this volume is children with reading difficulties. Nevertheless, it is important to understand that most researchers take a dimensional perspective toward reading understanding—that reading ability is normally distributed across populations (Snow et al., 1998). The same skills, strategies, and factors influence reading competence at all points along the continuum with the lower end of the distribution representing reading disability. What this suggests is that there is no predetermined cut point for categorizing students as reading disabled or abled. As a result, the research reviewed here uses a variety of definitions and approaches to identify and examine profiles of struggling readers, thus making it difficult to compare specific findings. However, by examining the conceptual questions and general findings across studies, we begin to get a sense of how reader profiles might be considered and how they might help inform instruction.

The first section of this chapter provides background for this view of reader profiles, beginning with a brief history of early efforts to understand the complex nature of reading difficulty. The next section, reviews the research related to reader profiles by organizing the studies reviewed into three groups corresponding to general approaches used to study within-reader variability. The first group of studies draws from the work of educational psychologists who have examined multiple cognitive processes, often with an eye toward those underlying skilled and unskilled reading. The second group of studies examines interactions between specific types of instruction and particular reader abilities; these studies examine the differential efficacy of instruction for students with various patterns of reading strengths and needs. The third group of studies originates from educational policy and related concerns about instructional interventions that are assigned to students based on their scores on high-stakes assessment. In the final section of the chapter, I raise several issues that I believe should be considered as educators interpret research on reader profiles, consider implications for practice, and chart the course for future research.

Background on Reader Profiles

Perhaps one of the earliest efforts to examine variability of reading skills and strategies within an individual student can be traced to the work of William S. Gray and individual tests of oral reading (for excellent historical reviews see Pelosi, 1977b; Lipson & Wixson, 1986; Wixson & Lipson, 1991). Following the scientific movement in education at the turn of the century and the development of educational tests, including Thorndike’s first norm-referenced test of silent reading in 1914, there was a sense that objective evidence proved that many students across the country were failing to learn to read. This gave impetus into investigations of the problems students were experiencing and the causes of reading difficulty. Thorndike had called for more objective, accurate, and convenient measures of a student’s ability in four areas: pronounce words and sentences; understand the meaning of words and sentences read; appreciate “good literature” (Pelosi, 1977a, p. 39); and read orally clearly and effectively. For the most part, psychologists and educators of the time tried to isolate and evaluate these and other specific factors associated with good and poor reading. William Gray, a student of Thorndike, published the first oral reading test in 1916 with an eye toward examining various components of skilled reading.

Gray saw oral reading as a window on an individual’s reading abilities rather than an artful performance as others had. In addition to measuring the student’s rate of oral reading and ability to pronounce words and sentences, Gray also analyzed and categorized oral reading errors using a series of increasingly difficult reading passages much like informal reading inventories used today. Gray pointed out common types of errors and explained how they affected oral reading, and he noted that reading ability was influenced by the interaction of various factors. For example, he pointed out that purpose, text difficulty, and interest determined if the material would be understood (Lipson & Wixson, 1986) and brought attention to overreliance on rate as the sole criterion for judging good or poor reading (Pelosi, 1977a). Gray and his colleagues at the University of Chicago continued to conduct studies using the oral reading test as a window on the causes of reading disability, concluding in 1946 that reading problems were not typically caused by any one factor but by a combination of factors (Lipson & Wixson, 1986). So, the concept of individual and varying reader profiles was present as far back as the early 1900s.

In the 1970s and 1980s two groups of researchers took an
interest in subgroups of students with reading difficulties. In the field of learning disabilities, interest was spurred by efforts to improve the classification system and reduce heterogeneity of children identified as learning disabled (Kavale & Forness, 1987). This led to studies aimed at more precisely identifying homogeneous subtypes of learning disabled students based on their abilities across multiple factors or multiple levels within a single factor (e.g., IQ scores). Most often researchers in this field focused on neuropsychological, psychoeducational, and linguistic processing and skills to help them identify learning disabled students (Kavale & Forness, 1987). At about the same time, according to Wixson and Lipson (1991), information-processing research in the reading field was similarly exploring characteristics associated with reading disabilities, often focusing on cognitive processes underlying successful and unsuccessful reading and trying to simplify the problem by focusing on a single etiology. A good deal of the good-poor reader research led to efforts to link performance differences between the groups to reading disability. However, these good-poor reader studies often masked variability within the groups by averaging scores to compare groups. For example, if on average, poor readers were found to lack phonological skills it could not be assumed that all students in that group had poor phonological skills or that, by extension, all poor readers needed instruction in phonological skills. In fact, research is fairly clear that there is substantial variability within groups of poor readers as well as good readers; there is a good deal of heterogeneity within groups as well as between groups.

This brief review highlights the early interest in within-reader variability associated with the development of the first diagnostic reading assessments. In the 1970s and 1980s, however, with increased attention to students who were failing to learn to read, efforts turned to finding a simpler indicator or predictor of learning and reading disabilities. Nevertheless, research continued to suggest substantial variability within both good and poor readers and interest has turned, once again, to trying to understand the complex patterns of reading processes and strategies that underlie the reading difficulties of individual students.

**Review of Research**

**Reading Processes**

*Foundational studies on reading profiles.* Most studies related to reader profiles have been conducted by educational psychologists who examine the reading and learning to read processes and subprocesses. A major influence on these studies has been the so-called simple view of reading proposed by Gough and Tunmer (1986) and Hoover and Gough (1990) which suggests that reading comprehension is composed of two basic, independent components: word recognition and listening comprehension. Reading comprehension is assumed to be predicted from the product of the two. This model suggests that poor readers possess three different profiles: difficulties in word identification only, difficulties in listening comprehension only, and difficulties in both word identification and listening comprehension.

Catts, Hogan, and Fey (2003) investigated these three profiles. They confirmed the presence of the profiles as well as the overall independence of word identification and comprehension in a group of second-grade poor readers. Using composite scores from multiple measures of listening comprehension, phonological processing, word recognition, and reading comprehension, they reported that approximately one-third of the students had good or adequate listening comprehension but poor word recognition, approximately one-sixth had poor listening comprehension and good or adequate word identification, and approximately one-third had both poor listening comprehension and word identification skills. However, although poor readers differed in their strengths and weaknesses in word identification and comprehension, they didn’t cluster into homogenous subgroups. In other words, poor readers demonstrated a wide range of abilities in both word recognition and comprehension, a finding that is in line with the dimensional perspective suggested by Snow et al. (1998) described above. Surprisingly, approximately 13% of the students didn’t fall into any of the three categories. They scored above cutoff levels in both word recognition and listening comprehension, yet they had poor reading comprehension—a pattern that could not be explained by the model. Catts et al. (2003) hypothesized that this inability to account for children with what they termed nonspecific reading disorders might be attributed to measurement error or to variables other than word recognition and listening comprehension that contribute to reading comprehension. These basic findings ground much of the work related to reader profiles.

**Detailed models of reading profiles.** Spear-Swerling (2004) took a somewhat different approach to differentiating reading profiles by proposing a developmental model of the various cognitive processes involved in skilled reading. Based on the work of Spear-Swerling and Sternberg (1994) and influenced by cognitive psychologists such as Adams (1990), Hoover and Gough (1990), and LaBerge and Samuels (1974), Spear-Swerling described six phases of reading development. Virtually all students pass through these phases, although at different rates, as they progress from preschool to high school or college: (a) visual cue word recognition, (b) phonetic-cue word recognition, (c) controlled word recognition, (d) automatic word recognition, (e) strategic reading, and (f) proficient reading. Although the first three stages are fairly linear, once readers reach the third phase, controlled word recognition, the phases overlap, and students continue to develop word recognition and automaticity as well as strategic knowledge through the final three phases. Spear-Swerling conceptualized reading disabilities as deviations from this developmental path. She categorized students into three general performance profiles corresponding to Catts et al.’s (2003) three groups, and she added a layer of specificity to the subprofiles within each (see Figure 3.1). Thus, Spear-Swerling draws our attention...
TABLE 3.1
Cognitive Patterns of Reading Disability

<table>
<thead>
<tr>
<th>Profile</th>
<th>Phase</th>
<th>Pattern</th>
<th>Word Recognition</th>
<th>Oral Language Comprehension</th>
<th>Reading Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWRD</td>
<td>Visual cue</td>
<td>Nonalphabetic</td>
<td>No phonological decoding skills; uses visual skills</td>
<td>Average or better</td>
<td>Weak due to limited word recognition</td>
</tr>
<tr>
<td></td>
<td>Phonetic cue</td>
<td>Inaccurate</td>
<td>Some inaccurate phonological decoding; uses context cues to supplement</td>
<td>Average or better</td>
<td>Adequate with undemanding text; difficulty with more demanding text</td>
</tr>
<tr>
<td></td>
<td>Controlled word</td>
<td>Nonautomatic</td>
<td>Accurate, effortful word recognition; uses sentence context to supplement</td>
<td>Average or better</td>
<td>Adequate with undemanding text; difficulty with more demanding text</td>
</tr>
<tr>
<td></td>
<td>Automatic</td>
<td>Delayed</td>
<td>Accurate and automatic word recognition but lags behind peers</td>
<td>Average or better</td>
<td>Weak, impaired use of comprehension strategies</td>
</tr>
<tr>
<td>SCD</td>
<td>Strategic reading</td>
<td>Nonstrategic</td>
<td>Fairly accurate, automatic word recognition; acquired at normal rate</td>
<td>Sometimes below average</td>
<td>Weak, impaired use of comprehension strategies and weak comprehension</td>
</tr>
<tr>
<td></td>
<td>Strategic reading</td>
<td>Suboptimal</td>
<td>Fairly accurate, automatic word recognition; acquired at normal rate</td>
<td>Sometimes below average</td>
<td>Basic comprehension strategies but lacks higher-order strategies and comprehension</td>
</tr>
<tr>
<td>GVPR</td>
<td></td>
<td></td>
<td>Word recognition difficulties in any of the four subcategories</td>
<td>Below average</td>
<td>Usually weak due to below average word recognition and comprehension</td>
</tr>
</tbody>
</table>


...to both a developmental element and differentiation within the broad categories associated with the simple view.

According to Spear-Swerling’s (2004) model, difficulty in the first four phases of reading development results in a specific word-recognition deficit (SWRD), which is characterized by four subprofiles. Each is associated with one of the first four developmental stages, increasing in skill from nonalphabetic to delayed (see Table 3.1). Students in each of these four profiles do not have underlying general language problems or intellectual impairments, yet all of them demonstrate difficulty with reading comprehension as a result of deficient word recognition skills.

Students falling in the second major category, specific comprehension deficit (SCD), are characterized by adequate word recognition in the early grades yet difficulty with comprehension that may be related to limited prior knowledge, comprehension strategies, motivation, or general language abilities. Thus, reading comprehension difficulties may, but do not always, align with listening comprehension difficulties. The two SCD subcategories, Nonstrategic and Suboptimal, represent similar profiles of comprehension difficulty that differ in degree of severity and ability in higher-levels of reading comprehension.

The last major category in this model, garden-variety poor reading (GVPR), is comprised of students who experience difficulty with both word identification and listening comprehension. Their word identification problems are often obvious in the primary grades but their comprehension difficulties are often overlooked initially because the texts are not demanding and reading comprehension cannot take place without a basic level of word reading. However, even after their word recognition difficulties have been addressed, comprehension continues to present difficulties for these students, in part, because of their general language comprehension problems.

Spear-Swerling (2004) argued that cognitive profiles such as these can be exceedingly useful in early identification and instructional planning for students with reading difficulties. For example, a child with poor reading comprehension that is related to word identification difficulties requires a different instructional approach than a child who has low performance in both word recognition and overall language skills. Furthermore, the developmental descriptions of subcategories within each broad area are likely to provide needed specificity to help with diagnosis and instruction. Spear-Swerling cautioned, however, that both intrinsic factors (e.g., motivation, temperament) and extrinsic factors (e.g., experience, instruction, home environment) play a role in good and poor reading and are likely to influence how students engage their skills while reading. Consequently, this developmental model must be considered together with other influences on reading performance.

A question that arises from Spear-Swerling’s (2004) developmental model is whether children exhibit different patterns of reading abilities or disabilities at different points in their development. On the one hand, students’ instructional experiences, language development, and cognitive maturation over time are likely to influence their skill and strategy development. On the other hand, they are also progressing through stages of reading development in which the focus shifts from learning to read to reading to learn—from a primary emphasis on phonological and word recognition skills to a primary focus on comprehension and deep understanding of text. Both are likely to influence definitions of reading competence, primacy of different
reading components, and, ultimately, the profiles of struggling readers (Chall, 1983). This concept was investigated in the study described next.

Leach, Scarborough, and Rescorla (2003) examined the reading profiles of fourth- and fifth-grade students, some of whom had been identified in third grade as reading disabled (early identified) and others who had not been identified as reading disabled until fourth or fifth grade (late identified). They were interested in the nature of reader profiles of low-performing students at different stages in their reading development. Using eight separate measures of literacy skills, the authors categorized students as having a reading comprehension deficit (reading and listening comprehension) and/or a word-level deficit (speed and accuracy of pseudoword and real word reading, spelling). This resulted in four groups, similar to the basic groups identified in studies reviewed above by Catts et al. (2003) and Spear-Swerling (2004): comprehension deficit but no word level deficit; word deficit but no comprehension deficit; deficits in both word identification and comprehension; no deficits (no reading disability).

Four findings from this study contribute to a growing understanding of reader profiles. First, late-identified students in fourth and fifth grade were not a homogeneous group, a finding that mirrors that of Catts et al.’s (2003) with second-grade poor readers. Approximately one-third had word-level deficits without comprehension deficits, one-third had weak comprehension skills with good word-level skills, and one-third demonstrated deficits in both areas. As in the other studies, this evidence supports the concept of within-student variability. Second, reader profiles for early- and late-identified students differed substantially. Very few (6%) early-identified third-grade students had a deficit only in comprehension as compared to 33% of the late-identified students in fourth or fifth grade. These results are consistent with others that find reading comprehension problems prevalent among older students (RAND, 2002). However, Leach et al. (2003) also note that comprehension difficulties may be difficult to detect in the early grades because primary texts and tests of comprehension are generally not conceptually challenging. This finding holds implications for the types of measures that are used in determining reader profiles. In the example of this study, alternative measures of comprehension at third grade may have produced different reader profiles and may have identified some children who were later identified at fourth or fifth grade.

A third finding from Leach and colleagues (2003) that illuminates issues related to reader profiles is that late-identified students did not simply demonstrate more severe forms of the difficulties experienced by children in earlier grades, nor were they inadvertently overlooked in earlier grades. They displayed profiles of reading difficulty that were not present for them in earlier grades; their difficulties were not just late identified, they were also late emerging (see also Badian, 1999). This suggests that using reading profiles in the early grades to identify students in need of early intervention is insufficient. Students’ reading profiles need to be reexamined at later grades using measures that align with increasing comprehension demands so that newly emerging reading difficulties can be identified. Finally, data from multiple assessments administered in this study indicated that reading comprehension difficulties in late-identified students did not stem solely from poor word recognition skills but were likely influenced by multiple factors including oral language, vocabulary, background knowledge, and inferential abilities. Conversely, students with poor word-level skills but strong reading comprehension, vocabulary, and listening abilities were likely able to comprehend by using their strong linguistic abilities and context clues to compensate for low phonological awareness and speed and accuracy of word reading. These findings are a reminder of the interactive and compensatory nature of reading (Stanovich, 1980), even in models that purport to have independent components, and of the added specificity provided by multiple measures that might productively inform instruction.

In sum, each of the studies in this section addressed somewhat different aspects of reader profiles, ranging from three basic reader subgroups to more detailed developmental descriptions of profiles. The heterogeneous nature of reading disabilities and developmental changes in students’ profiles suggest further study is needed of reading components, assessments, and the frequency of profile construction. All the studies reviewed share a common model of reading ability and disability—the simple view of reading—in which reading comprehension is predicted to result from word identification and listening comprehension. This seems to be the general case for most studies related to reader profiles that flow from the research of educational psychologists and special educators who study reading disability at the elementary level. As a result, the components that have received most attention are word recognition (and related phonological and decoding skills) and comprehension (listening and reading). Although several researchers in this field have acknowledged the role of psychological, contextual, and cultural factors on reading ability (Aaron, Joshi, Gooden, & Bentum, 2008; Spear-Swerling, 2004), few have systematically addressed them.

**Student-Instruction Interactions**

A second area of study that has touched on the concept of reader profiles is instruction. The studies most relevant to a focus on within-reader variability are those that examine interactions between individual students’ skills and the nature of the instruction they receive—often referred to as student-instruction interactions. Some studies investigate general classroom instruction to examine its effectiveness for students who have a range of reading needs; others are beginning to target specific instructional interventions for students with particular needs. This concept of differential responses and differential instruction has been highlighted by the National Reading Panel Report (NICHD, 2000) in its call for additional research on instructional strategies.
appropriate for students of different abilities, ages, and levels of reading disability. And, clearly, student-instruction interaction is at the heart of Response to Instruction (RTI) and the movement away from discrepancy models of disability (see chapter 13, this volume).

In many ways, current efforts to examine student-instruction interactions grew from earlier work in aptitude-by-treatment interactions (ATI). It asserted that some instructional strategies are more or less effective for individuals, depending on their abilities (Cronbach & Snow, 1977). Much of that early work defined student aptitude in terms of broad, global traits such as intelligence, perceptual skills, and modalities. Critics suggested that ATI research had failed to produce positive gains and that both aptitudes and treatments had been too narrowly defined, failing to adequately address development, the multivariate nature of students’ abilities, and the changing nature of learning and psychological factors in various contexts (Speece, 1990). Although the studies reviewed below do not address all the concerns raised about ATI, they do, to a degree, address concerns about examining multiple aspects of learning and instruction, and therefore, provide another view on reader profiles.

Research on the effects of instruction on elementary-grade students with varying abilities is exemplified by the work of Conner and colleagues (Conner, Morrison, & Katch, 2004a; Conner, Morrison, & Petrella, 2004b) and Juel and Minden-Cupp (2000). In general, these studies used classroom observations to document the nature and amount of reading instruction occurring in natural classrooms (i.e., no intervention or professional development) and employed an assortment of measures to characterize students’ reading profiles with respect to phonological processes, word reading, vocabulary, and comprehension.

Connor et al. (2004a, 2004b) investigated the efficacy of instruction in first- and third-grade classrooms. They coded observed classroom activities according to three dimensions: (a) whether the activity was teacher managed or child managed, (b) the focus of the work (decoding or meaning-focus), and (c) the change in amount of instructional activities over the school year. In one study of reading comprehension in third-grade classrooms, they found that children who began the school year with lower reading comprehension skills demonstrated greater growth in comprehension when they were provided teacher-managed, meaning-based activities such as reading comprehension strategies and vocabulary. In contrast, children with higher initial comprehension ability made greater gains in comprehension when more time was spent on child-managed comprehension activities such as silent reading, partner reading, and independent writing. Overall, teacher-managed decoding activities did not have a significant effect on children’s comprehension although very little time was spent on these types of activities in any of the classrooms. However, student-managed decoding activities such as phonics worksheets and spelling activities had a negative effect on reading comprehension for all children.

Juel and Minden-Cupp’s (2000) study of first-grade instruction provides another lens on first-grade profiles and instruction. Like Conner et al. (2004a, 2004b), Juel and Minden-Cupp combined natural classroom observations with assessments of students’ reading abilities so that student-instruction interactions could be investigated. However, unlike Connor et al., they focused on a finer-grained analysis of instruction, centering on linguistic units of instruction (e.g., whole words, rimes, long vowels) and the various types of reading experiences of individual children in the classroom (e.g., materials, instructional strategies, activities). In addition, students were assessed on a wider range of reading measures: alphabet knowledge, letter sound awareness, word recognition, decoding strategies, and oral passage reading and comprehension.

Juel and Minden-Cupp (2000) found significant differences at the end of the year in both oral passage reading and comprehension for children across classrooms. However, there were important interactions between students’ profiles of reading skills and the type of instruction they received, even within the same classroom. Children who entered first grade with middle-range early literacy skills in alphabet knowledge and spelling-sound knowledge were more likely to make exceptional growth in classrooms where there was a less-structured phonics curriculum, more reading of trade books, and more time for writing. This was in sharp contrast to students who entered first grade with the fewest and lowest level of literacy skills. These low-range first-grade students benefited most from phonics instruction that included activities such as writing for sounds, hands-on phonics activities involving children in active decision making, comparing and contrasting sounds and spelling patterns, finger pointing while reading, and combining onset and rime instruction with sequential letter-sound decoding.
Although the children were instructed in small groups, effective teachers differentiated instruction even further within those groups to meet students’ needs. And, similar to Conner et al.’s (2004a) findings, the low-ability students who had made good progress in word recognition by the middle of the year benefited from the same type of increased attention to meaning-based activities, vocabulary, variety of texts, and text discussions as their more skilled peers.

An alternative approach to studying student-instruction interactions is to first determine students’ reading needs, based on their individual reader profiles, and then provide targeted instruction. So, instead of studying general classroom instruction to determine differential effects on students with a variety of needs, this approach begins with differentiated instruction based on the profile. Few studies have taken this approach but more are likely to emerge as RTI is implemented. Connor et al. (2007) conducted a cluster-randomized field trial to test the effects of their findings discussed above on first-grade students. She and colleagues designed a web-based software program to calibrate and manage the context (decoding or comprehension), structure (teacher-managed or student-managed), and amount of instruction based on individual students’ word reading and listening vocabulary. Teachers in the experimental group received intensive professional development on individualizing instruction, on-site coaching support, and training using the program. Using algorithms based on Connor et al.’s (2004a) earlier work in first grade, the program provided teachers with recommendations for homogenous grouping of children and instruction tied to the school’s core reading curriculum. These recommendations were adjusted throughout the year as students were retested. At the end of 1 year, experimental students significantly differed on reading comprehension, outperforming control students by approximately 2 months. The more teachers used the software, the greater was their students’ reading comprehension and this effect was greater for children who began the school year with lower vocabulary scores. However, individualizing student instruction using the software was challenging for some teachers.

Aaron and colleagues (2008) also examined the effects of using reader profiles to plan and deliver instruction. Students in grades 2–5 were categorized as having a weakness in word identification, comprehension, or both. They received small group reading instruction, based on their needs, from a trained teacher during an afterschool remedial reading program lasting one semester. Students in the word identification group received instruction from two commercial programs and those in the comprehension group received instruction in research-based reading strategies. Results from several cohorts of students showed that, in comparison to students receiving instruction in learning disabilities programs in their schools, children with word recognition deficits improved significantly in word recognition and those who began with deficits in comprehension but not word identification improved in comprehension.

Overall, these studies of student-instruction interactions suggest that instruction targeted to students’ areas of need produces gains in that area. However, high-quality instruction is a relative term. What is considered high-quality instruction for one child may be considered poor quality for another. Furthermore, when instructional time was spent on skills and abilities in which a student was strong, no additional growth was detected. So, although instruction that targets a student’s specific needs will increase learning, misdirected instruction may actually waste valuable instructional time. As all the studies here demonstrate, student abilities and instruction are multidimensional and dynamic over time, making reader profiles, multiple measures, and a knowledgeable teacher even more important. What is less clear from these studies is the grain size, or the level of specificity, needed to assess students’ reading abilities. The studies of reader-instruction interactions make an important contribution, yet they may be somewhat difficult to interpret. From one perspective, studies of the differential impact of instruction on students with varying reading needs are generally correlational and leave unanswered the question of whether instructional interventions that target students’ weaknesses identified on reader profiles would result in improved student learning. From another perspective, studies that use profiles to target students for specific instructional strategies are often accompanied by considerable professional development for teachers, making the contribution of profile information difficult to disentangle from teacher expertise.

Profiles Underlying Test Performance
The research reviewed in this section stems from concerns about using scores from large-scale tests to make instructional decisions for low-achieving students (Heubert & Hauser, 1999; Price & Koretz, 2005). The general concern is whether scores on these types of tests might mask important information about students’ strengths and weaknesses, and consequently, whether students will be assigned to instructional interventions that do not adequately address their needs. The two studies reviewed here investigated the relation between students’ performance on standards-based comprehension tests and an assortment of more diagnostic reading measures. The goal was to determine students’ reading skills and strategies that underlie their performance, and to gain insight into the nature of instruction that might address their needs. In the process of addressing these questions, both studies produced reading profiles across several components of reading.

Riddle Buly and Valencia (2002) examined the reading abilities of fourth-grade students who scored below benchmark on a standards-based comprehension test. They administered several individual assessments related to three core components of reading: (a) word identification (decoding of real and pseudowords in and out of context), (b) oral reading fluency (rate and expression), and (c) comprehension (reading comprehension and vocabulary). Their analysis revealed that, on average, students were slightly
Table 3.2
Reader Profiles

<table>
<thead>
<tr>
<th>Reader Profiles – % of Sample</th>
<th>Word Identification</th>
<th>Comprehension</th>
<th>Fluency</th>
<th>% EL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Word Callers – 18%</td>
<td>++</td>
<td>-</td>
<td>++</td>
<td>63%</td>
</tr>
<tr>
<td>Struggling Word Callers – 15%</td>
<td>-</td>
<td>-</td>
<td>++</td>
<td>56%</td>
</tr>
<tr>
<td>Word Stumblers – 17%</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>16%</td>
</tr>
<tr>
<td>Slow Comprehenders – 24%</td>
<td>+</td>
<td>+ +</td>
<td>-</td>
<td>19%</td>
</tr>
<tr>
<td>Slow Word Callers – 9%</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>56%</td>
</tr>
<tr>
<td>Disabled Readers –</td>
<td>- -</td>
<td>-</td>
<td>-</td>
<td>20%</td>
</tr>
</tbody>
</table>

++ above average
+ average
- below average
-- substantially below average

Below grade level in word identification, and significantly below grade level in fluency and comprehension. However, a cluster analysis indicated that this profile, based on average scores, represented very few of the actual students in the study. Instead, there were six distinct profiles of students who failed to reach benchmark. Table 3.2 shows the six profiles, relative strength and weakness across the three main reading components, percent of EL students in each profile, and the overall percent of the sample that was categorized according to each profile. As others have found, the poor readers in this study were not a homogeneous group. Reading performance was multifaceted.

Because the profiles included three components of reading as well as multiple measures within each, analysis of the profiles became more complex and the interaction among the components was explored (Riddle Buly & Valencia, 2002; Valencia & Riddle Buly, 2004). Case studies of students who fell into each of the six profile clusters provided insights about students’ abilities that supplemented the performance scores in each of the three major reading component categories. Additional variability within and across profiles was pronounced. For example, students in Cluster 1, Automatic Word Callers, were uniformly weak in comprehension according to the three-component profile analysis. However, according to the individual assessments, some students demonstrated difficulty primarily in inferential comprehension while others had difficulty in vocabulary or self-monitoring. Many of the English Learners in this profile, who were no longer receiving services, were still acquiring academic language and displayed more difficulty with comprehension of expository texts than narrative.

Similarly, for students in Cluster 3, Word Stumblers, additional diagnostic information allowed examination of the interplay of word identification and fluency. For some students, slow rate of reading was a response to decoding problems but, for others, it was a strategy for monitoring comprehension. Furthermore, case studies both within and across profile types, indicated that students who were classified as weak in word identification, for example, did not necessarily need instruction in the same decoding skills. Some were weak in decoding multisyllabic words and others had difficulty with more basic vowel combinations. The authors concluded that profiles can help distinguish general areas of strengths and weakness for individual students but more in-depth classroom assessment and professional development are needed to inform instruction. They suggested a layer approach to using profiles in which students would be assessed first on the main core components followed by more diagnostic assessment for students identified at risk.

Rupp and Lesaux (2006) used an approach similar to Riddle Buly and Valencia (2002) to examine the relation between fourth-grade students’ categorical performance on a standards-based comprehension test and their performance on a diagnostic battery of reading skills. They assessed a somewhat different set of subskills than Riddle Buly and Valencia that factored into two components: (a) word-level skills (untimed and speeded tests of real and pseudowords, spelling); and (b) working memory and language (working memory for numbers and words, pseudoword spelling, oral cloze, auditory analysis). Table 3.3 shows the profiles of students according to the three performance categories and two reading components.

As expected, most children in the below expectations category scored low on both the word-level and working memory and language factors, and most children in the meets expectations category scored high on both factors. However, the children in the exceeds expectations displayed all four possible combinations of the factors. In addition, a more in-depth analysis of the children in the below expectations category revealed a subgroup whose low performance could not be accounted for by either word-level skills or linguistic/cognitive skills measured in the study. Overall, Rupp and Lesaux (2006) concluded that classification categories on standards-based tests do not adequately reflect the diagnostic profiles of students that are needed to provide instruction. Information from multiple measures, diagnostic classroom assessments, and measures of other reading components need to be considered as instructional interventions are planned.

Table 3.3
Classification of Competencies and Test Performance

<table>
<thead>
<tr>
<th>Class</th>
<th>Below Expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low word, low memory</td>
<td>77%</td>
<td>30%</td>
<td>6%</td>
</tr>
<tr>
<td>Low word, high memory</td>
<td>7%</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>High word, low memory</td>
<td>10%</td>
<td>43%</td>
<td>7%</td>
</tr>
<tr>
<td>High word, high memory</td>
<td>7%</td>
<td>41%</td>
<td>77%</td>
</tr>
</tbody>
</table>

* totals may equal more than 100% due to rounding

The two studies in this section are the most similarly conceptualized and designed of any in this chapter. On the one hand, they point in a common direction—toward the value of reader profiles and limitations of large-scale reading tests to inform instruction. On the other hand, they clearly highlight how the identification of reading components, selection of assessments, and definitions of terms such as below expectations or disability can dramatically alter the nature and interpretation of reader profiles.

**Conclusion**

The studies reviewed in this chapter sampled literature related to reader profiles from several perspectives. Overall, they confirmed the existence of within-reader variability and the individual nature of reading disability. They illuminated the multifaceted nature of reading and possible contributors to students’ reading difficulties. And they suggested that reader profiles change with development and instruction, making the task of addressing students’ reading needs even more challenging. These are important considerations for both research and practice.

The studies also raise several issues regarding conceptual underpinnings, research methods, and interpretation of the research related to reader profiles. Most obvious of these is the way that reading components and the nature of reading itself is conceptualized. As noted in the review, many of the studies and models of reading disability rest on the simple view of reading (Gough & Tunmer, 1986; Hoover & Gough, 1990). Although there is a good deal of research and support for this model, there is also some debate about it as well (Pressley et al., 2009). An interactive model takes into account the influence and interaction of a range of text, situational, and reader factors that influence reading processes and the ultimate outcome of reading—comprehension (Anderson et al., 1985; Cronbach & Snow, 1977; Lipson & Wixson, 1986; RAND, 2002; Snow et al., 1998). In fact, Leach et al. (2003) and Aaron et al. (2008) explicitly acknowledge the complex, interactive nature of the reading process in their work on profiles.

The issue, then, is how reader profiles might address the complexity of reading to obtain a more complete understanding of children’s reading strengths and weaknesses. For example, factors such as text type, background knowledge, reader strategies, metacognition, motivation, vocabulary, and English language proficiency are known to influence reading processes and comprehension but these factors are rarely considered in the research on reader profiles. Also rarely considered is how these factors interact with readers’ skills, strategies, and processes. For example, recent research suggests that motivation may be an “energizer,” helping students to use their cognitive processes and strategies more effectively (Taboada, Tonks, Wigfield, & Guthrie, 2009). Consideration of additional factors and how they interact with other reading skills and processes could inform research on reader profiles.

A related issue is how to determine which of the many factors or reading components should be included in a reader profile. Clearly, there is a limit to what can be meaningfully and feasibly assessed. But the choices are worth considering because what gets measured exerts a strong influence on the types of subgroups or profiles that are found (Carr et al., 1990; Kavale & Forness, 1987). For example, if reader profiles are confined to word recognition and comprehension, as they are in many of the studies reviewed here, then reader subtypes or profiles are created that indicate strengths and weaknesses in those components. Data about how a student employs metacognitive strategies, or comprehends with different types of texts would not be considered. If a fairly narrow range of reading components is considered in constructing a reader profile, important factors contributing to reading disability may be overlooked. This may be why several studies identified students who did not fit the profiles created from their measures; other components or variables related to a reader’s skills, strategies, or processes may not have been included in the profile assessment.

Finally, as the field moves toward RTI, reader profiles or some type of diagnostic profiling will likely take on a more important role. After students are screened for intervention, teachers will need to determine targets for instruction and then monitor student progress on what was taught. Here is where reader profiles may have their greatest contribution and potentially their greatest problem. They could help teachers identify students’ areas of strength and weakness that could then be followed by more diagnostic assessments to guide instruction. However, if profiles become too limited in scope or prescriptive in their application, the original goal of understanding the multifaceted nature reading disability may be lost. Instruction that is too narrowly focused may have limited transfer or fail to support improvements in other aspects of reading (Daneman, 1991). For example, targeted instruction in word recognition may produce improvements in word recognition without improvements in comprehension; targeted instruction in speed and automaticity may produce improvements in speed without improvements in accuracy or comprehension. This is a tension that should be monitored.

More research is needed to unpack the profiles of students who are experiencing reading difficulties, to inform how teachers can best link instruction to profiles, and to examine profiles of older students, especially those with comprehension difficulties. The real value in this work is not in classifying students or labeling their reading problems according to new categories; it is in understanding individual patterns of reading performance so we can turn our attention to instruction that will make a difference.

**References**


RAND Reading Study Group (2002). Reading for understanding. Toward an R & D Program in reading comprehension. Santa Monica, CA: RAND.


