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**THE PATH TO COMPETENCE: A LIFESPAN DEVELOPMENTAL PERSPECTIVE
ON READING**

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The Path to Competence: A Lifespan Developmental Perspective on Reading

Executive Summary

The purpose of this document is to present a developmental model of reading that encompasses changes across the lifespan. The need for such a lifespan orientation toward reading within our educational institutions is great. Until we adopt this lifelong perspective, we continue to run the risk of turning out undeveloped, unmotivated, and uncritical readers unable to fulfill their responsibilities within a democratic society.

This framework of lifespan development in reading is grounded in the extensive research in expertise, particularly the research on the Model of Domain of Learning (Alexander, 1997).

Based on that research, we forward several characteristics of lifespan reading development:

- Readers' knowledge of language and knowledge of content domains are critical forces in developing competence.
- Readers' personal interest in reading becomes a driving force in their development as competence is achieved.
- Lifespan development involves systematic changes in readers' strategic processing.
- Reading development is a lifelong journey that unfolds in multiple stages.
- Profiles of successful and struggling readers are reflective of developmental forces.
- Readers in acclimation are especially vulnerable and in need of appropriate scaffolding.

The unique configuration of knowledge, interest, and strategic processing for each of the stages of lifespan reading development—acclimation, competence, and proficiency/expertise—is overviewed. Further, educational implications and instructional recommendations for these stages and the varying profiles of more or less successful readers are considered.

The Path to Competence: A Lifespan Developmental Perspective on Reading

There is little question that educators, the general public, and policy makers perceive reading as one of the most basic and essential abilities for an educated populace (Reinking, McKenna, Labbo, & Kieffer, 1998). The ability to read endows one with the means to navigate in a world where so much of interest and importance is conveyed through written language. The ability to read opens avenues for self-exploration and self-enrichment that would otherwise be inaccessible (Marshall, 2000). Further, reading permits individuals to deepen their understanding of other critical domains of knowledge and allows them to experience feelings of pleasure, beauty, excitement, and more (Reed & Schallert, 1993; Wade & Moje, 2000).

Given the essential nature of reading, it is understandable why so much attention has been directed toward this fundamental ability now and in years past. The ability to *survive* and to *thrive* in our world is strongly linked to achieving competence as a reader. For that reason, educators, the general public, and policy makers must do what they can to ensure that theirs is a literate society—a society of competent readers, as well as competent writers, speakers, and listeners.

If this goal of a literate society is to be achieved, we must take another look at what it means to read competently. We must consider what it takes to read well not just in the early years, as children struggle to unravel the mysteries and beauty of written and spoken language, but across the lifespan, as the purposes for reading and the character of written language change. In other words, we can do more to realize the goal of a literate society, if we better understand the full nature of reading development.

Within the literacy community, there are two distinct but complementary perspectives on reading development. The first perspective, prevalent in several well publicized documents and federal legislation (e.g., Snow, Burns, & Griffin, 1998), deals almost exclusively with the early period of reading development, what might be described as emergent literacy. This early period is unquestionably a critical time in reading development, and there are virtually libraries devoted to basic dimensions of reading acquisition, including phonological awareness, vocabulary, and fluency (Adams, 1990; National Reading Panel, 2000)

Yet, there is another view of reading development that extends well beyond the initial period of basic skill and process acquisition. This perspective looks at reading as “a long-term developmental process,” at the end of which “the proficient adult reader can read a variety of materials with ease and interest, can read for varying purposes, and can read with comprehension even when the material is neither easy to understand nor intrinsically interesting” (RAND Reading Study Group, 2002, p. xiii). This particular orientation does not discount the emergent literacy view, but subsumes it as a first step in lifespan development.

It is this second perspective of reading development—one less addressed in public and political rhetoric, legislation, and educational policies—that we examine here. Specifically, it is the goal to investigate how reading develops across the lifespan by building on the vast literatures in developmental psychology, cognitive psychology, expertise, motivation, and domain-specific learning, as well as reading research.

There are important educational benefits accrued by viewing reading within such a lifespan developmental framework. For one, it helps us to consider the changes and challenges students and adults face once they journey beyond the early elementary grades. Currently, there is an increased awareness that more must be done to understand the nature of adolescent literacy

(Alvermann et al., 1996; Moje, 2000) and adult literacy (Kruidenier, 2002; Nist & Holschuh, 2000). The more we understand about adolescents' and adults' continued development as readers, the better we can provide for them. The approaches and interventions suitable for young readers taking their first steps toward reading competence are not likely to work for older children, adolescents, or adults, even if they still struggle to make sense of print (Alvermann, 2001). Not only have these adolescents and adults changed cognitively, physically, and socially, but the in-classroom or at-work literacy demands they face have changed as well (Nist & Simpson, 2000). A lifespan developmental perspective would not stop in the early years or attend only to those who have yet to acquire the most basic skills or processes. Rather, it would consider reading from womb to tomb; that is, for all populations and for all phases of reading growth.

Another benefit of a lifespan developmental perspective on reading is that it would allow for the identification of forces that may contribute to waning performance in students as they progress through school. There is ample documentation that readers continue to encounter problems with written language even if they acquire basic linguistic abilities during the early years of schooling (Alvermann, 2001; Moje, 2000). For example, data from the National Assessment of Educational Progress or NAEP (National Center for Education Statistics, 1999) indicated that in 1998, 74% of eighth graders and 77% of twelfth graders could not perform beyond a basic level in reading. That means that the majority of those eighth and twelfth graders had not achieved competency in reading, and could not perform such fundamental tasks as inferring meaning or drawing conclusions from grade-appropriate materials.

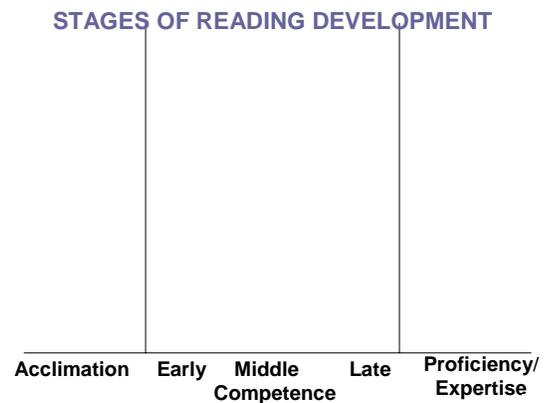
If educators understood the nature of changes that should occur in readers as they progress toward competence, and if educators had some idea of the problems that might arise

during that journey, then they could better formulate interventions or craft educational materials that might circumvent problems or ameliorate their effects (Pressley, 2001). For example, students’ motivations for reading are critical forces in sustaining their continued growth and development in the domain of reading (Guthrie & Wigfield, 2000). Thus, educational programs intent on supporting students’ long-term reading development should give ample consideration to such motivational variables, including students’ interests and goals.

Modeling the Development of Reading

A lifespan model of reading development would represent a significant advancement in the study and practice of reading. There is much to be learned about reading development from the expertise literature, especially the new generation of theory and research (Alexander, 2003a, 2003c). Here we draw on one of those research-based models from the expertise research to illuminate important factors and their transformations that should be evidenced as students

Figure 1



move forward in their journeys toward competence or perhaps even expertise. The Model of Domain Learning or MDL (Alexander, 1997, 2002) is particularly relevant to this topic of lifespan development in reading for several reasons. Specifically, it is concerned with academic domains; focuses on cognitive and motivational factors; and explores systematic changes in those factors across three stages of development: acclimation, competence, and proficiency/expertise. Text-based tasks are also routinely incorporated in MDL studies, which increase this model’s relevance to discussions of reading development. Therefore, based primarily on the research on the MDL, as well as other relevant programs of expert/novice

research (Newell & Simon, 1972), several conclusions about reading development can be derived.

Characteristics of Lifespan Reading Development

- *Readers' knowledge of language and knowledge of content domains are critical forces in developing competence.*

One of the potent findings of cognitive research is that knowledge is a significant predictor of developing competence (Alexander & Murphy, 1998b). Even if students have acquired the ability to decode print accurately, they need to have an understanding of the concepts or ideas those letters and sounds symbolize. Such a finding is also consistent with conclusions from the reading research. In the MDL, two forms of subject-matter knowledge have relevance to reading development—domain and topic knowledge (Alexander et al., 1991).

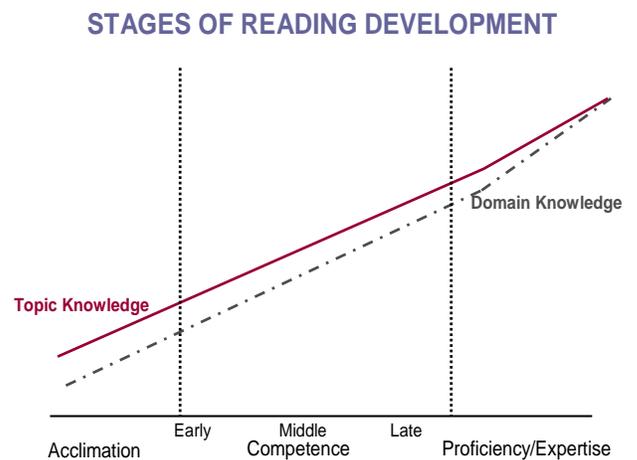
Domain knowledge refers to the breadth of one's knowledge. In this case, how much does one know about reading? Topic knowledge represents the depth of knowledge about specific topics relevant to the domain and referenced in text. Because of the nature of reading, those topics may be reading-specific, as when students study main ideas, syllabication, sound-symbol relations, or text genres. However, because students are asked to read about a multitude of topics in reading classes and in their content courses, those topics can also run the gamut, from Harry Potter to Harry Truman. Consider the cases of Emma, a fourth grader reading about main ideas in her language arts class, and Jackson, a classmate reading a story about the Revolutionary War. In both instances, their grasp of the content will depend, in part, on their pre-existing knowledge of the domain (i.e., reading), as well as the specific concepts expressed in the text (e.g., main ideas, supporting details, Boston Tea Party, and "taxation without representation").

Both forms of subject-matter knowledge are important to understanding reading development, especially in the early stage. That is because those relatively new to an academic domain may not know a great deal about a domain (e.g., reading), but still know something about selected topics in that domain (e.g., inferring meaning from context, Harry Potter, or turtles). In general, these two forms of knowledge are complementary, in that domain and topic knowledge become increasingly interconnected as individuals achieve competence (Alexander, Jetton, & Kulikowich, 1995).

Moreover, there is a mutually beneficial relation between one's linguistic knowledge, as represented in their domain knowledge, and their knowledge of topics encrypted by that language. In essence, the more individuals know about the concepts represented in language, the easier their processing and comprehension of that language (Anderson, Spiro, & Anderson, 1978). As

individuals build their knowledge of language, they are also building their knowledge of the ideas those letters and sounds signify. For instance, reading c-a-t with meaning involves some understanding of what “cat” represents. Repeated encounters with texts about cats not only build readers' language facility but their conceptual knowledge, as well. In effect, learning to read and reading to learn are co-facilitative processes that continue throughout development. Thus, as individuals move from novice to more competent reader, their breadth of knowledge in the reading domain should increase along with their depth of knowledge about specific reading topics (see Figure 2).

Figure 2



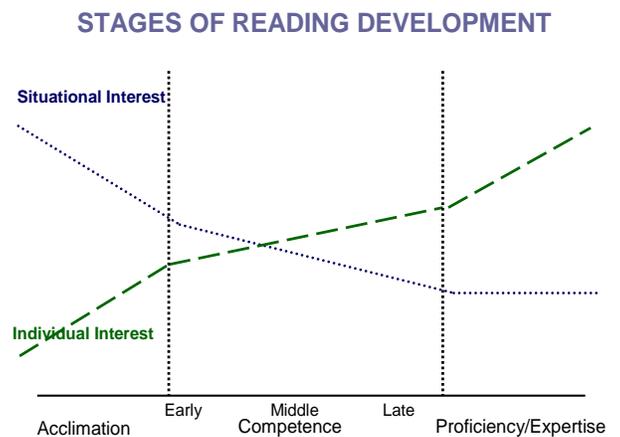
- *Readers’ personal interest in reading becomes a driving force in their development as competence is achieved.*

Interest refers to the energizing of learners’ underlying needs or desires (Ames, 1992; Dweck & Leggett, 1988). Two distinct and, at times, competing forms of interest have been supported by the expertise research—individual and situational interest. Individual interest pertains to one’s long-term investment or deep-seated involvement in the target field (Hidi, 1990; Schiefele, 1991). By contrast, situational interest refers to the momentary arousal or temporary attention that is triggered by conditions in the existing context (Mitchell, 1993). Consider the following example:

Samuel, Meredith, and Riley are ninth graders reading a chapter on genetics in their biology textbooks. Even though Samuel is not a particular fan of biology, he finds the subject of genes and gene-mapping intriguing. Meredith, by contrast, has long found the domain of biology personally relevant and engaging, in part because a number of family members suffer from certain biological disorders. Even as a young student, Meredith enjoyed reading about the human body and she hopes to become a pediatrician. Riley, however, finds all things biological to be dry and boring. It does matter if the topic is genes or digestion.

Based on this description, we would say that Samuel shows situational interest in the topic, whereas Meredith is individually interested in the domain. Riley, however, appears to be neither situationally nor individually interested in reading

Figure 3



about genetics.

Interest, in some manner, plays an essential role in reading development across the lifespan. For instance, situational interest is expected to play a stronger role in the early periods of reading development than individual interest. As with Samuel, something about the topic or the context grabs readers' attention and urges them onward. However, as individuals progress toward competence in the target domain, individual interest becomes increasingly more important, with the effects of situational interest leveling off. Like Meredith, individually interested readers bring an internal excitement or passion to the reading task at hand. Of course, it may help if the biology text is well written or the teacher is highly motivating. However, Meredith's personal identification with the domain and her fascination with related readings would likely endure under less favorable conditions.

The relative importance of situational and individual interest to reading development shifts over time, as illustrated in Figure 3. This shifting relation between situational and individual interest is of particular significance to the development of reading competence. Over time, readers who become competent in reading must find an abiding connection between themselves and written language. A passion for the process of reading or for encounters with specific forms of text (e.g., historical fiction or poetry) is necessary for the continued journey deeper into competence or expertise.

■ *Lifespan development involves systematic changes in readers' strategic processing.*

Much about performing competently or expertly in any domain has to do with confronting problems that inevitably arise and resolving those problems efficiently and effectively. Strategies are the tools that we ply during problem solving. In effect, strategies can be defined as the general cognitive procedures used in task performance (e.g., predicting,

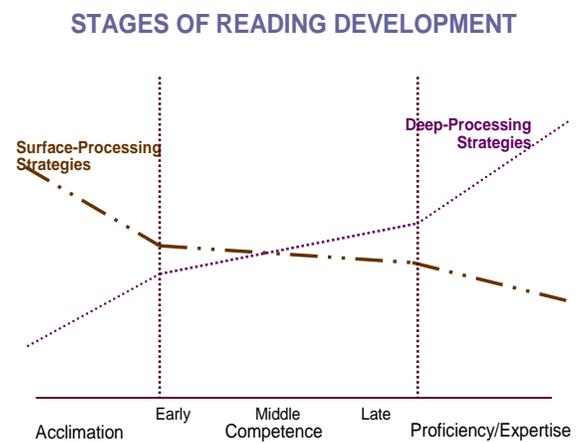
questioning, and summarizing). Strategies also encompass the monitoring or regulation of learning and performance (e.g., Garner & Alexander, 1989; Weinstein & Mayer, 1986; Zimmerman, 1990), processes associated with metacognitive and self-regulatory strategies. Certainly, for the domain of reading, as with other complex academic domains, learning involves the strategic processing of written and oral texts (Alexander & Jetton, 2000).

Two forms of strategic processing play a role in reading development—surface-level and deep-processing strategies (Alexander, Sperl, Buehl, Fives, & Chiu, in press; Murphy & Alexander, 2002; VanSledright & Alexander, 2002), as shown in Figure 4. Surface-level reading strategies promote initial access to and comprehension of written or oral text. Procedures, such as rereading, altering reading rate, or omitting unfamiliar words, fit within the category of surface-level strategies. So, as

Emma, our fourth grader, reads the text on the topic of constructing a main idea, she occasionally pauses to reflect on what she read and to check her understanding. She might feel the need to reread certain portions or go back to the sample exercises (i.e., surface-level strategies).

Deep-processing strategies, by comparison, involve the personalization or transformation of text. Examples of deep-processing strategies are cross-text comparisons, creating an alternative representation, or questioning the source. Later, as Emma reads a story about whales as part of the main idea lesson, she makes comparisons between this author’s descriptions and the information on whales she read in science class (i.e., deep-processing strategies). While surface-level strategies are particularly important in the early period of reading development, as

Figure 4



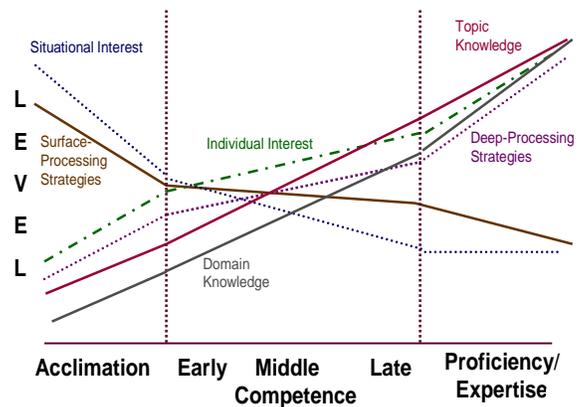
individuals build a base of knowledge and interest in the domain, deep-processing strategies become increasingly more evident during competence and proficiency/expertise (Alexander et al., in press). For example, an experienced biologist reading a high-school biology chapter may have little occasion to reread or paraphrase the text, as compared to high-school students enrolled in introductory biology, but she may spend time questioning the importance or accuracy of the content or the clarity of the information in that chapter.

■ *Reading development is a lifelong journey that unfolds in multiple stages.*

Unlike early models that dichotomized expertise as a novice-to-expert process, the MDL represents reading development in three stages arising from distinct relations between readers’ knowledge, interest, and strategic processing—acclimation, competence, and proficiency/expertise. Here we consider the interplay of knowledge, interest, and strategic processing at each of these three stages as a way to better understand the nature of reading development and implications for reading instruction.

Figure 5

STAGES OF READING DEVELOPMENT



Although the stages of reading development correspond, to some degree, to years of schooling, the three stages of development—acclimation, competence, and proficiency/expertise—are not specifically age or grade related. That is, we would expect to encounter many more readers in acclimation in the early years of schooling. Readers in acclimation exist at all ages and in all grades. Yet, as would be expected, the longer it takes students to acquire the fundamental knowledge, seeds of interest, and strategic repertoire, the

more problems they are likely to face in the future (Alexander, 2003b). Those problems can include limited background knowledge, negative beliefs about self or about school, feelings of helplessness, apathy, and diminished engagement.

Acclimation. Within the stage of acclimation, individuals are just beginning to get the sense of an unfamiliar academic terrain, reading. Thus, those in acclimation will understandably have a limited and fragmented base of reading knowledge (i.e., domain knowledge). Nonetheless, acclimating readers may have pockets of topic knowledge that can serve them well, as with young readers' knowledge of Hogworts, witches, magic, and other topics from the Harry Potter novels. Further, the knowledge of readers in acclimation is not particularly cohesive or well integrated, but more piecemeal. In essence, these acclimating readers lack "principled knowledge" (Gelman & Greeno, 1989). For example, even though Chet is performing above grade level in his third-grade reading class, he still does not have a clear understanding of what the domain of reading actually entails, such as how diverse genres within the domain (e.g., persuasive essay or folktale) may serve varied goals, have distinct structures, and require differential processes.

In part because of the fragmented and fragile state of their subject-matter knowledge, acclimating readers often experience difficulty distinguishing between information that is relevant versus irrelevant, accurate versus inaccurate, or important versus trivial (Jetton & Alexander, 1997). Moreover, acclimating readers encounter many text-based tasks that are novel and challenging, in large measure because of their limited and fragmented knowledge base. Thus, reading for those in acclimation requires a great deal of strategic effort.

In addition, because those in acclimation are attempting to establish an initial foothold in the domain, a good portion of the strategies they use will be surface-level. Such strategies allow

readers in acclimation to make sense of unfamiliar or demanding texts (Alexander et al., in press). Even though there is a strong reliance on surface-level strategies in acclimation, there will be instances when the particular text, supporting context, or the readers' specific knowledge of or interest in a topic allows for deeper and richer processing.

Like the paths for surface-level and deep-processing strategies, the trajectories for individual and situational interest during acclimation are quite divergent. With limited domain or topic knowledge at their disposal, those in acclimation are expected to rely on situational interest to focus their attention, stimulate their engagement, and sustain their performance (Guthrie et al., 1998; Mitchell, 1993). In effect, acclimating readers are in need of settings and materials that promote situational interest and set the seeds for individual interest. Nevertheless, even as educators work to orchestrate situationally-interesting learning environments, they must be careful to focus readers' attention on content and concepts central to the domain (Garner, Gillingham, & White, 1989; Jetton & Alexander, 1997). In effect, educators should not expect acclimating readers like Chet to discover the nature of the reading domain solely from the instructional tasks they encounter. Educators must help those in acclimation identify the core principles to which such language activities are linked. Alexander, Murphy, and Woods (1996) described this connection between reader and domain as *rooted relevance*.

Competence. The interrelations among knowledge, interest, and strategies evidenced in acclimation undergo significant transformation in competence. For one, there are shifts in individuals' knowledge base (Alexander & Murphy, 1998a). Competent readers demonstrate more domain knowledge and topic knowledge than those in acclimation, and their knowledge is also more interconnected and cohesive in structure (i.e., more principled). Part of the competent readers' ability to grow in subject-matter knowledge results from a synergy between knowledge

and strategies. That is to say, increased familiarity with the domain allows competent readers to be more efficient and effective in strategic processing of text (Alexander & Judy, 1988; Garner, 1990). There is more automaticity or fluidity of performance, so that competent readers can delve into domain tasks via deep-processing strategies (Alexander, Graham, & Harris, 1998).

Further, along with the changes in their knowledge and strategies, competent readers evidence a rise in their individual interest and less dependence on situationally-interesting characteristics of the immediate context (Alexander et al., 1995). Competent readers, in essence, are increasingly more motivated from *within* than from *without* (Dewey, 1913). The rise in individual interest during competence is significant because those seeking to reach higher levels of competence or even expertise, must pursue experiences not required of the K-12 educational system (Csikszentmihalyi, 1985).

Proficiency/Expertise. For the transition from competence into expertise to occur, readers must not only display highly rich and principled knowledge, but effective and efficient strategy use, particularly deep-processing strategies, and a personal identification with and investment in the domain, as well (Alexander, 1997). Specifically, there is a distinct rise in subject-matter knowledge during proficiency/expertise. Experts continue to broaden and deepen their knowledge of reading. They are also actively engaged in problem finding (Alexander et al., in press). That means proficient readers are well versed in the problems and methodologies of reading, such as evaluating the merits of primary and secondary sources in history. Proficient individuals have also achieved a high degree of fluency or automaticity in the performance of common reading tasks. Due to this condition, proficient readers can devote more of their time and mental energy to posing questions and instituting investigations that push the boundaries of the reading field.

Thus, what distinguishes proficient readers from those who are highly competent is that they are adding to the body of knowledge of the domain through their creative and analytic efforts. The National Reading Conference, for example, is a community of scholars immersed in the study of reading. Their investigations of basic and applied questions about the domain, such as questions about the developmental nature of reading, exemplify problem finding. The outcomes of such pursuits alter the very domain to which these experts are enculturated.

Experts' search for new and creative understandings within the domain is fueled by their abiding interest in the domain and facilitated by their strategic abilities (Csikszentmihalyi, 1990; Renninger, 1992). Consequently, the individual interest of experts is quite high, while their reliance on situational interest levels off. This personal identification and investment in reading allows proficient readers to maintain their level of engagement over time, even in the face of tremendous difficulties and frustrations. Finally, because of their pursuit of domain-transforming ideas, the level of strategy use among expert readers is quite high, although those strategies are almost exclusively deep-processing in form.

■ *Profiles of successful and struggling readers are reflective of developmental forces.*

When differences among readers are discussed in the literature, comparisons are often made in broad and oppositional terms, such as “good” *versus* “poor” or “successful” *versus* “struggling” (Snow et al., 1998). Yet, the complexity of lifespan reading development and the interplay of knowledge, interest, and strategic processing that exists within each developmental stage suggest varied profiles of more and less successful readers. Based on the past decade of expertise research, six reader profiles, representing varying degrees of success or difficulty at text-based learning can be described (e.g., Alexander & Murphy, 1998a; Murphy & Alexander, 2002). We can label those as highly competent readers, seriously challenged readers, effortful

processors, knowledge reliant readers, non-strategic processors, and resistant readers. The highly competent and seriously challenged profiles represent the sharpest contrast in knowledge, interest, and strategic processing and more closely approximate the “good” versus “poor” dichotomy presented in the literature.

The remaining four profiles signify varying levels of reading success or difficulty, rooted in differing levels of knowledge, interest, or strategic ability. It is assumed that individuals representing each of these profiles will be found in the acclimation or early competence stages of reading development. However, as the journey toward high competence and expertise continues, those with serious knowledge, interest, or strategic processing concerns will be increasingly less evident.

Highly Competent Readers. In effect, all forces in development are working well for Highly Competent Readers (Alexander et al., 1995; Alexander et al., 2002). They have principled knowledge about language and a sufficient base of world knowledge relevant to the topics at hand. In addition, Highly Competent Readers have a rich repertoire of surface-level and deep-processing strategies to apply to a range of text-based tasks they encounter (Paris, Wasik, & Turner, 1991). As important as their knowledge base and their strategic repertoire, Highly Competent Readers display interest in the domain of reading or topics about which they are reading. Of course, not every text these Highly Competent Readers encounter will cover content that is familiar or personally-interesting to them. Yet, in these situations, these more successful readers can draw on their well-honed strategic processes and their interest in reading to carry them forward.

Because of these salient attributes, Highly Competent Readers are actively engaged readers (Reed, Schallert, & Goetz, 1993) who direct their various cognitive and motivational

resources toward personal enrichment and academic success (Winne, 1995). Educators working with Highly Competent Readers need to ensure that these individuals are given ample opportunities to participate in reading activities that are sufficiently challenging and which are relevant to these readers' particular interests and goals (Csikszentmihalyi, 1990).

While Chet, our third grader, is still just beginning his journey toward competence in reading, he still manifests the characteristics of a highly competent reader. He has not only used his knowledge of language well in the processing of text, but he also has a solid base of world knowledge that he uses effectively to make sense of the concepts he encounters in his reading. Moreover, he performs strategically when he experiences a barrier to comprehension. Books and reading are also a routine part of Chet's life in and out of school, especially books dealing with space and space travel.

It is essential to recognize that young readers, like Chet, who appear highly competent in the early years of schooling, are not assured of continued success as the journey toward competence or expertise in reading becomes more demanding and, thus, precarious. A failure of will or the onset of disengagement or apathy could stifle individuals' progress and halt their movement toward increased competence. The motivational slump experienced by many middle-school students is evidence of just such an occurrence for many otherwise promising young readers (Wigfield, Eccles, & Pintrich, 1996).

Seriously Challenged Reader. At the other end of this continuum are Seriously Challenged Readers. In effect, Seriously Challenged Readers display a complex of reading problems (Alexander & Murphy, 1998a). Among the barriers to successful text-based learning these readers confront are language-processing difficulties, limited background knowledge, strategic insufficiencies, and negative motivational conditions (Curtis, 2002). Such challenged

readers are frequently the target of educational and legislative initiatives, such as the No Child Left Behind Act (PL 107-110; Department of Education, 2001). The complexity of their difficulties puts these readers' continued development at great risk. Moreover, the multifaceted nature of their problems requires interventions and educational supports that are equally multifaceted.

Without significant attention to all aspects of reading development (e.g., knowledge, interest, and strategic processing), these seriously challenged readers may never be able to progress beyond the initial phases of acclimation. They may never be able to feel competent in or the pleasure of reading that others sense. They will be left behind, as others continue their developmental journey.

Effortful Processors. Between highly competent and seriously challenged readers, there are Effortful Processors. These readers generally perform well at reading tasks and progress well in their development because they are goal directed and effortful (Alexander & Murphy, 1998a). Effortful Processors are readers who engage in high levels of strategic effort for the purpose of achieving understanding. They maintain this level of effort even in those instances when they encounter linguistic difficulties or have limited topic knowledge. Thus, even though Effortful Processors experience success in the domain of reading, that success does not come easily but as a result of their determination and persistence.

Among the educational assistance that could be provided to Effortful Processors is guidance in how to work "smarter" than "harder" (Weinstein & Mayer, 1996). In other words, Effortful Processors need to learn how to maximize their strategic efforts. For example, they may find it more effective to spend more time planning their approach to a text-based task before immersing themselves in the reading (Schoenfeld, 1988; Winne, 1995). This planfulness, such as

monitoring their level of performance during and after reading, can potentially improve the strategic efforts of Effortful Processors (Paris & Winograd, 1990). Given their personal investment in the domain and apparent tenacity or will to succeed, it is feasible that some within the ranks of Effortful Processors will reach high competence or expertise. This likelihood is greater if these readers learn how to harness their strategic efforts in a way that maximizes knowledge gains.

Knowledge Reliant Readers. Others who can manage some level of success at text-based learning are Knowledge Reliant Readers (Alexander & Murphy, 1998a). Knowledge Reliant Readers are so named because they rely heavily on their existing world or topic-related knowledge to bolster their reading performance. While some of that background knowledge was likely acquired through print, these individuals also gain knowledge through alternative means, such as direct experience or audio-visual channels. If these students continue to depend too heavily on their existing knowledge to promote reading performance, they may face difficulties later when they confront especially demanding or highly novel tasks for which their knowledge base proves insufficient. Without the linguistic knowledge or strategies required in those situations, it is unlikely that such learners will progress deeply into competence (Garner & Alexander, 1991). For Knowledge Reliant readers, it may prove useful to incorporate alternative media in text-based presentations (Anderson-Inman, & Horney, 1998; Reinking, 1998). This pedagogical strategy would potentially appeal to these readers' processing approaches (Gardner, 1993), while still engaging them in reading.

Non-Strategic Processors. Non-Strategic Processors are among the readers whose developmental trajectories are somewhat precarious because they operate with few or faulty strategies for processing linguistic information (Alexander, Kulikowich, & Schulze, 1994;

Alexander & Murphy, 1998a). Moreover, these readers often have limited understanding of task demands, which hampers their efficient and effective use of available strategies. They also demonstrate little self-monitoring or self-regulation of their text-processing or are not particularly good at judging the quality of their reading performance (Winne, 1995; Zimmerman, 1990).

As with Effortful Processors, the development of these readers can also be greatly aided by explicit instruction in general cognitive and self-regulatory strategies that can be applied in a variety of reading contexts (Harris & Graham, 1996; Rosenshine, 1997). Incorporating group activities into the culture of the classroom can also support readers who have limited strategic repertoires, because they can learn from peer models, as well as directly from teachers, how to judge performance or what compensatory steps seem viable (Palincsar & Brown, 1984). Because strategic processing takes time and effort, it is also essential that educators build in sufficient time for strategic processing and expressly reward such efforts in the classroom (Garner, 1990). As long as schools reward speed over reflection, assume that effective and varied strategies will be naturally acquired, or give little weight to process over product, there will be barriers to reading strategically.

Resistant Readers. Finally, for some readers, the barriers to growth and development reside more in their lack of investment in the domain or maladaptive goals than in other forces of development (Alexander, 2002; Alexander & Murphy, 1998a). These Resistant Readers apparently have the requisite knowledge and relevant strategies they need to reach competence or even expertise. However, they lack the desire or will to realize this potential (Garner & Alexander, 1991; Paris & Winograd, 1990). In effect, their failure to progress toward proficiency is principally of their own choosing. It is important to recognize that no one can become highly

competent or expert in all or many academic domains. Part of maturing as learners is to be selective as to the paths we pursue academically and in our careers. Yet, it is a reasonable goal to ensure that all students are given the experiences and support they require to reach competence in the critical domain of reading.

Support for Resistant Readers may come in the form of highly stimulating tasks and contexts (Mitchell, 1993) or personally relevant activities that draw these students into the print experience (Wade & Moje, 2000). Ideally, the source of the motivation would come from within the reader (Alexander et al., 1996). This can be aided by allowing students some degree of choice or autonomy in their reading activities (Alexander & Jetton, 2000). Also, students who see the value of reading tasks and the merits of strategic effort will be more willing to exert the cognitive energy required (Palmer & Goetz, 1988; Schoenfeld, 1988).

■ *Readers in acclimation are especially vulnerable and in need of appropriate scaffolding.*

Although reading is a complex domain for which the developmental journey will encompass a lifetime, the first steps in that journey remain crucial. Because of their limited knowledge, strategies, and interest, those in acclimation are in need of thoughtful guidance from more knowledgeable others (Alexander, 2002). As would be true for anyone who finds himself/herself in a strange and complicated territory, acclimating readers require the care and guidance of more knowledgeable others (Vygotsky, 1978). Those more competent individuals guide readers in acclimation through the academic terrain by acquainting them with the routines and rituals that are part of the domain culture (Rogoff, 1990; VanSledright, 2002).

That is not to suggest that competent or even expert readers do not benefit from more knowledgeable role models, as well. However, the need for external guidance is particularly acute during the acclimation stage. Without such appropriate guidance, acclimating readers may

encounter increased difficulties in building a base of domain and topic knowledge and a rich repertoire of surface-level and deep-processing strategies. Further, they may never experience the beauty or discover the relevance of reading without others to illuminate the way or model their own passions and personal investment in the domain.

Concluding Thoughts

There are many benefits to be accrued from viewing reading from a lifespan developmental perspective. As we have seen, a developmental framework of reading can be forged from the extensive research in expertise that chronicles the lifelong journey toward proficiency that begins with one's first engages with written language. We recognize that there are other powerful forces and events in the lives of readers, outside those considered here, that can help determine the fate of developing readers. However, our focus here has been on the factors addressed in the expertise literature, and particularly in the research on the Model of Domain Learning (Alexander, 1997).

Those factors—knowledge, interest, and strategies—should be elements of effective reading programs and school curricula. Within teacher development, the commitment to this lifespan perspective would also result in certain programmatic emphases. For instance, there would be explicit attention to the teaching of strategies that underlie reading performance. In that way, teachers would be better able to assist their students in the development of rich strategic repertoires. Further, we would expect professional development to target a range of narrative and expository reading materials of both a traditional (e.g., book) and non-alternative (e.g., Web pages) nature; materials that students are likely to confront in and out of school. In addition, techniques for motivating readers and for incorporating their interests in reading instruction would be an integral part of teachers' professional development. Perhaps most significantly, a

concern for the fostering of reading development would no longer be relegated to the early elementary grades. Rather, the development of reading would be seen as a responsibility of all teachers—from preschool through high school.

The bottom-line is that the need for a lifespan developmental model of reading is great. Until educators, the public, and politicians come to view reading from this lifespan perspective, we continue to run the very real risk of turning out undeveloped, unmotivated, and uncritical readers from our educational institutions; readers without the skill to engage in the processing of challenging texts; who lack any passion for or investment in reading, and who cannot fulfill their responsibilities within a democratic society that relies on an informed and involved populace. Until society accepts reading as a complex process of growth and development that continues from womb to tomb, reading instruction will not receive the attention it warrants throughout the educational experience. It will mistakenly be confined to the early years of schooling when readers are only learning to take their first steps toward competence. In light of these compelling factors, we believe that it is time to commit fully to a lifespan developmental perspective on reading. Let the journey begin.

References

- Adams, M. J. (1990). *Beginning to read*. Cambridge, MA: MIT Press.
- Alexander, P. A. (1997). Mapping the multidimensional nature of domain learning: The interplay of cognitive, motivational, and strategic forces. In M. L. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 10, pp. 213-250). Greenwich, CT: JAI Press
- Alexander, P. A. (2002, January). *The struggling adolescent reader: A new perspective on an enduring problem*. Keynote presented at the Adolescent Literacy Workshop sponsored by the National Institute of Child Health and Human Development.
- Alexander, P. A. (2003a). Can we get there from here?: Introduction to the special issue on expertise. *Educational Researcher*, 32(8), 3-4.
- Alexander, P. A. (2003b). Profiling the developing reader: The interplay of knowledge, interest, and strategic processing. In C. M. Fairbanks, J. Worthy, B. Maloch, J. V. Hoffman, D. L. Schallert (Eds.), *The Fifty-first Yearbook of the National Reading Conference* (pp. 47-65). Oak Creek, WI: National Reading Conference.
- Alexander, P. A. (2003c). The development of expertise: The journey from acclimation to proficiency. *Educational Researcher*, 32(8), 10-14.
- Alexander, P. A., Graham, S., & Harris, K. (1998). A perspective on strategy research: Progress and prospects. [Special Issue] *Educational Psychology Review*, 10, 129-154.
- Alexander, P. A., Kulikowich, J. M., & Schulze, S. K. (1994). How subject-matter knowledge affects recall and interest. *American Educational Research Journal*, 31, 313-337.
- Alexander, P. A., & Jetton, T. L. (2000). Learning from text: A multidimensional and developmental perspective. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr

- (Eds.), *Handbook of reading research: Vol. III* (pp. 285-310). Mahwah, NJ: Lawrence Erlbaum Associates.
- Alexander, P. A., Jetton, T. L., & Kulikowich, J. M. (1995). Interrelationship of knowledge, interest, and recall: Assessing a model of domain learning. *Journal of Educational Psychology, 87*, 559-575.
- Alexander, P. A., & Judy, J. E. (1988). The interaction of domain-specific and strategic knowledge in academic performance. *Review of Educational Research, 58*, 375-404.
- Alexander, P. A., & Murphy, P. K. (1998a). Profiling the differences in students' knowledge, interest, and strategic processing. *Journal of Educational Psychology, 90*, 435-447.
- Alexander, P. A., & Murphy, P. K. (1998b). The research base for APA's learner-centered principles. In N. M. Lambert & B. L. McCombs (Eds.), *Issues in school reform: A sampler of psychological perspectives on learner-centered school* (pp. 25-60). Washington, DC: The American Psychological Association.
- Alexander, P. A., Murphy, P. K., & Woods, B. S. (1996). Of squalls and fathoms: Navigating the seas of educational innovation. *Educational Researcher, 25*(3), 31-36, 39.
- Alexander, P. A., Sperl, C. T., Buehl, M. M., Fives, H., & Chiu, S. (in press). Modeling domain learning: Profiles from the field of special education. *Journal of Educational Psychology*.
- Alvermann, D. E. (2001). *Effective literacy instruction for adolescents*. [Executive Summary and Paper Commissioned by the National Reading Conference.] Chicago, IL: National Reading Conference. <http://nrc.oakland.edu/documents/2001/alverwhite2.doc>

- Alvermann, D. E., Young, J. P., Weaver, D., Hinchman, K. A., Moore, D. W., Phelps, S. F., Thrash, E. C., & Zalewski, P. (1996). Middle and high school students' perceptions of how they experience text-based discussions: A multicase study. *Reading Research Quarterly, 31*, 244-267.
- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*, 261-271.
- Anderson, R. C., Spiro, R., & Anderson, M. C. (1978). Schemata as scaffolding for the representation of information in connected discourse. *American Educational Research Journal, 15*, 433-440.
- Anderson-Inman, L., & Horney, M. A. (1998). Transforming text for at-risk readers. In D. Reinking, M. C. McKenna, L. D. Labbo, & R. D. Kieffer (Eds.), *Handbook of literacy and technology: Transformations in a post-typographical world* (pp. 15-43). Mahwah, NJ: Lawrence Erlbaum Associates.
- Csikszentmihalyi, M. (1985). Emergent motivation and the evolution of the self. In D. A. Kleiber & M. L. Maehr (Eds.), *Advances in motivation and achievement* (Vol. 4, pp. 93-119). Greenwich, CT: JAI Press.
- Csikszentmihalyi, M. (1990). *FLOW: The psychology of optimal experience*. New York: HarperCollins.
- Curtis, M. E. (2002). *Adolescent reading: A synthesis of research*. Washington, DC: National Institute of Child Health and Human Development. Department of Education.
<http://216.26.160.105/conf/nichd/synthesis.asp>
- Department of Education (2001). *No child left behind* (Public Law 107-110). Washington, DC: Author.

- Dewey, J. (1913). *Interest and effort in education*. Boston: Riverdale.
- Dweck, C., & Leggett, E. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256-273.
- Gardner, H. (1993). *Multiple intelligences: The theory in practice*. New York: Basic Books.
- Garner, R. (1990). When children and adults do not use learning strategies: Toward a theory of setting. *Review of Educational Research*, 60, 517-529.
- Garner, R., & Alexander, P. A. (1989). Metacognition: Answered and unanswered questions. *Educational Psychologist*, 24, 143-148.
- Garner, R., & Alexander, P. A. (1991, April). Skill, will, and thrill: The role of interest in text comprehension. In M. C. Smith & S.E. Peterson (Chairs), *What do we know about adults' reading skills: The state of our knowledge and directions for new research*. Symposium presented at the annual meeting of the American Educational Research Association, Chicago.
- Garner, R., Gillingham, M. G., & White, C. S. (1989). Effects of "seductive details" on macroprocessing and microprocessing in adults and children. *Cognition and Instruction*, 6, 41-57.
- Gelman, R., & Greeno, J. G. (1989). On the nature of competence: Principles for understanding in a domain. In L. B. Resnick (Ed.), *Knowing, learning, and instruction: Essays in honor of Robert Glaser* (pp. 125-186). Hillsdale, NJ: Erlbaum.
- Guthrie, J. T., Van Meter, P. Hancock, G. R., Alao, S., Anderson, E., & McCann, A (1998). Does concept-oriented reading instruction increase strategy use and conceptual learning from text? *Journal of Educational Psychology*, 90, 261-278.

- Guthrie, J. T., & Wigfield, A. (2000). Engagement and motivation in reading. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research: Vol. III* (pp. 403-422). Mahwah, NJ: Lawrence Erlbaum Associates.
- Harris, K. R., & Graham, S. (1996). *Making the writing process work: Strategies for composition and self-regulation*. Cambridge, MA: Brookline.
- Hidi, S. (1990). Interest and its contribution as a mental resource for learning. *Review of Educational Research, 60*, 549-571.
- Jetton, T. L., & Alexander, P. A. (1997). Instructional importance: What teachers' value and what students learn. *Reading Research Quarterly, 32*, 290-308.
- Kruidenier, J. (2002). *Research-based principles for adult basic education: Reading instruction*. Portsmouth, NH: RMC Research Corporation.
- Marshall, J. (2000). *Research on response to literature*. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research: Vol. III* (pp. 381-402). Mahwah, NJ: Lawrence Erlbaum Associates.
- Mitchell, M. (1993). Situational interest: Its multifaceted structure in the secondary school mathematics classroom. *Journal of Educational Psychology, 85*, 424-436.
- Moje, E. B. (2000). *"All the stories that we have": Adolescents' insights about literacy and learning in secondary schools*. Newark, DE: International Reading Association.
- Murphy, P. K., & Alexander, P. A. (2002). What counts?: The predictive power of subject-matter knowledge, strategic processing, and interest in domain-specific performance. *Journal of Experimental Education, 70*, 197-214.

- National Center for Education Statistics (1999). *NAEP 1998: Reading: Report card for the Nation and the States*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- National Reading Panel (2000). *Report of the National Reading Panel*. Washington, DC: National Institute of Child Health and Human Development.
<http://www.nichd.nih.gov/publications/pubskey.cfm?from=nrp>
- Newell, A., & Simon, H. A. (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice-Hall.
- Nist, S. L., & Holschuh, J. L. (2000). Comprehension strategies at the college level. In R. F. Flippo & D. C. Caverly (Eds.), *Handbook of college reading and study strategy research* (pp. 75-104). Mahwah, NJ: Lawrence Erlbaum Associates.
- Nist, S. L., & Simpson, M. L. (2000). College studying. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research: Vol. III* (pp. 645-666). Mahwah, NJ: Lawrence Erlbaum Associates.
- Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and monitoring activities. *Cognition and Instruction, 1*, 117-175.
- Palmer, D. J., & Goetz, E. T. (1988). Selection and use of study strategies: The role of the studier's beliefs about self and strategies. In C. Weinstein, E. T. Goetz, & P. A. Alexander (Eds.), *Learning and study strategies: Issues in assessment, instruction, and evaluation* (pp. 77-100). San Diego, CA: Academic Press.
- Paris, S. G., Wasik, B. A., & Turner, J. C. (1991). The development of strategic readers. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research: Volume II* (pp. 609-640). Mahwah, NJ: Lawrence Erlbaum Associates.

- Paris, S. G., & Winograd, P. (1990). Dimension of thinking and cognitive instruction. In B. F. Jones & L. Idol (Eds.), *How metacognition can promote academic learning and instruction* (pp. 15-51). Hillsdale, NJ: Erlbaum.
- Pressley, M. (2001). *Effective beginning reading instruction*. [Executive Summary and Paper Commissioned by the National Reading Conference.] Chicago, IL: National Reading Conference. <http://nrc.oakland.edu/documents/2001/pressleywhite2.doc>
- RAND Reading Study Group (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. Santa Monica: CA
- Reed, J. H., & Schallert, D. L. (1993). The nature of involvement in academic discourse. *Journal of Educational Psychology*, 85, 253-266.
- Reed, J. H., Schallert, D. L., & Goetz, E. T. (1993, April). *Interest happens but involvement takes effort: Distinguishing between two constructs in academic discourse tasks*. Paper presented at the annual meeting of the American Educational Research Association, Atlanta, GA.
- Reinking, D. (1998). Introduction: Synthesizing technological transformations of literacy in a post-typographic world. In D. Reinking, M. C. McKenna, L. D. Labbo, & R. D Kieffer (Eds.), *Handbook of literacy and technology: Transformations in a post-typographical world* (pp. xi-xxx). Mahwah, NJ: Lawrence Erlbaum Associates.
- Reinking, D., McKenna, M. C., Labbo, L. D., & Kieffer, R. D. (1998). *Handbook of literacy and technology: Transformations in a post-typographic world*. Mahwah, NJ: Lawrence Erlbaum Associates.

- Renninger, K. A. (1992). Individual interest and development: Implications for theory and practice. In Renninger, K. A., Hidi, S., & Krapp, A. (Eds.), *The role of interest in learning and development* (pp. 361-395). Hillsdale, NJ: Erlbaum.
- Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. New York: Oxford University Press.
- Rosenshine, B. (1997, March). The case for explicit, teacher-led, cognitive strategy instruction. In M. F. Graves (Chair), *What sort of comprehension strategy instruction should schools provide?* Symposium presented at the annual meeting of the American Educational Research Association, Chicago.
- Schiefele, U. (1991). Interest, learning, and motivation. *Educational Psychologist*, 26, 229-323.
- Schoenfeld, A. H. (1988). When good teaching leads to bad results: The disasters of "well-taught" mathematics courses. *Educational Psychologist*, 23, 145-166.
- Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington DC: National Academy Press.
- VanSledright, B. (2002). *In search of America's past: Learning to read history in elementary school*. New York: Teachers College Press.
- VanSledright, B., & Alexander, P. A. (2002). *Historical knowledge, thinking, and beliefs: Evaluation component of the Corps of Historical Discovery Project (#S215X010242)*. United States Department of Education.
- Vygotsky, L. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Wade, S. E., & Moje, E. B. (2000). The role of text in classroom learning. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research: Vol. III* (pp. 609-627). Mahwah, NJ: Lawrence Erlbaum Associates.

Weinstein, C. E., & Mayer, R. E. (1986). The teaching of learning strategies. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 315-327). New York: Macmillan.

Wigfield, A., Eccles, J. S., & Pintrich, P. R. (1996). Development between the ages of 11 and 25. In D. Berliner & R. Calfee (Eds.), *Handbook of educational psychology* (pp. 148-185). New York: Macmillan.

Winne, P. H. (1995). Inherent details in self-regulated learning. *Educational Psychologist*, 30, 173-187.

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist*, 21, 3-18.