Reading and Learning Strategies: Recommendations for the 21st Century

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ABSTRACT: Finding practical ideas about college reading and learning strategy programs that have been drawn from theory and research is difficult for most veteran instructors but is even more difficult for those instructors new to the field. Over a decade ago the authors reviewed the literature and generated a list of their own "best ideas" as a way of facilitating professional development. Given the promising research trends and best practices that have emerged since then, the authors deemed it important to update these ideas or recommendations. In addition, the authors have purposely cited many scholarly sources in order to provide an extensive bibliography for colleagues new to the field.

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As the landscape of developmental education and academic assistance continues to shift, both politically and economically, time-honored professionals and those new to the field consistently search for practical ideas they know are embedded in sound theory and research. Although such ideas or recommendations provide many professionals a framework and rationale for their program development, instruction, and program evaluation endeavors, such recommendations are often difficult to unearth, especially for beginners who are less aware of professional organizations and scholarly journals. Over a decade ago we published an article, "Ten Recommendations from Research for Teaching High-Risk College Students," that was intended to address this issue (Stahl, Simpson, & Hayes, 1992). Given the promising research trends and best practices that have emerged since 1992, we knew it was important to update our original 10 recommendations. After reviewing the literature and discussing important trends with a variety of individuals, we identified 10 recommendations pertinent to the 21st century. In order to provide the most current and relevant research and theory, we decided to direct these recommendations toward instructors who, like ourselves, teach developmental reading and learning strategies courses. To capture that intent we refer to these individuals, our colleagues, as academic assistance professionals.

The first eight recommendations focus on what the extant theory and research suggest in terms of what should be taught and how. The last two recommendations focus on issues involved in successful programs. As we noted in that first article, these recommendations, though not comprehensive, are meant to provide a starting point for discussion and reflection. Moreover, the extensive references in this second article, as they were in the first, are an intentional effort to provide credible sources for future reading. If the original reference list captured the history of the field during the 1980s, this list will serve the same function for the last years of the 20th and the first decade in the 21st century.

The Recommendations

Adopt a Programmatic Model that Emphasizes the Cognitive Development of Students

In our first article we began by stressing the importance of adopting a cognitive-based philosophy that emphasizes the development of active learners who are in control of their learning. Even though a decade has passed and various models have been advocated (Farmer & Barham, 2001), this recommendation is still very important and needs to be revisited during these times of shifting philosophical boundaries and financially motivated cuts in programs. That is, a program that aligns itself exclusively to improving students standardized test scores tends to be more vulnerable to budget cuts by administrators who view remediation as superfluous and nonessential.

As pointed out by several different individuals, many academic assistance programs still define their delivery model and objectives around state-mandated reading tests (Bower, Caverly, Stahl, & Voge, 2003; Simpson, Hynd, Nist, & Burrell, 1997). Thus, these atheoretical programs emphasize, sometimes exclusively, goals that focus on reading skills that appear on these tests, skills such as drawing inferences, identifying main ideas, and understanding contextual clues. Students typically practice these skills in materials that decontextualize the reading experience to brief narrative or expository passages that are followed by multiple-choice questions, questions similar to the mandated exams (Nist & Holschuh, 2000b). It is acknowledged that such practice may lead to growth on tests while promoting a gate keeping function, but it must be questioned whether these activities lead students to becoming active readers and learners.

Rather than emphasizing students' deficits, many academic assistance professionals have found it more advantageous to teach their students to become active, strategic learners. After three de-

cades of research, the field has a rather definitive sense of the characteristics of strategic learners. These characteristics are embedded in theories and models authored by individuals such as Pressley (2000), Weinstein, Husman, and Dierking (2000), and Zimmerman (2000). What these theories share is the belief that reading and studying are dynamic and context-dependent tasks, and active learners have a command of the essential cognitive, metacognitive, and self-regulatory processes. These processes include selecting, summarizing, organizing, elaborating, monitoring, self-testing, reflecting, and evaluating (Nist & Simpson, 2000). When instructors adopt cognitive-based models for their reading and learning strategy courses, they teach their students a repertoire of techniques and strategies that embody these important processes (Alexander, 2004; Winne, 1997).

At first glance it might appear that this recommendation is a bit ethereal and impractical for the academic assistance professional facing hordes of students every semester. However, there are many advantages of having a cognitive-based model that both unifies and guides a program on a long-term basis. When a program has an encompassing conceptual framework or model, pedagogical choices such as what materials to buy, what activities to include, or what program evaluation instruments to use become much easier. Moreover, when there is a model that guides a program, the objectives become easier to identify and evaluate. In sum, a cognitive-based model can provide academic assistance professionals a program that generates credibility and support on almost any campus, whether it be with the students, other faculty members, or overly zealous administrators searching for ways to capture additional sources of money.

Emphasize Strategy Transfer and Modification Across the Academic Disciplines

The main goal of any academic assistance program is for students to modify and apply the strategies and processes it teaches them to their own academic tasks. As Weinstein et al. (2000) pointed out, "if transfer to other academic coursework and future learning tasks does not occur, these programs are of little value to the students or the institution" (p. 735). Yet, the research suggests that students do not automatically or immediately transfer strategies in a flexible manner (Boylan, 2002; Hadwin, Stockley, Nesbit, & Woszczyna, 2001; Simpson & Nist, 2000). Consequently, academic assistance professionals who are teaching their students how to annotate a textbook or create a map should not be surprised if their students are not using these strategies in their history or biology courses.

According to the extant literature, strategy transfer and modification can be facilitated if academic assistance professionals focus on four research-based principles. The first principle stresses that students will transfer a strategy to their tasks if they possess the "how to employ" or procedural knowledge of that strategy and the "why and when to use" or conditional knowledge. For example, with the preview strategy, students' procedural knowledge would help them understand the steps to previewing (e.g., I should read the headings and subheadings and the introduction) and how to modify those steps when they encounter different types of texts (e.g., if the text has no boldface headings, I could read the first sentence of each paragraph). Students' conditional knowledge of the preview strategy would help them understand why previewing is appropriate (e.g., it helps me see the big picture) and when they should use it (e.g., I should preview before I read or before I go to a lecture). Research studies have found that conditional knowledge is especially important to strategy transfer, especially if students are expected to abandon their usual approaches such as rereading and/or highlighting that are typically more comfortable and accessible (Hofer, Yu, & Pintrich, 1998; Weinstein et al., 2000; Winne, 1997).

The ultimate goal is for students to evaluate their performance in terms of their strategic actions or lack thereof.

The second principle states that students' strategy transfer takes a sustained amount of time to develop. In other words, students will not immediately embrace a new strategy and discard their time-honored approaches just because they heard a brief presentation on studying in college or completed a few workbook pages. As noted by Hadwin, et al. (2001), strategic learning is "enacted over time through a series of unfolding events" (p. 10). Hence, it is important to allow for that time and plan for recursive instruction (Alexander, 2004) by providing for multiple passes and scaffolding.

The third principle suggests that transfer can be enhanced if students receive explicit instruction. Explicit instruction is characterized by instructors modeling essential reading processes and providing students guided practice in texts that are authentic and represent the kinds of tasks they will encounter during their college career. As noted by Garner in 1990 and reaffirmed 10 years later by researchers such as Schunk and Ertmer (2000) and Pressley (2000), strategy instruction must be embedded within a disciplinary context and should never "occur in a vacuum" (p. 252). In addition, explicit instruction should provide students multiple opportunities for independent practice, prompt and specific feedback on their strategy attempts, and class time for strategy debriefing sessions. During those debriefing sessions students should pose their questions or concerns about a strategy and the instructor and other classmates should offer answers and possible solutions. To illustrate, during a debriefing session on the preview strategy students might ask: (a) Can you preview when your textbook has no boldface headings? (b) Does it take a long time to preview a text? or (c) Can you preview narrative text?

The fourth principle centers on the importance of teaching students how to reflect on and evaluate their performance and the strategies or approaches they used in selected learning environments (Campione, Shapiro, & Brown, 1995; Hubbard & Simpson, 2003; Zimmerman, 2000). Students who are taught how to reflect and evaluate are the ones more likely to use a strategy and modify it to fit their tasks (Simpson & Nist, 1997, 2002). The research also suggests that they will also perform better on exams (Hubbard & Simpson, 2003). One way instructors can encourage students to evaluate and reflect is to ask them to explain how they studied for an exam. For example, after each exam over a simulation unit, instructors could ask students, before they see their score and review the actual exam, to answer the following questions: (a) How long did you study? (b) When did you begin your studying? (c) How did you study? What techniques did you use? (d) What percentage do you predict you received on the exam? Why do you predict this percentage? After collecting the students' responses, the instructor could then analyze the trends and share them with the students, making sure to emphasize the strategies and plans of A and B students in contrast to the D and F students. The ultimate goal is for students to evaluate their performance in terms of their strategic actions or lack thereof rather than attributing their performance to luck, ability, or the professor.

In sum, this recommendation is dedicated to academic assistance professionals who have struggled with the challenges of encouraging their students to view the strategies they are taught as something productive and useful in their college career. Obviously, strategy transfer and modification are extremely complex and involve far more than good teaching.

Emphasize Students' Flexible Use of the Processes Embedded Within a Strategy

The third recommendation addresses the tendency for academic assistance professionals to focus almost exclusively on a single set of strategies such as annotating, mapping, or SQ3R rather than the processes embedded in them. Moreover, many course evaluation procedures ask the students to report on a questionnaire or checklist whether they specifically employ mapping or annotating during their own reading and studying. If enough students check "yes," the tendency is to judge the instruction or unit successful. Conversely, if stu-

dents report "no," the tendency is to feel that the unit was a failure. Often forgotten in this quest are the underlying processes embedded in these strategies. As noted earlier, these cognitive, metacognitive, and self-regulatory processes include selecting, summarizing, organizing, elaborating, monitoring, self-testing, reflecting, and evaluating. Ultimately, the goal or touchstone of any program is for students to develop a personal theory of these essential metacognitive processes in selecting and using strategies, in a flexible manner, with their own tasks and texts (Alexander, 2004; Boylan, 2002; Zimmerman, 2000). In other words, it is quite possible that students may not be choosing to annotate their own textbooks, but they could be selecting or summarizing when they read. This is more important than whether the students' maps look like the instructor's maps or whether the students report that they are annotating when they read and study.

These cognitive, metacognitive, and self-regulatory processes, often called deep-level processes, have been studied in a variety of ways and have been linked to students' academic performance. Pintrich and Garcia (1994) concluded from their large-scale study at the University of Michigan that students who were engaged in deeper levels of processing, such as elaboration and organization, were more likely to do better in terms of grades on assignments or exams, as well as overall course grades. Hubbard and Simpson (2003) found in their qualitative case study of a history course that students who were reflecting on their performance and calibrating their strategies were the ones who received As and Bs on their exams and earned As and Bs for their course grades.

Students should not perceive the processes taught to them as fixed, inflexible entities that are represented in some sort of useless, time-intensive artifact. Hence, it is important to make sure that students understand the conditional knowledge of a strategy and the processes that are embedded in them. For example, when students annotate a text selection, they should understand that they are selecting, summarizing, organizing, and monitoring their understanding. Also implicit in this recommendation is that students need to decipher the academic tasks assigned them by their professors across the campus. For example, if a history class requires students to read several sources, understand how the viewpoints are alike and different, and forge their own generalizations, they will be involved in deep-level processes such as synthesizing and elaborating. If academic assistance professionals have done an exemplary job of teaching, these students would understand that they have a variety of strategy options that will help them synthesize and elaborate for this history course. That is, they could use charts, study sheets, or maps as they read and study because all of them are task appropriate.

It is important to remember that artifacts such as a map or chart are merely that: artifacts. They are merely a means to an end (Hart, 1967). The ultimate end is for students to have control of the cognitive, metacognitive, and self-regulatory processes essential to reading, studying, and learning.

Understand the Impact of Students' Beliefs about Reading and Learning on Their Performance in College

For our fourth recommendation we turn to an area that has been researched rather intensively during the past decade: students' epistemologies or belief systems. Based on the work of Perry (1970) and others, these personal theories include students' beliefs about the certainty of knowledge, the organization of knowledge, and the control of knowledge acquisition (Hofer, 2001; Hofer & Pintrich, 1997; Schommer & Walker, 1995). That is, it is not atypical for college freshmen to believe that learning should be easy, completed quickly (i.e., the night before in a cramming session) and should happen to them because of what others do for them (i.e., the professor did not teach me how to solve that problem). Hofer (2001) and others have indicated that students' theories or beliefs are an aspect of metacognition since the core definition of an epistemology is knowledge about knowledge and knowing. The extant literature also suggests that college students have formed their personal theories about reading and learning by the time they graduate from high school (Hofer & Pintrich, 1997, Schommer, 1994; Schommer-Atkins, 2002) and that these personal theories are context specific, varying across academic disciplines (Hofer & Pintrich, 1997).

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The impact and relevance of students' personal belief systems is quite significant, especially for those academic assistance professionals hoping that their students will adopt more effective and efficient ways to read and study. First of all, students' beliefs are important because they serve as the filter through which they decipher and interpret their academic tasks (Nist & Simpson, 2000; Simpson & Nist, 2002; Thomas & Rohwer, 1986). For example, many college freshmen fail their first chemistry exam because their beliefs about learning have filtered and reinterpreted their task to be nothing more than memorizing formulas, a task definition rarely accurate for a college-level chemistry exam.

Second, it appears from the research literature that students' beliefs can influence other factors, such as their motivation, strategy use, and performance (Hofer, 2001; Schommer, 1994; Schommer-Atkins, 2002). Schommer (1994), for example, found significant relationships between certain scales on the epistemological questionnaire she developed and students' performance and motivation. Simpson and Nist (1997) found some intriguing trends concerning students' beliefs in two different case studies conducted in history courses. Successful students' (i.e., those who received As and Bs) theories about learning and their theories about what should be learned in history were very different from those of the less successful students (i.e., those who received Ds and Fs). The successful students seemed to believe that they were totally or partially responsible for their learning and knowledge acquisition and employed more task-appropriate and elaborative strategies. In contrast, the less successful students viewed the professor as the person who not only controlled what they would learn but also whether they would learn; they also selected strategies that emphasized rote memorization.

Finally, some researchers have found that skilled and expert readers have beliefs about text that cause them to respond to and interpret texts in ways different from less skilled readers. For example, when Wineburg (1998) examined novices and experts beliefs about history texts, he found that the experts in history have an "epistemology of text" that permitted them to understand the writer's point of view and detect the subtexts that less skilled readers missed. Many students in academic assistance programs are from high schools or from academic tracks in secondary schools that did not require the same depth of understanding required in college. Hence, they will read and think as novices who do not perceive alternative perceptions stated explicitly and implicitly. Wineburg has also determined what many academic assistance professionals already suspected: College students treat their texts as indisputable sources of information rather than ideas posited by a particular individual. In fact, many college students believe that what they read in textbooks is more trustworthy than primary source documents (Britt & Aglinskas, 2002; Stahl & Hynd, 1994).

Hence, it is important for academic assistance professionals to be aware of students' beliefs or personal theories about reading and learning. Writing probes (e.g., What does it mean to read?) or case studies are excellent ways to delineate these beliefs and should be done on a routine basis if instructors hope to nudge their students' beliefs about reading, studying, and learning.

Understand the Academic Tasks Students Encounter and Teach Students How to Define these Tasks

Our fifth recommendation focuses on the critical role that academic tasks play in terms of students' strategic learning (Weinstein, Husman, & Dierking, 2000; Zimmerman, 2000). As noted earlier, contextualization of strategy instruction is

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the best approach to help students learn to employ the strategies and techniques study skills classes teach (Alexander, 2004; Pressley, 2000). In order to embed instruction in a context, academic assistance professionals must know that context or the academic tasks required of their students. Due to its importance, we will examine the fifth recommendation in two different ways.

First, it is important that academic assistance professionals understand the academic tasks required of their students (Boylan, 2002). That is, what are the products that students must produce—tests, papers, projects—in those required core courses such as biology, history, or geography? Moreover, what are the processes embedded in those products; do students have to apply concepts to new situations or merely memorize facts? In order to assist students in transferring and modifying the processes taught to them, instructors must have a sense of what their students are encountering outside of the reading or learning strategy classroom. Such knowledge is also motivating to students because they realize instructors know what is happening out there.

Experience suggests that the best ways to understand the academic tasks at an institution are to discuss these factors with other professors, observe their classes, and distribute questionnaires that ask professors to describe their courses and assignments (Burrell, Tao, Simpson, & Mendez-Burreuta, 1996). Then, armed with that information, instructors can make sure they are teaching students what they need and provide practices that reflect the curriculum. To illustrate, if an instructor learns from a psychology professor that she asks numerous multiple-choice questions that require students to apply concepts to new situations, then that instructor can teach students how to locate examples and to create their own examples. Such analyses, however, must be done on a regular and recurring manner since faculty members change, texts change, and standards change.

The second prong to this recommendation is that academic assistance professionals should teach their students how to decipher their own academic tasks. Students need to learn how to define the cognitive, metacognitive, and self-regulatory processes they will have to employ to complete the exams, papers, and projects required of them in classes like geography or biology. Stated another way, the goal is to teach students to be cue seekers who understand the language and metalanguage of the college curriculum. Interestingly, research suggests that students who are oblivious to the processes involved in their tasks or the actual products they must create are the ones who usually place themselves in academic jeopardy (Hofer, 2001; Simpson & Nist, 1997).

Although there are a variety of ways academic assistance professionals can help students decipher their academic tasks in core courses, there are two that are especially powerful. First, instructors can teach students how to interpret a syllabus and how to interact with their professors during office hours. One way to facilitate these tasks is to provide students with a list of questions to tackle and answer. For example, with the syllabus activity, students would search for answers to the following questions: (a) How many pages are you required to read in a week? (b) What types of sources will you be reading (primary, multiple)? (c) What is the overlap between the lectures and assigned readings? (d) What is the exam format (essay, short answer, objective)? and (e) What is the level of thinking emphasized? Furthermore, students can be taught to develop hypothetical essay questions based on course objectives for later study. As more institutions require that syllabi be posted on departments' homepages, it becomes easier for academic assistance professionals to plan this type of activity.

Second, instructors can teach students, using taxonomy like that created by Bloom and his colleagues (Anderson & Krathwohl, 2000; Bloom, 1956) to analyze the test questions they encounter on exams so they can determine what strategies would be most appropriate. For example, if a student determines that it's necessary to understand the interrelationships between concepts in his biology course, then to map or chart is a good choice as a study strategy. Although there are a variety of ways to teach students this type of analysis, there are three that are particularly effective. Instructors can model the process using their own exams and copies of exams that faculty members share with them. Another way to approach this analysis is to encourage students to ask their professors for sample questions before an exam so they can analyze the questions as a way to guide their thinking and studying. Finally, instructors can insist that students see their professors during their office hours so they can go over exams they have previously taken in order to note questions and patterns in their errors (i.e., I seem to be missing questions that ask me to apply concepts in this sociology course.).

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In sum, it is important for academic assistance professionals to delineate the academic tasks that their students are being asked to complete in courses such as chemistry and history. Then instructors should teach their students how to understand those tasks so they can make appropriate and effective choices as to how they will read and study.

Adopt Research-Based Approaches to Vocabulary Learning

According to the International Reading Association's (IRA) recent survey of reading experts, ideas about vocabulary instruction are rarely published today because literacy professionals are just not submitting these types of articles. Ironically, the IRA described vocabulary learning as a hot issue, needing far more attention than it is getting (Cassidy & Cassidy, 2004). Although we discussed the importance of vocabulary instruction in our first article, we decided to update and revisit this recommendation because of the importance of vocabulary to students' reading comprehension and because of the way it continues to be taught (Nagy & Scott, 2000; Stahl, 1999).

Many programs still use lists or textbooks that emphasize the rote level memorization of words (Simpson & Randall, 2000). That is, students learn the definitions to words and demonstrate their mastery on multiple choice or matching exams. The problem with such an approach is that students do not understand these words at a deep level, and hence, never incorporate them into their own speaking or writing tasks (Nagy & Scott, 2000; Stahl, 1999). In other words, students take the vocabulary test, leave the classroom, and forget the words. They are doing school but not expanding their vocabularies.

What would be a more research-based approach? The literature suggests that three principles are particularly important (Blachowicz & Fisher, 2000; Nagy & Scott, 2000; Stahl, 1999). First, instructors need to place an emphasis on both additive and generative approaches to building students' vocabulary knowledge. Additive approaches focus on building vocabulary knowledge through the formal study of words that instructors typically provide to their students. In the past, such an approach meant that students studied words presented to them in a list. However, the extant literature suggests that students learn new words more effectively when they are presented and discussed from a context (Stahl, 1999). That context might be a psychology chapter, an essay, or a magazine article that the students have been assigned to read and study. Moreover, the work of Haggard (1989) and others (e.g., Harmon, 2000) suggests that students' input in the process of selecting the words to study makes the vocabulary building activities even more productive and engaging. Generative approaches, on the other hand, emphasize the importance of creating lifelong learners of words by teaching students certain techniques to unlock the meaning of words on an independent basis. These techniques typi-

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cally include how to use the dictionary, how to decipher context clues, and how to employ prefixes, roots, or suffixes to break down long words such as "psychoneuroimmunology" (Brozo & Simpson, 2003; Stahl, 1999). Because each of these generative approaches has inherent advantages and disadvantages, it is wise to keep informed of the literature. For example, studies done by McKeown (1990) and Nist and Olejnik (1995) pointed out the many difficulties students encounter as they attempt to interpret a typical dictionary entry and use that information to build their word knowledge.

Second, instructors should place an emphasis on expressive language activities (Francis & Simpson, 2003; Nagy & Scott, 2000) during their class sessions. Long before students are asked to write about the words or are tested on the words, they should be given opportunities to experiment with the targeted words in low-risk situations. These low-risk sessions where students "try out" new words should help them learn the correct pronunciation of a targeted word, the appropriate definitions that fit the context, the syntactic rules that govern the use of the words, and all the nuances and connotations connected with the words. If instructors will frontload their vocabulary instruction in this manner, students will be more likely to use the words in their own communication tasks.

Third, instructors should emphasize cumulative evaluation activities that require active processing. With cumulative evaluation, students are held accountable for the words over a period of time, not just for one exam. Although it is impossible to identify a specific time frame for all students, the research literature suggests that word ownership is reinforced when students receive multiple exposures to targeted words in multiple contexts (Blachowiecz & Fisher, 2000). With active processing, students are required to understand words beyond the rote, definitional level. For example, active processing might involve students in sensing interrelationships between words or generating novel contexts for a targeted word. Unfortunately, the typical matching and multiple choice evaluation formats in commercial materials do not encourage active processing.

To circumvent this passivity and rote level learning, academic assistance professionals can create a variety of their own evaluation and reinforcement formats (Francis & Simpson, 2003). One evaluation format that is relatively easy to create and involves students in writing and critical thinking is the paired word question format (Beck, Perfetti, & McKeown, 1982). For example, if the targeted vocabulary words for a unit included *glutton* and *obese*, the instructor could write an item similar to this one: Would a glutton be obese? Why or why not? To answer this question, students would definitely need to know the words beyond a rote definitional level, especially if they were to answer the "why" question satisfactorily.

Simply teaching students words is not enough to stimulate true vocabulary growth. Rather, instructors must be cognizant of principles important to vocabulary instruction and make sure they are incorporated into their plans and units.

Teach Students How to Read and Think About Multiple Sources

Our seventh recommendation is an acknowledgement that today's college students are routinely assigned to read and learn from a variety of texts that challenge the traditional single textbook paradigm (Pugh, Pawan, & Antommarchi, 2000; Wade & Moje, 2000). Perhaps the most challenging academic tasks college students will encounter will be the ones that require them to interpret and synthesize from a variety of primary and secondary sources, especially when those sources offer conflicting information or philosophical interpretations (Britt & Aglinskas, 2002; Stahl, Hynd, Glynn, & Carr, 1995). One example is of a history professor who asks his freshmen to read diary entries, newspaper articles, and essays so they can compare and contrast the opinions and perspectives in these sources with their textbook. Another is of a different history professor who, disgruntled with the overly simplified and biased viewpoints presented in most textbooks, has chosen to use only primary sources with his students. These tasks would be daunting for even the most seasoned consumer of either narrative or expository text. However, the students in reading and learning strategy courses are far less accustomed to reading in order to learn content area concepts, especially first semester freshmen (Campbell, Voelkl, & Donahue, 1997; Wade & Moje, 2000).

Students should be given opportunities to experiment with the targeted [vocabulary] words in low-risk situations.

Interestingly, most college reading or study strategy textbooks/workbooks focus on techniques to help students deal with the single textbook as if their geography, history, and literature professors used only these materials to introduce and reinforce concepts. Therefore, if academic assistance professionals want to help students read and think about multiple sources with multiple perspectives, they will likely need to independently create these lessons and units. The first step in this endeavor is to identify interest-provoking primary sources that contain differing perspectives. Such materials organized around a thematic unit such as the environment should assist students in discerning differences across the authors, in noting omissions, and in detecting the voices of the various authors (Britt & Aglinskas, 2002; Hynd, 1999). Of course, merely providing students multiple paper and digital sources on an issue, such as the environment, will not guarantee that they will begin to think critically about what they are reading. Academic assistance professionals will need to provide modeling and guided practice for students tackling the materials from a thematic unit (Beck, McKeown, Hamilton, & Kucan, 1997).

A second way to assist students in coping with multiple sources and multiple perspectives is to teach them the processes that experts use when they read and think about complex ideas. Wineburg (1998) has researched this topic extensively and has identified three essential thinking processes that experts use when they read challenging text: corroboration, sourcing, and contextualization. The first thinking process, corroboration, involves students in comparing and contrasting texts with one another. To assist students in their corroboration, academic assistance professionals could teach their students how to create and use organizing strategies such as charts or synthesis journals (Burrell & McAlexander, 1998). The synthesis journal provides students a spatial format that helps them compare and contrast differing texts, whether oral or written. Students begin by summarizing the viewpoints and statements of authors they have read. Once students have completed this first step, they then write, in another designated part of the formatted page, their own viewpoints and ideas, as well as those of their classmates and instructor. Finally, in the center of the spatially formatted page, students are asked to create an overall generalization that summarizes and synthesizes everything they have read and discussed. Randall (1996) used a modification of the idea with a unit on the wilderness and environment and found that her struggling readers improved their abilities to paraphrase, summarize, and organize. As a result, the research papers they produced were far superior to what her students had produced previously.

The second process, sourcing, requires students to analyze the sources and to consider how the possible bias of the source might affect the document. Academic assistance professionals could help students analyze primary sources by providing a list of questions they should ask themselves at the text and chapter level. These questions could include the following: (a) Who is the author and what are his or her qualifications? (b) Are these credentials sufficient to discuss the content presented in the source? (c) Can this information be verified by another source? (d) Is the author's motivation for writing clear to you? Additional questions similar to these can be lo-

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cated in the extant literature (e.g., Paul & Elder, 2003).

The third process, contextualization, asks students to situate a text in a temporal and spatial context in order to determine how time and place may have had an impact on what the writer said about the topic. For example, an author writing about Vietnam in a magazine published in the 60s would seemingly have a different perspective from another author writing in the 80s. Instructors could help their students contextualize what they read by encouraging them to use several simple techniques. One such simple technique is to encourage students to read the introductions or descriptions of authors in edited books or journals. We mention this simple technique knowing that many of our students overlook and skip this information, hoping to save reading time. Another effective technique would be to teach students a series of questions that they should ask themselves as they read. For example, students could be encouraged to ask themselves the following: (a) When was this article written? (b) What do I know about this time period? and (c) What did the majority of people in this time period believe about this topic? These questions, as with the sourcing questions, encourage students to read actively and critically.

Overall, students need numerous experiences with multiple sources as well as guidance in the questioning and evaluating of such sources. By modeling and teaching appropriate thinking processes, students become prepared for the 21st century where the single textbook paradigm is gradually being overshadowed by an intertextual academic environment drawing upon both traditional text and technology.

Use a Variety of Valid Assessment and Diagnostic Procedures

Our eighth recommendation addresses the importance of using a variety of valid procedures that will enable instructors to learn more about their students and to plan instruction accordingly. These procedures, often described as process-oriented approaches, also assist students in knowing more about their strengths and needs (Flippo & Schumm, 2000). Process-oriented procedures are identifiable by several characteristics. Most importantly, they are group-oriented, on-going activities that seamlessly fit into instructors' lessons and units. As such, they are very similar to the Classroom Assessment Techniques described by Angelo and Cross (1991) and the classroom-embedded performance assessment described by Valencia and Wixson (2000) in that they provide instructors critical information to guide their teaching. Unlike product measures that produce grade equivalents or stanine scores, process-oriented procedures describe students in ways that facilitate instructional planning. That is, a low grade equivalent score may inform the instructor that a student has comprehension difficulties, but a process-oriented procedure provides diagnostic details suggesting, for example, that the student may have comprehension difficulties because he has difficulties concentrating and identifying key ideas.

Another important characteristic of process-oriented procedures is that they mirror the academic tasks that students must tackle in college (Flippo & Schumm, 2000). Because these procedures focus on the cognitive, metacognitive, and self-regulatory processes involved in active learning and the beliefs and attitudes that students bring to their academic tasks at the college level, they typically have more construct validity than standardized tests. As Perry (1959) pointed out over 40 years ago, "The possession of excellent reading skills as evidenced on conventional reading tests is not a guarantee that a student knows how to read long assignments meaningfully" (p. 199).

Instructors should compile a collection of formal and informal assessment procedures rather than rely on one procedure or measure (Boylan, 2002; Flippo & Schumm, 2000). Although there is not a plethora of formal, published instruments that are process-oriented, the *LASSI* (Weinstein, Palmer, & Schulte, 2000) is certainly a worthy addition to any program. Academic assistance professionals can also gather a significant amount of data from informal measures that involve students in writing and self-report activities, whether through traditional pen and paper methods or technology enhanced formats (e.g., Blackboard). Writing activities could include autobiographical sketches that students complete at the beginning of the semester and on-going journal entries that require students to monitor, synthesize, and reflect upon their reading and studying (Commander & Smith, 1996; El-Hindi, 2003; Quinn, 2003; Solder, 1998-99). Another option is to use checklists or rubrics as a way to delineate students' strengths and specific areas of need. For example, checklists that focus on students' actual lecture notes or textbook annotations provide instructors considerable diagnostic information as to their abilities to note key ideas or sense the relationships between key concepts. Of course, when students analyze their own strategies or those of their classmates, they, too, learn from these process-oriented assessments.

Process-oriented procedures ...mirror the academic tasks that students must tackle in college.

In addition, many academic assistance professionals have historically and routinely found case studies or scenarios to be useful, especially if they are given throughout the semester (Nist & Holschuh, 2000a). At the beginning of the semester a reading instructor could ask students to solve a scenario or problem describing a typical college student. After reading and noting patterns in the students' answers, the instructor could plan lessons accordingly. For example, it is not atypical for students to recommend to Jason, a character in one of the scenarios, that he should recopy his class notes as the best way to study for an exam. Such a recommendation, of course, is counter to what research has indicated and to what most instructors emphasize in their courses. At the end of the semester the students could then revisit the same scenario, writing again their solutions but without looking back at what they wrote earlier. Students are always amazed at how much they have learned during the semester and how much they have changed in their strategic understanding of the problem.

Scenarios are also incredibly useful diagnostic activities when used in a discussion format whether in the classroom or through a computer-based system such as Blackboard. In order to engage students in thinking about the processes embedded in strategic learning, instructors could assign students to solve a scenario and come to class prepared to discuss their answers. Once the discussion ebbs, students could then write an addendum on what they learned from their classmates and hand in their papers. Instructors who read their students' solutions and on-line discussions are able to identify their misconceptions and the principles of strategic learning that they did not teach effectively.

The extant literature suggests that effective assessment and diagnosis will involve instructors and students in a variety of process-oriented procedures. Unlike standardized tests that generate static pieces of data, these process-oriented procedures promote dynamic classroom activities that are utilitarian.

Conduct Valid, Reliable, Long-Term Program Evaluation Studies

Frank Christ (1985) noted several years ago that "any activity worth doing should be evaluated" (p. 3). Hence, our ninth recommendation addresses the characteristics of effective program evaluation endeavors. Program evaluation differs from assessment activities in that the former seeks to describe the overall impact of a program or intervention, such as a required reading strategy course for at-risk freshmen or a summer elective or bridge program for incoming freshmen.

As noted by Boylan and Bonham (2003) and other individuals (e.g., O'Hear & McDonald, 1995), there is a shortage of quality programmatic research on academic assistance programs and courses. The studies that do exist have generally suffered from a series of fatal flaws (Boylan, Bliss, & Bonham, 1997; Koski & Levin, 1998; O'Hear &

MacDonald, 1995). More specifically, many program evaluation studies have not been grounded in theory, have not analyzed students' academic performance using a constellation of dependent variables, and have not examined the critical questions addressing students' transfer and modification of the strategies to their own academic tasks.

According to the extant literature, valid and reliable studies have many characteristics, but we will focus on four of these. First, these studies use instruments that help answer the why questions about programs, courses, and interventions (Simpson, 2002). As noted by Boylan (2002), Weinstein (1994) and others, one of the most common why questions focuses on students' growth or change over a period of time and the factors that may have influenced that growth or change. In contrast, the what questions tend to examine products or results such as students' course grades, their retention in courses and in the institution, their scores on a standardized exam, or their grade point averages.

Second, effective program evaluation studies use a combination of theory-based qualitative and quantitative measures, not just the latter (Boylan, Bonham, White, & George, 2000; O'Hear & MacDonald, 1995). Quantitative measures (e.g., standardized reading tests, published questionnaires) have historically been favored over qualitative measures (e.g., open-ended questionnaires, focus group sessions, individual interviews) because of the much-publicized limitations of self-report data (Merriam, 1998; Pajares, 1992). What is often forgotten in these criticisms of qualitative measures is that quantitatively oriented measures are equally suspect because they can be narrow in scope, unreliable, or invalid. These particular limitations are typically present because of the ways in which quantitative instruments, such as standardized reading tests, are conceived, written, and piloted. Consequently, it makes more sense to use a combination of qualitative and quantitative instruments so the data from one can be used to triangulate and provide additional substantiation for the data gleaned from the other. Moreover, multiple sources of data enhance the internal validity and reliability of any research finding (Merriam, 1998).

Third, effective program evaluation studies should assess the perceptions of the students, the major stakeholders in this venture (Bradley, Kish, Krudwig, Williams, & Wooden, 2002; Maxwell, 1997). Students have unique insights into the academic challenges they face which academic assistance professionals often cannot fully understand. When students are asked questions about courses or delivery models, they can provide important data on what worked, what needs to be improved, and why. These types of data are particularly important to formative evaluation efforts and to the reports that must be crafted for administrators who are in charge of monies and budgets. Such questioning of students, the stakeholders, is also a task required by many accreditation agencies.

Fourth, these program evaluation studies need to be conducted over a sustained period of time. As noted by numerous researchers (e.g., Boylan, et al., 2000; Elifson, Pounds, & Stone, 1995) and professional organizations (e.g., the American Association of Higher Education, 1992), instructors and administrators should have a long-term plan for evaluating their services and programs. When studies are longitudinal and replicated over time, the internal reliability of the findings will be strengthened. Equally important is to follow the students who use academic assistance services over a period of time (Simpson, 2002). Admittedly, this is an intimidating task given the difficulty in locating former students and encouraging them to participate in a study. Randall (2002), however, was able to overcome these obstacles, conducting a noteworthy study that collected qualitative and quantitative data from 64 students who had taken a learning strategies course. At the time that Randall met with the students, they had taken 3 semesters of course work since their enrollment in the learning strategies course. Obviously, a longer period of time would have been ideal (i.e., 2 years later), but the data Randall collected from these students became

extremely useful in a formative and summative manner for that academic assistance program.

Very few program evaluation studies have incorporated all these four characteristics, but a study by Weinstein and colleagues (Weinstein, Dierking, Husman, Roska, & Powdril, 1998) embraces, in an exemplary manner, the spirit of effective program evaluation research. This study was grounded in self-regulation theory and was designed to collect data over a 5-year period of time. The researchers used a variety of methods and instruments to evaluate the impact of a learning to learn course at the University of Texas over a period of time. Specifically, in terms of instruments they administered the *Nelson-Denny Reading Test* (Brown, Fishco, & Hanna, 1993) and the *LASSI* (Weinstein, Schulte, & Palmer, 2000) in a pretest/posttest condition, finding that the students in the course gained significantly. They also collected data that examined the issue of far transfer, using the students' GPA and retention rate. Their findings indicated that 55% of the general student body graduated from Texas after 5 years. In contrast, 71% of the students enrolled in their course, students with lower *SAT* verbal scores and lower motivation scores on the *LASSI*, graduated after 5 years.

Given the current political climate, the need for quality program evaluation studies is becoming even more critical. Hopefully, the four characteristics we have outlined will guide administrators and instructors as they design their studies.

Understand that Neither Research nor Pedagogy Can Be Divorced From Policy

Our final recommendation focuses on the need for academic assistance professionals to understand the role that policy has had on our programs and to be proactive as additional policies are proposed and debated. Policy decisions at the federal, state, or local levels have influenced financial support for students and programs, requirements for assessment and evaluation, and mandates for academic standards and rigorous curriculums. Unlike the other nine research-based recommendations, this tenth recommendation has been forged from both experience and observations borne of a long-term perspective on the field of academic assistance.

For many years policy was built on the premise that postsecondary educators would do what was best for the student and hence, for the taxpayer. However, in the past decade there has emerged from state legislators up through the federal government a form of accountability that acknowledges the value of accessibility to higher education but also focuses on achievement, retention, and fiscal responsibility. As Mark G. Yudof, Chancellor at the University of Texas, notes, "The wave has already come over the public schools, and now it's coming over higher education. Either you help to shape this accountability revolution so it's done in an intelligent way, or you're going to get run over" (Burd, 2003, p. A-19). In many states the academic assistance programs have been precariously riding the crest of this wave, and it is likely to wash over the entire field of postsecondary education in the foreseeable future. That is, the field is likely to see support for forms of access coupled with greater demands for retention and graduation, but not coupled to new allocations of resources. College reading and learning strategies programs will be adopting outcome-based programming as never before. Although standardized test driven, skills-oriented programs may be able to demonstrate a form of immediate accountability, we question whether such a pedagogical orientation will actually lead to positive outcomes related to long-term retention and completion of degree objectives.

Educators at all levels know that policy and legislation should be formulated on sound theory, informed research, and best pedagogical practices (Ruth, 2003; Valencia & Wixson, 2000). However, complicating the issue is the fact that in too many cases academic assistance professionals have been the passive recipients of policy and legislation rather than the proactive players in shaping its design and practice. As such, the field has been left with being reactive rather than focusing on long-term strategic planning, dissemination of important qualitative and quantitative research, and publicizing evaluation findings on postsecondary reading and learning instruction.

Either you help to shape this accountability revolution so it's done in an intelligent way, or you're going to get run over.

Influencing policy is not a simple process, particularly when legislators and policy makers believe that the field focuses only on postsecondary level remedial education as an offshoot of the failures in the K-12 schools. Unfortunately, academic assistance professionals have failed to address the policy concerns in two important ways. The importance of policy issues has been overlooked by professionals struggling with more immediate program issues such as scheduling and staffing courses, testing and teaching students, assessing programs, earning tenure and promotion, and participating in shared governance functions. Focusing on policy initiatives may not have always been feasible given time constraints or the reward structure in the academic system. Nevertheless, academic assistance professionals must become part of the policy arena by planning for such activities in state IRA councils and NADE chapters and by working with governmental outreach offices at institutions. The stakes are too high not be involved.

Secondly, there is an issue of sophistication in conversing with policy makers. All too often when attempting to influence policy makers, a narrative story approach has been the main focus (e.g., "Let me tell you what is happening at our institution." or "Let me tell you about the story of Simon, one of our students."). Although such stories have the power to touch the heart, they do not demonstrate measurable and replicable findings. Individuals shaping policy and legislation, many with limited knowledge of educational research, program evaluation studies, or quality pedagogy, often define success through numerical measures such as test scores, graduation rates, and time to graduation. These quantitative measures fail to take into account the convoluted nature of the real world issues faced by developmental education students. Therefore, academic assistance personnel must be far more sophisticated in the understanding and conduct of research methodologies and equally sophisticated in the ability to explain to policymakers quality research and evaluation findings that employ varied approaches (see Duke & Mallette, 2004).

In order to tackle the demands of being informed and proactive and the need to effectively tell the story of the field, all academic assistance professionals should initiate and maintain a program of personal professional development. Never before in the history of the field have there been more opportunities to stay abreast of research, theory, and best practice through professional journals (e.g., *Journal of Developmental Education*, *Journal of College Reading and Learning*, *Learning Assistance Review, Research and Teaching in Developmental Education*, and *Journal of Adolescent and Adult Literacy*). In recent years, a number of scholarly texts and compendiums on the topic of college reading and learning instruction have been released (e.g., Flippo & Caverly, 2000; Maxwell, 1997; Stahl & Boylan, 2003). Academic assistance professionals also have a plethora of regional and national conferences to choose from, many with special interest group meetings (e.g., conferences sponsored by the College Reading and Learning Association, National Association of Developmental Education, National College Learning Center Association, Teaching Academic Survival Skills, and the National Center for Developmental Education). Given the challenges and external pressures faced by the field, there is little excuse not to expand our horizons and become research savvy, proactive professionals.

Conclusion

We ended "Ten Recommendations from Research for Teaching High-Risk College Students" (Stahl, Simpson, & Hayes, 1992) with the caution

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that the recommendations within that article did not cover all the pedagogical and professional knowledge required of a beginning academic assistance professional. We suggested that the article's content and extensive reference list provided a foundation for classroom practice and future exploration. Over a decade later, as we conclude this particular article, we are drawn back to the same conclusion. We believe that the current recommendations and references provide but a starting point for our new colleagues and a touchstone for the veterans committed to excellence in their students' strategic reading and learning. We also wish to urge our colleagues, those developmental educators who teach mathematics, ESL, and writing courses, to compile their list of research-based recommendations for the 21st century and submit them to professional conferences and journals such as this one.

References

Alexander, P. A. (2004). The development of expertise: The journey from acclimation to proficiency. *Educational Researcher*, *32* (8), 10-14.

American Association of Higher Education. (1992). *Principles of good practice for assessing student learning*. Washington, DC: Author.

Anderson, L.W., & Krathwohl, D.R. (2000). *A taxonomy for learning, teaching, and assessing a revision of Bloom's taxonomy of educational objectives*. Boston: Allyn & Bacon.

Angelo, T. A., & Cross, K. P. (1991). *Classroom assessment techniques: A handbook for college teachers*. San Francisco, CA: Jossey-Bass.

Beck, I., McKeown, M., Hamilton, B., & Kucan, L. (1997). *Questioning the author: An approach for enhancing students' engagement with texts*. Newark, DE: International Reading Association.

Beck, I., Perfetti, C. A., & McKeown, M. (1982). The effects of long-term vocabulary instruction on lexical access and reading comprehension. *Journal of Educational Psychology*, *74*, 506-521.

Blachowicz, C. L., & Fisher, P. (2000). Vocabulary instruction. In M. Kamil, P. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research, vol. III* (pp. 503-523). Mahwah, NJ: Erlbaum.

Bloom, B.S. (1956). *Taxonomy of educational objectives, handbook I: Cognitive domain*. New York: Longmans, Green.

Bower, P., Caverly, D.C., Stahl, N., & Voge, D. J. (2003, October). *Making the transition from skills-based instruction to strategic-based instruction*. Paper presented at the annual meeting of the College Reading and Learning Association, Albuquerque, NM.

Boylan, H. R. (2002). *What works: Research-based best practices in developmental education*. Boone, NC: Continuous Quality Improvement Network and Appalachian State University, National Center for Developmental Education.

Boylan, H.R., Bliss, L. B., & Bonham, B. S. (1997). Program components and their relationship to students performance. *Journal of Developmental Education*, *20* (3), 2-8.

Boylan, H. R., & Bonham, B. S. (2003, October). *Criteria for program evaluation: Establishing the value of what we do*. Paper presented at the annual meeting of College Reading and Learning Association, Albuquerque, NM.

Boylan, H. R., Bonham, B. S., White, J. R., & George, A. P. (2000). Evaluation of college reading and study strategy programs. In R. Flippo & D. Caverly (Eds.), *Handbook of college reading and study strategy research* (pp. 365-401). Mahwah, NJ: Erlbaum.

Bradley, C., Kish, K. A., Krudwig, A. M., Williams, T., & Wooden, O. S. (2002). Predicting faculty-student interaction. An analysis of new student expectations. *Journal of the Indiana University Student Personnel Association*, *2*, 72-85.

Britt, M. A., & Aglinskas, D. (2002). Improving students' ability to identify and use source information. *Cognition and Instruction*, *20*, 485-513.

Brown, J. L., Fishco, V. V., & Hanna, G. S. (1993). *Nelson-Denny reading test*. Itasca, IL: Riverside Publishing Company.

Brozo, W. G., & Simpson, M. L. (2003). *Readers, teachers, learners: Expanding literacy across the content areas* (4th ed). Upper Saddle River, NJ: Prentice Hall.

Burd, S. (2003, July 11). Bush's next target. *The Chronicle of Higher Education*, *XlXI* (44), pp. A18-A20.

Burrell, K. I., & McAlexander, P. J. (1998). Ideas in practice: The synthesis journal. *Journal of Developmental Education, 22* (1), 20-22, 24, 26, 28, 30.

Burrell, K. I., Tao, L., Simpson, M. L., & Mendez-Burreuta, H. (1996). How do we know what we are preparing students for? A reality check of one university's academic literacy demands. *Research and Teaching in Developmental Education*, *13* (2), 55-70.

Campbell, J. R., Voelkl, K., & Donahue, P. L. (1997). *Report in brief: NAEP 1996 trends in academic Progress* (NCES Report 97986r). Washington, DC: National Center for Educational Statistics.

Campione, J. C., Shapiro, A. M., & Brown, A. L. (1995). Forms of transfer in a community of learners: Flexible learning and understanding. In A. McKeough, J. Lupart, & A. Marini (Eds.), *Teaching for transfer: Fostering generalization in learning* (pp. 35-68). Mahwah, NJ: Erlbaum.

Cassidy, J., & Cassidy, D. (2004). What's hot, what's not for 2004. *Reading Today, 21* (3), 3.

Christ, F. (1985, July). *Managing learning assistance programs.* Symposium conducted at the Kellogg Institute for the Training and Certification of Developmental Educators, Boone, NC.

Commander, N. E., & Smith, B.D. (1996). Learning logs: A tool for cognitive monitoring. *Journal of Adolescent & Adult Literacy*, *39* (6), 446-453.

Duke, N. K., & Mallette, M. H. (2004). *Literacy research methodologies*. New York: Guilford.

El-Hindi, A. E. (2003). Connecting reading and writing: College learners' metacognitive awareness. In N. Stahl & H. Boylan (Eds.), *Teaching developmental reading* (pp. 350-362). Boston: Bedford/St. Martin Press. (Reprinted from *Journal of Developmental Education*, *21* (2), 10-12, 14, 16, & 18.)

Elifson, J. M., Pounds, M. L., & Stone, K. R., (1995). Planning for the assessment of developmental programs. *Journal of Developmental Education, 19* (1), 2-11.

Farmer, V. L., & Barham, N. A. (2001). *Selected models of developmental education in higher education*. Lanham, MD: University Press of America.

Flippo, R. F., & Caverly, D. C. (2000). *Handbook of college reading and study strategy research*. Mahwah, NJ: Erlbaum.

Flippo, R. F., & Schumm, J. S. (2000). Reading tests. In R. Flippo & D. Caverly (Eds.), *Handbook of college reading and study strategy research* (pp. 403-472). Mahwah, NJ: Erlbaum.

Francis, M. A., & Simpson, M. L. (2003). Using theory, our intuitions, and a research study to enhance our students' vocabulary knowledge. *Journal of Adolescent and Adult Literacy*, *47* (1), 66-78.

Garner, R. (1990). *Metcognitive reading comprehension*. Mahwah, NJ: Erlbaum.

Hadwin, A. F., Winne, P. H., Stockley, D. B., Nesbit, J. C., & Woszczyna, C. (2001). Context moderates students' self-reports about how they study. *Journal of Educational Psychology*, *93*, 477-488.

Haggard, M. R. (1989). Instructional strategies for developing student interest in content area subjects. In D. Lapp, J. Flood, & N. Farnan (Eds.), *Content area reading and learning: Instructional strategies* (pp. 70-80). Englewood Cliffs, NJ: Prentice-Hall.

Harmon, J. M. (2000). Assessing and supporting independent word learning strategies of middle school students. *Journal of Adolescent and Adult Literacy, 43* (6), 518-527.

Hart, B. H. (1967). *Strategy.* London: Faber & Faber.

Hofer, B. K. (2001). Personal epistemology research: Implications for learning and teaching. *Journal of Educational Psychology Review, 13*, 353-382.

Hofer, B. K., & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge, knowing, and their relation to learning. *Review of Educational Research, 67*, 88-140.

Hofer, B. K., Yu, S. L., & Pintrich, P. R. (1998). Teaching college students to be self-regulated learners. In D. H. Shunk & B. J. Zimmerman (Eds.), *Self-regulated learning: From teaching to self-reflective practice* (pp. 57-85). New York: Guilford Press.

Hubbard, B., & Simpson, M. (2003). Developing self-regulated learners: Putting theory into practice. *Reading Research and Instruction*, *42* (4), 62-89.

Hynd, C. R. (1999). Teaching students to think critically using multiple texts in history. *Journal of Adolescent and Adult Literacy, 42* (6), 428-436.

Koski, W., & Levin, N. (1998). *Replacing remediation with acceleration in higher education: Preliminary report in literature review and initial interviews.* Stanford, CA: National Center for Postsecondary Improvement.

Maxwell, M. (1997). *Improving student learning.* Clearwater, FL: H & H Publishing.

McKeown, M. G. (1990, April). *Making dictionary definitions more effective.* Paper presented at the annual meeting of the American Educational Research Association, Boston.

Merriam, S. (1998). *Qualitative research and case study applications in education.* San Francisco: Jossey-Bass.

Nagy, W. E., & Scott, J. (2000). Vocabulary processes. In M. Kamil, P. Mosenthal, P. David Pearson, & R. Barr (Eds.), *Handbook of reading research, vol. III* (pp. 269-284). Mahwah, NJ: Erlbaum.

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