Strategies for Success: Teaching Metacognitive Skills to Adolescent Learners

Nancy Joseph
Oakland University, Michigan

Think about how you—as a teacher—go through a typical teaching day. Your lesson plans are ready in some form or other, with planning based on several factors ranging from curricular requirements to your own insights into what works with adolescents. You analyze your resources and collect materials, making careful note of pitfalls such as changes in the bell schedule and an overtaxed copying machine. You move from class to class in a focused, yet flexible, manner. In the classroom you are multi-tasking multiple tasks as you reflect on your instructional goals, juggle answers to students’ questions, and quell discipline issues detected by the eyes in the back of your head. After each class, you have an automatic sense of how it went, so you mentally begin forming plans for tomorrow as well as for next week. At the end of the day, you assess the decisions you made, occasionally second-guessing yourself, but never straying too far from your focus. You work independently and enjoy being self-motivated.

METACOGNITION —
Are your students ready for this?
Your self-reflective thinking processes and the resulting actions reveal that you are a master of metacognition. Yes! You are operating at a high level of metacognitive awareness—and you probably haven't even thought about it! Your ability to plan, monitor, and evaluate your performance reveals sophisticated cognitive activity. Experienced teachers know that this type of introspective “teacher thinking” is critical to maintaining sanity while doing a good job in the classroom. In short, teachers are masters of metacognition because they are able to think about their own thinking.

Now let’s consider your students. Are they reflective thinkers and skillful learners? Do they take the time to assess their learning strategies? As you know, some students have the cognitive skills needed for success in your class, recognizing when they are doing well and when they are going in the wrong direction. Working independently, these perceptive students focus on understanding the material and are able to connect the content and instructional concepts to their own lives. As self-regulated learners, they use metacognitive abilities to plan, regulate, and assess their performance. By contrast, however, many other students do not have sophisticated thinking and learning skills. These less successful learners need constant monitoring and reinforcement because they fail to establish and maintain an effective focus, becoming frustrated and confused by unproductive learning strategies. Reading specialists know that these students often do not trust their interpretation of the text, even when they read it successfully (Burke, 2000), revealing a lack of confidence in their comprehension abilities. In addition, these students may be plagued by immaturity and low motivation, compounding their difficulties in the classroom. Many teachers recognize that a failure to understand the learning process through self-regulated learning may be at the core of their difficulties (Paris & Paris, 2001; Lifford, Byron, & Ziemian, 2000). The question is evident: How can classroom teachers help adolescents develop metacognitive skills?

The purpose of this article is to offer suggestions to teachers for helping adolescent learners develop metacognitive awareness—the ability to be self-reflective learners by thinking about their own thinking. Through the life-long skill of metacognition, students are able to not only complete learning tasks, but very importantly, they are able to reflect on their cognitive processes (Peverly, Brobst, & Morris, 2002). This means that learners are able to use their academic strengths to develop additional skills and understandings, moving toward greater intellectual maturity. Further, these learners are able to recognize their weaknesses and work through their shortcomings without undue frustration, acknowledging that learning can be challenging. As a teacher, you readily recognize the differences between the independent, metacognitively aware learners and the dependent, unskilled learners who are unable to complete a task without constant attention from the teacher.
To better understand the importance of self-reflective learning, consider some background information. Studies of adolescent learning behavior describe that metacognitive awareness can be taught, resulting in students' learning practical skills to use throughout their lives. In fact, research studies of elementary students reveal that even very young students can be taught to monitor and assess their own comprehension (Block, 2004). In Teaching Them to Read, Durkin (2004) advises elementary teachers to promote the metacognitive activity of "comprehension monitoring" as a strategy for helping readers identify and resolve reading problems. Unfortunately, metacognition is frequently overlooked as a tool for learning in some secondary classrooms as teachers focus more on content and less on learning strategies. As Mojo (2002) writes, many educators operate under the misperception that "literacy learning ends in childhood" (224), a belief that fails to recognize the academic needs of adolescent learners. As you know, reading material becomes increasingly complex during the middle school years, a time when students should be developing and practicing the vital learning strategies they need for success in high school and beyond. To address this situation, Williams et al. (2002) designed a program to help middle school students develop practical intelligence for school by emphasizing metacognitive awareness, resulting in "demystifying the process of succeeding in school" (207). This research suggests that instruction in metacognitive awareness helps students understand their role as learners, thus making them aware of critical reading strategies and improving their classroom performance. According to Lifford et al. (2000), these readers are able to access prior knowledge, monitor their comprehension, correct misunderstandings when reading, determine main points, synthesize information, draw inferences, and ask questions (47). When readers use these techniques, they are demonstrating an understanding of the reading process. Self-reflective readers recognize the connection between the reader and the text, and they understand the author’s voice and message, skills many students can develop through metacognitive instruction.

Why should teachers spend class time on metacognitive activities? Educators recognize that higher level cognitive processing separates the skillful learners from those who are less skillful. Humphrey (2002), Director of the Middle Grades Reading Network, notes that "middle schools need to build strong reading programs" to respond to the problems faced by high school students (754). These skills are needed not only for work in middle school and high school, but also for success in the workplace. Penticoff (2002) writes that proficient readers can monitor their comprehension and self-correct as they read, demonstrating strategies “essential to fluent, independent reading” (635). Educators recognize that students' abilities to assess their knowledge and review their cognitive processes become more important as students get older because of the greater demands of high school and college (Peverly, Brobst, & Morris, 2002; Weir, 1998). This suggests that metacognitive skills should be practiced during the middle school years to help students develop effective learning strategies. Students who can set academic goals and take steps to achieve them develop a realistic understanding of themselves as learners—they become aware of their learning styles and develop strategies to overcome weaknesses. They are involved, self-motivated learners capable of functioning without constant supervision and reinforcement. If students develop these self-reflective abilities in early adolescence, they will be better prepared for the challenging content of high school courses. Just think about it…isn't that one of your goals as a teacher?

The reality, however, is that most students do not develop self-reflective abilities on their own; they need direct instruction, plenty of coaching, and frequent reminders. Weir (1998), a middle school reading specialist, notes that her students were missing the "internal dialogue of metacognition," making them passive readers struggling with poor comprehension (458). As you know, some students are disengaged learners who see little value in exploring their own thinking processes because they have become comfortable in their lethargy. They wait for other students to answer the teacher's questions and expect the teacher to reduce the workload when effort and industry are required. Paris & Paris (2001) describe these students: “Mood, affect, impulsivity, impatience, and aggression may prevent some students from appraising and managing their own behavior” in the classroom (99). These factors cause some students to resist change when you discuss introspective learning strategies, but if you make self-reflective practices a routine part of your instruction and offer opportunities for success, you can encourage students to revise their perspective. Engaging students in an ongoing discussion about thinking and learning as well as providing opportunities for guided practice is essential for cognitive growth (Burke, 2000). Through these activities, students become confident learners. As you know, when students view themselves as successful in the classroom, their independent performance develops.

Encourage Self-Reflective Learning

A good way to involve students in self-reflective learning is to review the strategies necessary for success in your class. When you describe appropriate learning behaviors, you are encouraging students to explore their understanding about how they learn (Paris & Paris, 2001; Williams et al., 2002). Begin by explaining the general organizational practices, study techniques, and time management skills students should use to be successful in your course. Talk about the amount of time students should spend on reading assignments and explain effective approaches for comprehending the text. Encourage students to explore how they use their cognitive skills in the class,
emphasizing their use of introspective thinking. Get very specific about the expectations for individual assignments, and then encourage students to develop and use strategies for success. Caution them to avoid self-defeating behaviors and attitudes that create unsatisfactory results. For example, you might take the following approach when talking to your students about a homework reading assignment:

"The reading assignment for next Tuesday involves chapters two and three of the novel. You have three days to complete this assignment. Before you begin reading at home, get your materials ready. You will need the novel, your setting worksheet, and your Reading Log. Please write a note in your planner now to remind yourself about these things. Remember to select a quiet place for doing your homework, so you can try to avoid distractions and interruptions. Begin your homework by doing some prereading. This should take about five minutes. Review the details we talked about from chapter one regarding the setting. You listed those details on the setting worksheet. The average reading time for the two chapters you are assigned to read should be between twenty-five and thirty minutes. If you spend an hour on this reading, you may not be concentrating well enough, or you may have too many distractions and interruptions. Ask yourself if you are wasting time by daydreaming. If you spend less than twenty-five minutes, you may not have taken enough time to really work through the chapters. Remember to write two notes for each chapter in your Reading Log. You may do this while you are reading or after you finish the chapter. Take the time to think about your notes because your ideas will be used to start our discussion on Tuesday. A good strategy for the notes is to picture the setting as you are reading and write about what you envisioned in your mind. Another option is to draw a picture and write a description of what you have drawn. Write a note in your homework planner about these directions."

As a follow up to the assignment, ask students to evaluate the strategies they used when reading by completing a reading survey. This could be done in class prior to a discussion of the chapters students were assigned to read. A reading survey (see Figure 1) promotes self-reflective learning by asking students to think about their reading behaviors. Research by Williams et al. (2002) suggests that an inventory helps students think about the role reading has in their lives, and questioning techniques advocated by Weir (1998) promote metacognition as an essential element in literacy. Discuss the responses to the reading survey with the whole class, giving students time to describe their own thinking processes and to listen to comments from their peers.

To encourage students to interact with the text, suggest that students read with a pen in hand. If they cannot make notes in the margins of their books, have them write comments on Post-it notes attached to the pages. Explain that they should self-monitor their comprehension during the reading process, identifying what they understand and writing down questions about what causes confusion. Skeans (2000) describes that this technique uses writing as a learning tool while teaching comprehension strategies, recognizing the reading-writing connection that is a basic component in language instruction. For best results, use the metacognitive strategies as often as possible because you want students to internalize effective methods for approaching a text.

Model Thinking Strategies
Demonstrate and explain your own cognitive processes to help students understand the thinking strategies needed for effective reading comprehension. Teacher modeling involves showing students specific examples of how to use a learning strategy (Ciardiello, 1998; Lambert, 2000). Known as "think-aloud," the technique requires you to guide students through a selection while describing the thinking processes you use as a reader to understand the material. This mental modeling activity encourages students to develop an awareness of how skillful readers

---

**Student Reading Survey**

<table>
<thead>
<tr>
<th>Question</th>
<th>Very Good = 10</th>
<th>Average = 5</th>
<th>Poor Effort = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much time did you spend on the reading assignment?</td>
<td>minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate your comprehension of the reading:</td>
<td>Very Good = 10</td>
<td>Average = 5</td>
<td>Poor = 1</td>
</tr>
<tr>
<td>Rate your enjoyment of the reading:</td>
<td>Very Enjoyable = 10</td>
<td>Average = 5</td>
<td>Little Enjoyment = 1</td>
</tr>
<tr>
<td>Rate the effort you devoted to the reading:</td>
<td>Maximum Effort = 10</td>
<td>Average = 5</td>
<td>Poor Effort = 1</td>
</tr>
<tr>
<td>Were you confused by anything you read?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As you were reading, did you form pictures in your mind?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you write down any questions or mark any passages when you were reading?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you stop when reading to think about what the author was saying?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you make connections between something from the reading and ideas from class discussions?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you make connections between something from the reading and an experience in your own life?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What can you predict for the next two chapters?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

The NERA Journal (2006), Volume 42 (1) | 35
approach a text. When you demonstrate your cognitive strategies, you are exposing students to new methods of processing information.

Model thinking strategies by reading a passage aloud, pausing to comment on what you were thinking as you read. Your demonstration might include some of the following comments:

- "I read the author's description of the setting. I had some questions in my mind.
- "When I read this section, I was a little confused.
- "At this point in the story, I could picture the setting in my mind and feel the mood of tension.
- "That character's response bothered me. I had to stop to think about why he decided to leave. I have a mental picture of how he looked.
- "I'm thinking that the author's message seems familiar. I can relate it to an experience I once had.
- "I had to read that section again because I didn't understand where it was going."

After modeling the thinking strategy, ask students to work in pairs to practice the think aloud technique using a controlled passage you have selected. Encourage students to talk with each other about their reading strategies. Conduct a discussion with the whole class about their responses to the activity, encouraging students to think beyond literal comprehension into the higher levels of analysis and application.

Mental modeling teaches metacognitive awareness through direct instruction, a teaching technique that is often overlooked in the secondary classroom (Shelley & Thomas, 1996) because teachers may believe that adolescent learners do not need step-by-step explanations about how to approach a text. This view, however, fails to recognize the basic needs of many students even though they may not appear to be struggling with reading comprehension. When you demonstrate your own thinking strategies, you are coaching students to think on a higher level. Your goal is to help students develop their own cognitive strategies and to avoid being overly dependent on your interpretation of the text. This activity is valuable for students of all ability levels, especially for less proficient adolescent readers because they learn that good readers have to pause to clear up confusions and to think about the material. Through your demonstration, students learn techniques for creating mental pictures and for relating the content to their background experiences. Researchers studied eighth graders' use of this tactic and found that the difficulty and structure of the material as well as the reader's background knowledge have an impact on the effectiveness of a think-aloud activity (Caldwell & Leslie, 2004). This means that you will have to spend more time explaining selections that present abstract concepts, remembering that the time devoted to direct instruction is a valuable investment in students' cognitive development. When readers spend time processing the content, their comprehension improves.

Promote Questions and More Questions
Generating questions builds cognitive skills, serving as a way to determine if students comprehend their reading material. Ciardiello (1998) reports that self-questioning is a powerful cognitive strategy because it "prompts learners to search for answers that they themselves want to know" (210). Through self-questioning, learners can assess their reading strategies, looking for main points and supporting details and determining how the content relates to their own experiences.

Metacognitive skills develop when students practice questioning techniques because a wide range of thinking processes are being developed. As researchers note, all students should be able to think, reflect, and question in an effective manner (Ciardiello, 1998; Weir, 1998). Teaching students how to generate questions means encouraging them to compare and contrast, synthesize, analyze, and evaluate. It requires thinking beyond the level of basic information into broader, more challenging ideas. Through teacher modeling and plenty of practice, students can develop effective questioning skills. Remember that questioning takes time because it is counter to the traditional conventions of student/teacher roles, and many students prefer a passive approach when reading. Through questioning, however, students are required to actively participate in their own learning, a good first step in developing metacognitive awareness. Prior to the discussion of a reading selection, ask students to prepare a question for the group. To encourage thinking beyond the literal level, have students develop questions that begin with "why." The following types of questions encourage students to go beyond a literal understanding of the material:

- "Why is the family in conflict? What is at the root of their difficulties? How can they resolve these issues?"
- "Why does that character behave in this manner? What motivates him?"
- "What is the author saying to her readers as she explores the theme of man's relationship to nature?"

Implement Self-Assessment for Students
To promote metacognitive growth, make continuous student self-assessment an important component in your course. When involved in assessing their own academic growth, students become more aware of their learning goals and the results of their efforts. Self-assessment may be uncomfortable for some students as well as for some
teachers because it goes against the traditional teacher/student model. In most courses, a standard agenda is followed: teacher gives an assignment, student does the work, teacher evaluates the work. This system promotes passive student behavior because students often don’t know the teacher’s instructional goals or the criteria for assessment. Through a system of teacher guidance and self-assessment, however, students become active learners as they develop a more accurate understanding of what constitutes good, satisfactory, or poor performance (Callahan, Clark, and Kellough, 2002: 344-5). You can promote student self-assessment by providing opportunities for students to think and talk about what they are learning, including why and how they are learning it. By encouraging them to evaluate their own progress, you are empowering students to reflect on themselves as learners. Educators recognize that this approach enhances students’ cognitive abilities and improves their self-esteem—essential elements of success.

There are many strategies for getting students involved in self-assessment, ranging from having them evaluate texts and instructional materials to giving them the opportunity to compose test questions. Self-rating checklists, such as the Student Reading Survey presented in figure 1 of this article, serve as effective tools for student use. In addition, rubrics, portfolios, learning logs, and journals provide opportunities for students to reflect on their learning and to think about the applications of what they have accomplished.

Talk About Metacognitive Thinking
Discussions in class with your students can promote an understanding of self-reflective thinking. Educators recognize that talking about reading and thinking processes is an effective way to help learners develop and internalize metacognitive strategies (Paris & Paris, 2001; Weir, 1998). Students need to understand that self-reflective thinking is a vital life skill, a strategic ability that extends beyond the classroom into their everyday lives. To help them understand this concept, you may want to talk about how they make decisions in social settings with their friends or families. Encourage them to take the time to think about their own thinking, to analyze how they make decisions. In Teaching Reading in Middle School, Robb (2001) recommends a classroom system that teaches students to monitor their own progress and develop their own learning goals, a strategy that promotes metacognitive thinking. Robb acknowledges the social and emotional concerns of adolescents, noting that a reading workshop provides the ideal setting for middle school students. Activities in a reading workshop include mini-lessons, guided reading practice, reading groups, literature discussions, independent free reading, teacher read-alouds, and vocabulary exercises.

Give students opportunities to analyze and talk about their own reading behaviors, guiding them as they learn to become strategic readers. When students share knowledge during instruction, they develop an understanding of how and why to use specific reading strategies (Paris, Lipson & Wixson, 1994). Remind students that using metacognitive skills when reading may be time consuming because they have to think and then rethink as they question themselves about their comprehension, but emphasize the value of becoming self-regulated learners. Explain that these skills are essential as students approach more difficult content.

Promote Metacognitive Thinking in All Content Areas
Encourage colleagues in other content areas to use metacognitive learning strategies in their lessons. Roe, Stoodt-Hill, and Burns (2004), authors of Secondary School Literacy Instruction: The Content Areas, acknowledge that some content area teachers may be reluctant to include reading instruction in their courses, but they change their views once they learn valuable techniques to use in their classrooms because they find that this instruction helps students experience greater understanding of the content area material (12). Remind teachers that the class time spent on these activities does not take time away from their content, rather it provides opportunities for students to learn and practice techniques for mastering the content. For example, self-questioning activities help students understand not only the content, but also the reading strategies needed for good comprehension. Through self-questioning, students activate prior knowledge in their quest for understanding new concepts, as explored in the following two-part activity:

Prior to Reading
What do I already know about the topic?

After Reading
What have I learned about the topic?
How does this information relate to my life?
What confused me about the topic?
What do I need to know to better understand the topic?

Another useful metacognitive activity for content area teachers involves having students “retell the text.” This strategy asks students to explain what they have read to other students, providing the opportunity to review the content and determine main points and supporting details. Begin this activity by modeling the technique for the class, emphasizing that retelling reinforces good comprehension (Burke, 2000). Some teachers have students complete the retelling as a written exercise and then move to an oral activity, with students working in small groups.

Promote students’ metacognitive growth by reviewing your instructional strategies and goals, focusing on what students should learn and how the learning should take place. Consider the role memorization plays in your teaching and testing. Of course, rote learning
is important, but teachers in all content areas should recognize that learning must go beyond memorization and move into the higher cognitive realms of analyzing and applying concepts. In Teaching in the Middle and Secondary Schools (2002), educational specialists recognize that process of thinking is "often more profitable than the knowledge itself" (Callahan, Clark, and Kellough 296). Provide frequent reviews and guidance as students establish connections among existing knowledge, new learning, and life's applications.

Strategies for Helping Students Become Self-Regulated Learners

* Explain the value of metacognitive activity and emphasize the need for self-monitoring.

* Help less proficient students understand that even good readers experience confusion and frustration at times, but they work through difficulties. For some students, you may need to approach this discussion in a private, supportive manner with special consideration for the adolescent's ego/peer/self confidence issues.

* Assist students in overcoming self-defeating behaviors by providing high interest activities that promote success and enable students to build confidence in their comprehension abilities.

* Provide opportunities for students to talk about how they learn. Encourage students to listen to the comments of other students.

* Coach students as they are work through analytical tasks and help them become aware of their own thinking strategies. Ask questions—rather than give answers—if students run into difficulties.

* Remind students that effective reading is an active process, not the mindless act of running their eyes over a printed page in the hopes that they would somehow understand the content. Emphasize that reading requires effort and concentration.

* Develop creative problem solving activities to replace routine workbook exercises.

* Encourage independent learning by providing appropriate self-monitoring materials such as checklists, reading logs, and self-assessment surveys.

* Model the type of thinking needed to solve problems by using a think-aloud approach. Provide time for students to practice this strategy in pairs or in small groups.

* Promote the development of questioning skills through direct instruction and by providing adequate time for students to construct good questions.

* Talk about the type of thinking skills students will need for success in future careers. Help them understand that metacognitive thinking is not limited to classroom activities, but is valuable in everyday life.

* Promote student talking and thinking by limiting the amount of talking and explaining you do in the classroom.

* Remember to work with your class on vocabulary growth by examining words in context and encouraging students to connect new words to their prior knowledge and to words they already know.

* Emphasize pleasure in reading by providing materials that engage students by connecting with their interests.

* Continue to emphasize metacognitive awareness throughout the school year, reminding students to be self-reflective in their learning.

REFERENCES


Educational Psychologist 36: 89-101.


NEW ENGLAND READING ASSOCIATION

announces

Helen A. Murphy
Memorial Teaching Mini-Grants

Up to $600

WHY? To promote projects which improves or expands the teaching of reading or literacy, pre-school through college.

WHO? Student, teachers, specialists or administrators who are current members of NERA may submit one proposal per deadline date. Individuals or teams of educators may apply as long as one person is a current NERA member.

HOW? Please include:
• Two (2) copies of the complete proposal
• A resume from each member of the team
• A letter of support from your building principal or immediate supervisor.

SEND TO NERA, P.O. Box 997, Portland, ME 04104-0997

DEADLINE Postmarked by APRIL 25

Please check our website www.nereading.org for specific information on how to apply.

The NERA Journal (2006), Volume 42 (1) | 39