myactivemind

Creating Expert Learners: An E-Learning Solution

In recent years, educators, business leaders, policymakers and community leaders have come together like never before to try to solve a growing problem for each and every citizen of the United States: too few students today are equipped with the foundational skills they need to succeed. Global competition, the rapid increase of information and knowledge in all fields, and quickly-changing technology have heightened the demands of the workplace—and our country's need to maintain a strong economy—in unprecedented ways. Numerous leaders in academia, business and government share a concern that our educational system simply has not kept pace.

> Individuals may need to engage in a lifetime of learning not as a matter of choice, but as a matter of survival (Gooler, 1990).

No longer can anyone assume that a high school or college diploma alone will put students well on the road to a stable well-paying job they can depend on throughout their lives. The reality is, more is required. Students will find that when they enter the working world they will be forced to change jobs many times as new technologies emerge and the competitive environment requires a broader set of skills. Ultimately, only those individuals who are able to adapt rapidly to new learning situations throughout their lives will maintain the advantage.

Critics of our educational system are concerned that American students are not prepared for this challenge. They believe that existing educational standards, founded on the belief that knowledge is transmitted from the teacher to the student, are incomplete. Students can memorize, recite and reproduce on standardized tests but are not encouraged to apply their knowledge and skills to real-world and workplace settings, nor are they assessed on those abilities. Students do not learn how to learn effectively.

Those who promote an agenda that improves the existing standards favor instructional methods that emphasize the learner as much as the teacher. They view knowledge as constructed internally by each individual and endorse a research-based approach that encourages students to set learning goals based upon what they know about their own strengths and weaknesses. Students who learn how to monitor their learning and make adaptations become more effective at gaining knowledge. They also become skilled at adjusting mental models as they accommodate new information and experiences.

Overall achievement in school is one of the best predictors of lifelong success. For this reason, *MyActiveMind* teaches students ways to learn effectively and efficiently. In addition, *MyActiveMind*'s mission, *Connect Learning To Life™,* engages students by showing them how their studies relate to the real world and how learning advances their careers and incomes. This paper explains how *MyActiveMind*'s researched-based program transforms passive students into active, independent learners, but not just so they can improve their grades. *MyActiveMind*

extends its education goals beyond the classroom to teach the basic skills necessary for both school and career success.

Learning, the Critical Foundation

Current economic trends require that graduates have lifelong learning skills. Knowing how to learn—becoming an *expert learner*—is what it takes to succeed in the 21st century economy. Yet it has always been important for people to acquire or upgrade skills in order to change careers, seek a promotion or broaden their horizons. To keep their skills current and adaptable to work environments that change for any reason, adults need to be armed with ways to learn effectively and efficiently.

Being an expert learner is a transferable foundational skill, one that remains useful despite rapidly changing technologies (Clifford, 1984). It is highly prized by employers because people who are expert learners can add new competencies easily and quickly when the market changes demand. Employees who are expert learners experience more stable work lives, because they are prepared to learn and retrain quickly when faced with forced career changes.

The learning and communication skills and strategies that are the foundation for expert learning are best acquired during school, when one is immersed in the disciplines of math, science, history and literature; they are the springboard for academic achievement. Yet these skills gain lifelong importance as well, as students face the growing volume and complexity of knowledge and applications outside of school.

Unfortunately, many students are not equipped with the learning strategies to master content while in school. Worse still, many are not cognizant that these are the very skills necessary for success in the workplace after they leave school.

To help remedy this two-fold problem, *MyActiveMind* provides students with powerful tools to become expert learners. Through engaging methods they learn strategies and how to apply them in the context of their coursework while in school. To develop the transferable lifelong skill of learning how to learn, they solve unfamiliar problems in unfamiliar situations to practice their skills. Along the way, their motivation increases as they learn about professionals in many career areas who demonstrate how learning strategies are used in the workplace.

The Expert Learner

Central to developing an expert learner is understanding how people learn and how research-based principles guide instruction.

In the 1970s and '80s, research on effective teaching focused on how teaching processes can increase student achievement, a teacher-centered model. More recent research focuses on how learners learn, a student-centered model. It is now widely acknowledged that adopting only one model to the exclusion of the other diminishes the learning experience for students. For this reason, the *MyActiveMind* approach combines both: effective teaching principles that guide instruction and student-centered activities for developing the skills necessary to become an expert learner.

The expert learner, one skilled to learn over the course of a lifetime, is a self-regulated learner. Becoming a self-regulated learner has profound implications for students who are preparing for a world that demands that they independently continue to acquire, synthesize and apply new information.

According to research, "self-regulated learning is generally viewed as the fusion of *skill* and *will*" (Garcia, 1995). As detailed in Table 1 (see p. 4), "skill" refers to students' uses of different cognitive, metacognitive and resource-management strategies. It also includes students' learning development formed in middle and high school and transformed in the first years of the post-secondary education experience. "Will," as described in Table 2 (see p. 5), refers to students' motivational orientation in terms of goals, values and expectancies.

Knowing how to use and implement cognitive, metacognitive and resource-management strategies can improve learning outcomes. The more quality of effort students bring to their learning development, the deeper their knowledge processing and the higher the level of their understanding. Those who are able to activate and restructure knowledge can take control of their learning and steer their academic performance to a positive effect.

Principles That Guide* MyActiveMind*'s Instruction

As previously mentioned, existing standards, highly influenced by the back-to-basics movement, are founded on the belief that knowledge is transmitted from the teacher to the student. Students memorize, recite and reproduce on standardized tests but are not assessed on their ability to apply their knowledge and skills to real-world and workplace settings.

At the core of the current agenda to improve existing standards is constructivist learning theory. Constructivism, in contrast to the existing standards, is based on research of how people learn, with an emphasis on the learner rather than the teacher. It addresses how learners combine what they already know with new information, and how they construct understanding or make meaning of the world they live in, adjusting mental models as they accommodate new information and experiences.

Behaviorists view knowledge as something that happens in response to external factors. Constructivists view knowledge as constructed internally by each individual. That is, no knowledge can be transferred intact from one individual to another. Individuals color and shape knowledge to fit within their frames of reference.

Although *MyActiveMind* takes a decidedly constructivist approach, it does use direct explanation to present learning and communication strategies. There is good reason for this. Students do not passively but actively learn from the explanations and activities (Pressley & McCormick, 1995). Good instruction that includes modeling, explanations and scaffolded practice (that is, high-quality direct explanation) necessitates a great deal of student construction of knowledge. Modeling and explanation can stimulate constructive mental activity (Pressley & McCormick, 1995).

Table 1.

SKILL

Cognitive Strategies

Processing Strategies to Enhance Learning

Students:

- activate prior knowledge and make associations to form new meaningful patterns of information
- activate strategic knowledge using what has worked in the past and applying it to new learning situations; rehearse, elaborate, organize
- know how to organize information to maximize understanding

Metacognitive Strategies

Regulation Strategies When Reading and Learning

Students:

- think about thinking
- are aware of and in control of learning
- set goals, create a plan of action, monitor the plan and evaluate the plan

Resource-Management Strategies

Effective Use of Time, Environment, Peers, Tutors, Faculty and Mentors

Students:

- learn how to manage time wisely for varying situations
- learn how to create an effective learning environment
- learn how to work with peers in collaborative learning and study groups
- learn how to effectively use faculty, tutor and mentor resources

Learning Development

Developing Higher Levels of Understanding

During their first-year post-secondary experience, students develop higher levels of understanding.

Intellectual Development	
Dualistic	**Relativistic**
A given perspective is either right or wrong	Multiple perspectives are simultaneously valid

Approaches to Learning	
Surface	**Deep**
Focus on unrelated parts of the task	Relates previous knowledge to new knowledge
Information for assessment is simply memorized	Relates knowledge from different sources
Facts and concepts are associated unreflectively	Relates theoretical ideas to everyday experience
Principles are not distinguished from examples	Relates and distinguishes evidence and argument
Reproduces knowledge	Transforms knowledge—selects, interprets, evaluates
Task is treated as an external imposition	Organizes and structures content into coherent whole
Emphasis is external, from demands of assessment	Emphasis is internal, from within the student

Table adapted from Ramsden, 1988.

Table 2.

WILL

Motivational Strategies

Incentive Strategies Encouraging Students to Learn

Students:

- are intrinsically motivated when they have a goal they want to attain, see that what they are learning is relevant and useful as well as challenging and difficult to master, and make the connection that success in school contributes to success in life
- are extrinsically motivated by consequences associated with success or failure, by performance feedback, and by expressions of support
- adopt a goal orientation that focuses on *mastery orientation* (focusing on learning and mastery) rather than *performance orientation* (focusing on demonstrating ability, getting good grades or rewards, or besting other students) (Pintrich & Schunk, 1996)

Therefore, explicitly presenting knowledge directly to learners does not prevent the individual from engaging in the process of making meaning. Indeed, clear presentations of information may facilitate that process (Westwood, 1995). It provides the foundational skills to construct meaning at higher levels and in varying contexts.

The sections that follow describe the principles of effective teaching that inform *MyActiveMind's* instructional design. Table 3 (see p. 12) summarizes the specific ways *MyActiveMind*'s program applies these principles.

Instruction teaches students how to use cognitive strategies. Successful learners use a variety of strategies for many subjects and tasks. Research indicates that students who are taught strategies and instructed how to apply them perform better than students who are not (Nist & Holschuh, 2000).

A cognitive strategy is a strategy or group of strategies or procedures that the learner uses to perform academic tasks. It is an individual's approach to a task. It includes how a person thinks and acts when planning, executing and evaluating performance on a task and its outcomes (Lenz, 1992). Cognitive instruction teaches students how to process information in meaningful ways so they can become independent learners.

Strategic instruction fosters independent, self-regulated learning. Students learn how to learn, enabling them to evolve from novice, ineffective learners to expert learners, who are "aware of, and control, their efforts to use particular skills and strategies" (Jones, Palinscar, Ogle, & Carr, 1987, p. TK).

As an example, when reading, students know how and when to use cognitive deep processing strategies to achieve a particular goal that enhances learning in a variety of situations. They select tools (Wittrock, 1990; Nist & Holschuh, 2000) such as:

- graphic organizers, outlining (**organizing strategies**)
- highlighting, annotating (**isolating strategies**)
- verbal rehearsals, self-testing (**elaborating strategies**)

The basic steps when teaching cognitive strategies (Nist & Holschuh, 2000) are:

- **Describe the strategy**. Students obtain an understanding of the strategy and its purpose, why it is important, when it can be used and how to use it.
- **Model its use**. The teacher models the strategy, explaining to the students how to perform it.
- **Provide ample assisted practice time**. The teacher monitors, provides cues and gives feedback.
- **Promote student self-monitoring and evaluation of personal strategy use**. Students will likely use this strategy if they see how it works for them; it will become part of their learning schema.
- **Encourage continued use and generalization of the strategy**. Students are encouraged to try the strategy in other learning situations.

Instruction engages students in self-regulating, metacognitive strategies to monitor, direct and evaluate their own learning. Self-regulation is a self-directed process by which learners transform their mental abilities into academic skills (Zimmerman, 2002). They "plan, set goals, organize, self-monitor and self-evaluate at various points during the process of knowledge acquisition" (Zimmerman, 1990).

Constructivist theory views learning as a proactive process. Students take charge of and are actively engaged in their learning. In contrast to responding or reacting to instructors, students learn about their strengths and weaknesses. They set goals. They learn how to monitor their learning, make adaptations and therefore become more effective.

When students learn about their learning strengths and weaknesses and adopt self-regulating strategies, they are better equipped to learn. Self-regulating strategies include:

- Setting immediate goals for oneself
- Adopting powerful strategies for obtaining one's goals
- Monitoring one's performance selectively for signs of progress
- Restructuring one's physical and social contexts to make it compatible with ones' goals
- Arranging time efficiently
- Self-evaluating one's methods
- Attributing causation to results
- Revising methods to ensure success

The structure of the self-regulatory process involves three cyclical phases:

- **Forethought phase**. Students set goals, make strategic plans and evaluate their beliefs about their capabilities to learn a particular subject or strategy.
- **Performance phase**. Students use strategies selected in the forethought stage and record events and their causes.
- **Self-reflective phase**. Students evaluate their performance and evaluate their feelings of self-satisfaction (Zimmerman, 2002).

High-achieving students make effective use of self-regulated learning strategies. They can and will learn on their own. They use a systematic approach. They (*a*) decide if they need to change their approach or the strategy that they have been using, (*b*) identify the behaviors that have caused problems, (*c*) choose a method for monitoring and (*d*) decide how to react to what they observed. Novice learners do not use these strategies, but there is evidence that novices can be taught self-regulatory practices to improve their academic achievement.

Instruction promotes positive self-efficacy. Self-efficacy is an internal set of belief systems that enables individuals to monitor their thoughts, feelings and actions (Bandura, 1977). It is the belief in one's capabilities to organize and execute the sources of actions required to manage prospective situations (Bandura, 1986).

Self-efficacy influences how people *feel*, the *choices* people make, the *effort* they put forth and how long they *persist* when confronted with obstacles (Pajares, 2004).

Learners who have high self-efficacy beliefs approach difficult assignments as challenges to be mastered. They are able to continue putting forth effort in the face of difficult learning situations and recover quickly after experiencing setbacks or failures. They attribute failure to lack of effort or skill and move forward to remedy the situation. On the other hand, learners with low self-efficacy avoid or become discouraged easily when faced with difficult learning challenges. They focus on their weaknesses and the obstacles they will experience, reduce their efforts and give up easily.

Self-efficacy beliefs are not permanently fixed. Becoming an expert learner naturally builds positive self-efficacy beliefs. Students who in the past became easily discouraged when faced with difficult assignments and gave up easily because they felt unable to succeed can transform those feelings of negativity and frustration into positive and optimistic ones. Students armed with *MyActiveMind*'s learning strategies will feel in control of new and demanding learning tasks.

Instruction is direct and explicit. Direct instruction is a systematic method of teaching that consists of the instructor (*a*) explaining and modeling a new concept or skill, (*b*) clearly describing the steps to perform the skill, (*c*) breaking down the steps into learnable parts, (*d)* providing controlled practice with the direction of the instructor and (*e)* providing opportunities for practice with guidance.

Explicit instruction makes performance outcomes clear to the student. Material presented in this manner offers a framework for students to process new material gradually so that it can move from the short-term to long-term memory. Students are actively engaged, facilitated by the instructor—in this case *MyActiveMind*'s online program—to view a model, practice, review, summarize and apply.

Formal and controlled, explicit instruction provides the learner with a clear, direct and unambiguous explanation of the skills being taught.

Elements of direct and explicit instruction

- An orientation to the purpose, procedures and content of the lesson
- A clear and concise statement of goals, objectives and expectations
- A clear verbal and visual explanation of the strategy and why, how and where it should be used
- A review of prerequisite skills
- Scaffolding features such as planning, monitoring and evaluating
- Students' active participation in their learning

Interrelated steps of direct and explicit instruction (Nist & Holschuh, 2000)

• Activate prior knowledge	Instruction makes meaningful connections between students' prior knowledge with what they are about to learn.
• Model	Instruction models are authentic concrete examples accompanied by explicit explanations.
• Examples	Instruction shows examples of how to apply the strategy in different contexts.
• Practice	Instruction monitors guided practice until students become fluent and provides feedback leading eventually to independence.
• Evaluation	Instruction includes program feedback and self-monitoring techniques helping students become self-regulated learners.

Explicit instruction reaches it's maximum effectiveness when presented as the second in a three-step approach. Students are first guided to make meaningful connections between what they already know with what they are going to learn. Second, they are provided with explicit modeling and instruction. Finally, they are given scaffolded instruction.

Instruction is scaffolded. Scaffolding, the next step, provides students with support until they can apply new skills and strategies independently. When tasks are new and difficult, students are given temporary support and assistance during initial learning. A scaffold acts as a bridge between what students currently know and their learning goal. Once they demonstrate mastery, the ability to perform in a self-reliant way, the support gradually fades, shifting the responsibility from the instructor to the student.

Six guidelines are suggested for effective scaffolding (Larkin, 2001).

- **Identify what students know**. Evaluate students' learning strategy knowledge and effectiveness, what strategies they need to develop and what strategies are beyond their current level of functioning.

- **Begin with what students can do**. After an initial challenge exercise, students practice activities that they can complete independently.
- **Help students achieve success quickly**. Design beginning exercises so students can experience success. These exercises are challenging but not to the degree that will cause frustration. Initial success builds confidence and motivates students to attempt more difficult tasks.
- **Help students to become like better performing students**. Acquiring the strategies that better performing students use builds confidence that contributes to positive self-efficacy.
- **Know when it's time to stop**. Once students demonstrate mastery, give them the opportunity to continue to engage in more challenging activities or move on to learning other strategies.
- **Help students be independent when they have command of the activity**. Guide students to apply learning strategies in class, during homework, when preparing for tests, conducting research, writing a paper, and so forth.

Critical for mastery, scaffolded instruction engages students in monitored guided practice, preparing them for independence.

Instruction provides abundant practice. Instruction should provide abundant practice at appropriate levels of difficulty and in multiple contexts. Practice that is too easy leads to boredom. Practice that is too hard leads to frustration. Once mastery is attained, provisions are made for more challenging opportunities.

Learning takes time. Although many people believe that "talent" plays a role in who becomes an expert in a particular area, even seemingly talented individuals require a great deal of practice in order to develop their expertise (Ericsson, Grampe & Tesch-Romer, 1993). Practice exercises that include choice, challenge, control, collaboration and authenticity foster understanding at a deeper level and are highly motivating (Nist & Holshuh, 2000).

Six principles make practice effective (Joyce & Weil, 1996):

1. Shaping – moving students through three levels of assistance:
    - Highly structured
    - Semi-independent and guided
    - Independent
2. Length of practice – highly motivating short and intense practice produces more learning than fewer, longer practice periods
3. Initial stage monitoring to ensure correct performance
4. Achievement of 85 to 90 percent accuracy before continuing to the next level
5. Distributed practice spread out over a period of time. Periodic reviews extended over a period of months

6. Optimal amount of time between practice sessions. Guided practice immediately after learning a new skill, continued frequently and then distributed further apart until student becomes independent

Instruction provides adequate time for mastery. Is time a factor that helps students learn better? Simply, the answer is that the more time learners spend and the more engaged they are during that time, the more effectively they will learn and achieve a high rate of success.

Time on task alone is not sufficient for learning. Academic learning time is the amount of time students are engaged in covering academic material that will be tested and experiencing a high rate of success. It is a measure of quantity and quality of time (Berliner, 1990).

The rate of success can be increased by:

- Increased scheduled time
- Providing meaningful activities, which are essential to strategy instruction that is student centered and student controlled
- Providing engaging activities to help students stay on task
- Providing activities designed for students to experience success

When students employ metacognitive strategies, they are able to determine how they are using their time and can articulate if that time is being used wisely.

While *learning* the strategy, a student may ask:

- What percentage of time am I paying attention to the activity?
- Do I understand the strategy?
- If I do not understand, did I articulate to a tutor, coach, instructor or peer that I do not understand and try to get help?
- How will I use the strategy?

A student might ask the following questions when *applying* the strategy:

- How often am I using the strategy?
- In what classes was the strategy most helpful?
- How effective was the strategy?
- Is review of the strategy necessary?
- Is more practice necessary?

To ensure that students use academic learning time effectively, instructors should

- provide adequate opportunities for using *MyActiveMind*'s online program, whether initiated by the student or tutor/facilitator.
- ensure that the activities are meaningful and motivating.
- teach prerequisite skills necessary for success when learning a new strategy.
- provide individuals learning and cognitive style opportunities.
- provide opportunities for various developmental levels.

- teach metacognitive strategies.
- provide evaluation and corrective and summative feedback.
- facilitate each step using scaffolded instruction.
- ensure that students learn how to use failure productively.

Instruction provides feedback. Feedback fosters mastery and engagement. It informs, challenges and builds confidence. Students benefit when they can measure their accomplishments against an objective standard. It enables them to monitor their progress supporting self-regulated learning. They are able to determine how much they have mastered and what needs to be improved. They then engage in additional opportunities for further practice.

The *MyActiveMind* program employs information-processing feedback theory. Errors are not viewed as mistakes but as sources of information about students' cognitive processes (Whyte, Karolick, Neilsen, Elder & Hawley, 1995).

Effective feedback provides both *verification* of whether the answer is correct or incorrect and *elaborative* suggestions that help the learner select the correct answer.

Feedback takes many forms, from most limited to more elaborate (Whyte, Karolick, Neilsen, Elder & Hawley, 1995).

- **No feedback** – Students receive a performance score and no further elaboration on individual test items.
- **Knowledge of response** – Students are told only whether answers are correct or incorrect.
- **Answer until correct** – Students are told whether answers are correct or incorrect but must continue until the correct answer is selected.
- **Knowledge of correct response** – Students receive individual item verification and the correct answer, but receive no elaboration.
- **Response-contingent –** Students receive both verification and item-specific elaboration explaining why the incorrect answer was wrong and why the correct answer is correct.

MyActiveMind uses multiple methods of feedback because it raises achievement levels. Students not only learn whether their answer is correct or incorrect but also why it was correct or incorrect. In addition, the combined use of both initial and delayed feedback methods gives students immediate verification for their responses and time to process the errors prior to receiving information-processing feedback. When students receive consistent and accurate feedback, it helps them determine how well they understand the material taught.

Table 3.

How *MyActiveMind* Applies the Principles of Effective Teaching

Research Findings	*MyActiveMind*'s Program
Cognitive Strategies	
Students who receive direct strategy instruction perform better than those who do not. (Nist & Holschuh, 2000)	To teach students cognitive strategies, *MyActiveMind* fosters the following outcomes. Students: 1. Learn more than one way to learn something 2. Become more engaged 3. Increase learning 4. Enhance their memory 5. Improve their self-confidence 6. Become responsible for their own learning 7. Are able to meet deadlines more effectively
Metacognitive Strategies	
Students who are skilled in metacognitive self-assessment and, therefore, aware of their abilities are more strategic and perform better than those who are unaware. (Rivers 2001) (Schraw 1998)	To foster metacognitive skills, *MyActiveMind* teaches students to: 1. Acquire learning strategies 2. Know which strategies work best 3. Know when to use those strategies 4. Know how to monitor their progress as they learn 5. Know how to make changes and adaptions of strategies if they determine what they are doing is not working (Winn & Snyder, 1998) 6. Know how to self-reflect 7. Know how to take responsibility and initiative 8. Know how to set goals 9. Know how to manage one's time Metacognitive skills include: 1. Taking conscious control of learning 2. Planning and selecting strategies 3. Monitoring learning progress 4. Correcting errors 5. Analyzing the effectiveness of learning strategies 6. Changing strategies and learning strategies when necessary. (Ridley, D.S., Schutz, P.A., Glanz, R.S. & Weinstein, C.E., 1992)

Table 3 *(continued)*

Research Findings	*MyActiveMind*'s Program
Self-Efficacy	
High school students reporting strong self-efficacy in self-regulated learning strategies demonstrated increased student achievement in core content areas of math, social studies, science and reading. (Williams 1996) Feelings of self-efficacy can increase motivation toward specific tasks and accomplishments, and increase levels of performance. (Schunk, 1996)	To promote positive self-efficacy, *MyActiveMind*: 1. Provides experiences that build mastery 2. Provides models, similar to the student, who have succeeded through sustained effort 3. Provides students with verbal persuasion that they are capable of mastering learning and communication strategies 4. Provides students with techniques to reduce their negative responses to stress 5. Encourages students to compare performance with past performance and not with other student's performance 6. Encourages students to focus on mastery rather than competition with others
Direct Explicit Instruction	
The cognitive strategy research is very clear in support of explicit, teacher-led instruction in cognitive strategies. Evidence has shown that students of all abilities, even high-achieving students, have benefited from being taught cognitive strategies. (Rosenshine 1997)	To provide students with a clear model of a skill, *MyActiveMind*: 1. Explains skill "What are you learning?" "Why are you learning it?" "How will it help you?" 2. Demonstrates the skill 3. Models the skill
Scaffolded Instruction	
Scaffolding is a process in which students are given support until they can apply new skills and strategies independently. (Rosenshine & Meister, 1992)	To support the learner develop internal structures, *MyActiveMind*: 1. Provides clear directions 2. Clarifies purpose of activity 3. Provides models and demonstrations 4. Provides practice with support in various contexts 5. Provides self-regulation strategies 6. Provides feedback 7. Withdraws scaffolding as learner's abilities increase 8. Provides learner with opportunities to act in a self-reliant way, allowing learner to show evidence of self-regulated learning

Table 3 *(continued)*

Research Findings	*MyActiveMind*'s Program
Practice	
Practice opportunities can greatly enhance learning of new ideas, especially if the presentation and practice are repeated on several different occasions. (Pressley & McCormick, 1995)	*MyActiveMind* provides abundant practice: Structured massed practice 1. Students have short intensive practice opportunities after initial learning. Guided practice 1. Students engage in cognitive activities in which they organize, revise, rehearse, summarize, compare and contrast. 2. Initial activities are easy then become more difficult. 3. The program insures that students are not practicing errors and misconceptions. Independent distributed practice 1. Students engage in extensive practice in order to develop well-connected networks.
Time	
Engaged time (time when students are attentive and on task) and academic learning time (that portion of time when students are successfully learning and accomplishing their tasks) are strongly related to student achievement. (Anderson, 1983, Mazuno, 2000)	*MyActiveMind* provides: 1. Engaging and meaningful activities 2. Formative feedback 3. Activities that allow students to experience success 4. Metacognitive strategies so students can judge their use of engaged time
Feedback	
Feedback involving explanations to the learner about the reasonableness of the correct approach compared with the learner's answer is more effective than other types of feedback, especially if the feedback results in the learner constructing a new more adequate understanding of the material being learned. (Bangert-Drowns, Kulik, Kulik, & Morgan, 1991)	*MyActiveMind* provides feedback that: 1. Informs 2. Measures accomplishments against an objective standard 3. Is immediate 4. Monitors student progress 5. Determines what has been mastered and what needs to be improved 6. Provides opportunities for further practice 7. Elaborates explaining why an incorrect answer was wrong and why a correct answer was correct

Conclusion

Students of the United States face unknown challenges in our country's rapidly changing economy. Building a foundation of strategies they can use throughout their education and career provides a valuable vehicle for success. *MyActiveMind*'s research-based program employs engaging methods to teach students learning strategies and how to use them in the context of their coursework while in school. As they use the program, they develop educational goals, make adaptations to reach their goals, and gain confidence and independence as they take charge of their own learning.

Because the type of expert, self-regulated learning that *MyActiveMind* helps students develop is a skill that can be learned, it negates the pessimistic perspective that intelligence is fixed and unchangeable (Pintrich, 1995). Students take charge of their own learning. For this reason, *MyActiveMind* provides a positive addition to instructors' teaching practices and students' learning expectations.

MyActiveMind employs multiple methods to teach the basic skills necessary for school and career success. It engages students in applying these skills while studying alone or working collaboratively in groups. It provides students with the opportunity to demonstrate their skills by solving unfamiliar problems in unfamiliar situations. To motivate students to think beyond the classroom, *MyActiveMind* introduces students to professionals in many career areas who demonstrate how learning strategies are used in the workplace. In sum, *MyActiveMind* helps students develop flexible foundational skills that transfer from course to course, from school to career and from job to job.

> ...learning is not something that happens *to* students: it is something that happens *by* students.
>
> Barry J. Zimmerman, *Self Regulated Learning and Academic Achievement: An Overview*

REFERENCES

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Berliner, D. (1990). What's all the fuss about instructional time? In M. Ben-Peretz & R. Bromme (Eds.), *The nature of time in schools*, pp. 3–35. New York: Teachers College Press. Retrieved August 20, 2004, from http://courses.ed.asu.edu/berliner/readings/fuss/fuss.htm

Clifford, G.J. (1984). Buch and Lesen: Historical perspectives on literacy on schooling. *Review of Educational Research*, *54*, 472–500.

Ericsson, K.S., Grampe, R.T., & Tesch-Romer, C. (1993, July). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100*(3), 363–406.

Garcia, T. (1995, Fall). The role of motivational strategies in self-regulated learning. In P. Pintrich (Ed.), *Understanding self-regulated learning: New directions for teaching and learning, 63,* pp. 29–41. San Francisco: Jossey-Bass.

Gooler, D.D. (1990). Changing the way we live and work in an information age. In R.M. Smith (Ed.), *Learning to learn across the lifespan*. San Francisco: Jossey-Bass.

Jones, B.F., Palinscar, A.S., Ogle, D.S., & Carr, E.G. (1987). Learning and thinking. In B.F. Jones, A.S. Palinscar, D.S. Ogle, & E.G. Carr (Eds.), *Strategic thinking and learning: Cognitive instruction in the content areas*. Alexandria, VA: North Central Regional Educational Laboratory.

Joyce, B. & Weil, M. (1996). Direct instruction. In *Models of teaching,* pp. 343–352. Boston: Allyn & Bacon.

Larkin, M. J. (2001). Providing support for student independence through scaffolded instruction. *Teaching Exceptional Children*, *34*(1), 30–34.

Lenz, B.K. (1992). In the spirit of strategies instruction: Cognitive and metacognitive aspects of the strategies intervention model. In S.A. Vogel (Ed.), *Educational alternatives for students with learning disabilities*. New York: Springer-Verlag.

Nist, S.L. & Holschuh, J.L.(2000). Comprehension strategies at the college level. *Handbook of college reading and study strategy research,* pp. 75–104. Mahwah, NJ: Lawrence Erlbaum Associates.

Pajares, F. Self-efficacy. Retrieved September 15, 2004 from http://www.emory.edu/EDUCATION/mfp/self-efficacy.html

Pintrich, P.R. & Schunk, D.H. (1996). *Motivation in education: theory, research, and application,* pp. 248–253. Englewood Cliffs, NJ: Prentice Hall.

Pintrich, P.R. (Ed.) (1995). *Understanding self-regulated learning: New directions for teaching and learning, 63,* pp. 3–11. San Francisco: Jossey-Bass.

Pressley, M. & McCormick, C.B. (1995). *Advanced educational psychology for educators, researchers, and policymakers,* pp. 5–6, 316. New York: HarperCollins.

Ramsden, P. (1988). Studying learning: improving teaching. In P. Ramsden (Ed.), *Improving learning: New perspectives*, pp. 13–31. London: Kogan Page.

Rosenshine, B. & Meister, C. (1992). The use of scaffolds for teaching higher-level cognitive strategies. *Educational Leadership*, *49*(7), 26–33.

Westwood, P. *Current issues in effective teaching and learning*. From proceedings on a forum conducted by the Board of Studies NSW, October 26, 1995. Retrieved October 17, 2004, from http://www.boardofstudies.nsw.edu.au/archives/forum_learner/learner5.html

Whyte, M.M., Karolick, D.M., Nielsen, M.C., Elder, G.D., & Hawley, W.T. (1995). Cognitive styles and feedback in computer-assisted instruction. *Journal of Educational Computing Research, 12*(2), 195–203.

Wittrock, M.C. (1990). Generative processes of comprehension. *Educational Psychologist, 24*, 345–396.

Zimmerman, B.J. (2002, Spring). Becoming a self-regulated learner: An overview. *Theory Into Practice, 41*(2), 64–70.

Zimmerman, B.J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist*, *25*(1*)*, 3–17.