

The book cover features a teal background with a repeating pattern of white-outlined geometric shapes: circles, squares, hexagons, and triangles. A large, irregular shape in a burnt orange color is overlaid on the right side, extending from the top right towards the bottom left. The title is presented in a white rectangular box with a black border in the upper left corner.

Questions for Life

Powerful Strategies to Guide Critical Thinking

Stephen G. Barkley
with Terri Bianco

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with Terri Bianco

a special introduction by Joseph K. Hasenstab



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Introduction

by Joseph K. Hasenstab

As a kid, I suffered from dyslexia. No one talked about it back then, I didn't even know I had it. I just knew that it was tough getting through school and I had to work hard to read and do my lessons.

I noticed that some teachers who worked with me got through to me, inspired me, and helped me learn. Others did not. We couldn't connect and I wondered why.

The dyslexia somehow cured itself, and I made it successfully through school and on to college. I ended up becoming a teacher myself. I taught for ten years in two school districts. There again, I noticed that some teachers seemed to succeed with students and enjoy teaching, while others were frustrated, unable somehow to get through to their students on any consistent basis.

Again, I wondered why.

I began to interview and study the teachers whose skills and performance patterns produced results—the ones people considered their “best” teachers. These were the educators whose verbal and nonverbal skills, strategies, and decision making shone; they seemed to have more tools in their tool kits. They could read their students and anticipate their next moves.

I left teaching and formed a company in New Jersey whose sole purpose was to develop excellent teachers. I founded Performance Learning Systems, Inc. (PLS) in 1973, and we began by identifying, cataloging, and training 180 skills and performance patterns that constituted successful teaching. In the end I made two great decisions: looking at the world of teaching through the eyes of the teachers and hiring “best” teachers to serve as our instructors.

For over 35 years I served as president of PLS, expanding its educational services, techniques, and resources to a national—and now international—level. At 55 I retired, satisfied with a job well done and ready to let the company continue its growth with a new generation of teachers and students.

PLS operates in concert with universities and state teacher organizations that train classroom teachers through multiple 45-hour graduate-level courses, both live and online. All courses yield measurable learning. The company offers professional development, educational materials, and consultation with educators at all levels. PLS has been called the “West Point” of training for teachers. All of this means we know something about education.

The PLS vision to provide children with the best-trained teachers in the world drives the company’s mission to improve the art of teaching. We do that through techniques and strategies that ensure effective teaching, which in turn leads to successful student learning. In the process of developing these approaches to teaching, I created Questions for Life. I think it’s my best work. And the reason it’s my best work is that it applies to learning and teaching in all aspects of education and, more importantly, in all aspects of living. That’s why we called it Questions for Life.

Architects of Information

Periodically during my career—and now on the golf course—I pose a hypothetical question to educators, businesspeople, parents,

students, or whoever shows an interest in education. The question I pose is this: If every student memorized every textbook provided in school, would that prepare him or her to be successful in life? The unanimous answer is no. Why isn't the answer a thundering yes?

The no comes from the knowledge that content in textbooks does not necessarily transfer to the skills and clarity of thought students need to navigate successfully through life. What they need is a sound set of skills and the ability to think critically so they can question, analyze, predict, create, and act effectively.

To borrow a term from Web professionals, students need to become “architects of information.” They need to learn to build on knowledge that is relevant to them and that provides them with a solid foundation on which to base the many decisions they will have to make in response to the vicissitudes of life.

The desire of humans to learn is innate; learning is a survival mechanism of the human brain. Our brains do not come replete with knowledge as do the brains of creatures who function instinctively, knowing, for example, how to camouflage themselves as jungle plants or head blindly toward their home in the sea as soon as they are born. We have to learn, and our brains are hardwired to do that.

Our early ancestors were hunters and gatherers who had to develop strategies, use thought processes, and develop language to catch game for food and clothing. Spears, arrows, and clubs were the weapons they used to achieve their goals, which were driven by basic needs. Our predecessors learned to distinguish the habits of the different animals and the hazardous or beneficial impacts of the various plants in their environments. They made these distinctions by recognizing patterns. Observing, listening, smelling, touching, and tasting afforded them the ability to appraise, develop preferences, and see connections.

In short, early human beings had to learn how to think clearly, correctly, and strategically in order to survive. They had to practice

and become clever at it. Fast-forward to now, and we see that our species has developed a vastly larger vocabulary, a sensitive emotional system, and the growth of the frontal cortex, where highly complex reflection occurs. Yet we continue to need to think clearly, correctly, and strategically in order to thrive. One purpose of school lies in building happy, healthy, successful adults who contribute to our planet, our society, and to the country's tax base.

Unlike other creatures, mankind, in this highly complex and ever-changing world, needs tools to guide him. That is why we created Questions for Life.

Questions for Life: A Tool for Thinking

Questions for Life is a tool that provides a way to focus on critical thinking when addressing core subjects, textbook content, and real-life situations. Questions for Life works the way the brain works. It is relevant and meaningful to all learners, whether they are students, educators, or those working in nonacademic environments. The structure of Questions for Life provides a road map for navigating the thinking process purposefully and successfully. It offers opportunities to strategize using questioning processes designed to elicit critical thinking.

The Questions for Life model is attuned to brain development and backed by significant research that makes it substantially more valuable than any new model or “gimmick” teachers often come across. It is much more powerful than that. First and foremost it is a tool for the educator, and secondly, it is a tool for students.

According to a report titled *Tough Choices or Tough Times* by the National Center on Education and the Economy, “the problem is not with our educators.¹ It is the system within which they work.” It is a system that requires educators to postpone their own reflection, thinking, and strategic planning to make time to muddle through mandates and meet state standards. It is a system that offers few

opportunities for teachers or students to stop and think as they move ahead into a future that will be so altered from today's experience as to be almost unrecognizable. To respond effectively to these new circumstances, the system must be changed to allow teachers to acquire, embody, and impart the skills and thinking processes their students need to know.

Teachers will need to shift how and what they teach. There can be no change in how students learn if there is no corresponding shift in how teachers teach. Most studies of skills people use in the workplace speak to the need for students to be taught to think, decide, and act. Too often teachers do the thinking, deciding, and acting for their students. A significant shift takes place when teachers share the thinking processes they use with students, allowing students to do the thinking, problem solving, and decision making. Questions for Life is a tool for creating that change.

And here I want to express my appreciation for and pride in the instructors who teach Questions for Life, some of whom have developed teaching examples found in the Appendix of this book. Their modeling and that of hundreds of other instructors have inspired thousands of teachers to improve their questioning practices. Learning to use reflexive questioning processes takes a huge investment in effort, yet the rewards are terrific. Teachers see the difference in their students' eyes as they grasp their own thinking process and the power it holds.

The Need for Change

There is no question that there is and has been a dire need for education to change. I know that and Steve Barkley, the author of this book, knows that. Steve was the first trainer and first employee at Performance Learning Systems. Now our Executive Vice President, Steve is a published author, brilliant trainer, colleague, and friend. As I did before him, Steve crisscrosses the country

every week speaking to educators and championing the cause of improving education. We are both frustrated that change in education has not been more rapid. We have known for years there is a serious gap between how quickly students need to acquire skills to help them function in life successfully and how slowly and sluggishly the pace of the current educational process is going.

Meanwhile, change is coming—perhaps a tsunami of change. Transformations in demographics, economics, technology, and the workforce have created new conditions that will powerfully alter how we deliver and even frame education.

To be sure, there are promising pockets of innovation already opening up in education all over the country—some are highlighted in this book, such as charter schools, privately owned schools, grant-funded schools, and twenty-first-century schools. Many of these are trying various programs and approaches to improve learning, to prepare students for college, to meet educational standards, and to enable students to be competitive in the global economy.

While these attempts and their varying degrees of success are admirable, would it not be more logical to provide learning tools that shift the focus from “getting” students to learn to creating an environment where they will want—and be able—to learn?

Change is often resisted and feared, but it needn't be. The kinds of long overdue changes coming to education promise to unleash educators' abilities to be creative and to work with real-world applications, so students can become engaged and responsible for their learning as they see the direct impact it has on their lives.

At some critical point in the not too distant future there may well be some very dynamic and innovative changes in our education system. Perhaps one of the many new, privately funded charter schools will come across a formula that improves learning for all. Maybe it will be found that we do not need only one standard of education. In view of the diversity in our world and considering the multiple avenues of information available to us, including our newly

acquired abilities to transcend cultures and language, maybe we can finally admit we have outgrown that one-size-fits-all standard as surely as we have outgrown buggy whips.

Meanwhile we can't wait any longer for all this to get sorted out. Regardless of changes in schools, what kids need to learn is how to think. And from thinking comes the ability to make crucial decisions and good choices that will lead to living and prospering in any environment.

My Passion

Learning requires passion. It requires the freedom to be curious and to discover a “fire in the belly” about something that has significance and meaning for the learner. When I attended what is now Truman State University in Missouri, my favorite professor held court after class at the Bulldog Café, discussing with willing students anything they wanted to discuss with him. Somehow over many cups of coffee, this valued professor sparked an interest for me in Clarence Darrow, the great “attorney of the damned.” Darrow had been retained to defend the teenage thrill-killers Nathan Leopold and Richard Loeb, who murdered 14-year-old Bobby Franks. Later Darrow was called in to defend John T. Scopes, who violated the law by teaching evolution in his classroom. In the famous “monkey trial” that ensued, Darrow successfully opposed the lawyer, statesman, orator, and later presidential nominee William Jennings Bryan.

My professor sent me to the library to study the transcripts of these and others of Darrow's trials. I sat in the stacks, reading and studying, taking no tests and receiving no credit or grades—the subject had simply become my fire in the belly. I was in the zone. I was learning. I was thinking.

Darrow's questioning skills fascinated me. I studied his rhetoric and questioning processes to figure out what exactly made them so strategic and persuasive. Whether I agreed with him or not did

not matter; I was intrigued by his skill at asking questions that led to the conclusions he drew in his brilliant summations. Obviously, these types of questioning skills had a tremendous influence on me. They remained with me and, along with other specifically identified teaching techniques, were a big part of the inspiration behind Performance Learning Systems.

The Questions for Life Model

We are bringing the Questions for Life model to a larger audience at this time because the need for change in education is so huge. Designed to elicit and generate high-level thinking, Questions for Life provides the scaffolding on which a person can build purposeful conversation and communication, whether in the classroom or around the globe. It opens the door to successful negotiation and provides a way for creative thoughts to develop and evolve into action. It allows us to be architects of information.

We all need to tackle enormous economic, social, environmental, technological, and cultural challenges—mighty changes are already upon us, and more are on the way. Rather than wait for educational reform, we offer a process *now* that teaches how to think about and manage whatever changes may come along.

Will a powerful questioning strategy alter the framework of education? Is it going to revolutionize current curriculum into one that teaches real-life skills, such as how to problem solve and how to create? Will it find ways to understand the value of going to college or where to invest money? Or how to communicate? How to be free, successful, and responsible?

Well, it's a start and a tool to get there—a tool that can help us think within the box well enough to find a way to get out of it and move into the larger world, just ahead of the tsunami.

Chapter 1

Ready or Not, Here Comes Change!

The Illusion of Change

Every educator knows that technology and the speed of its information delivery systems far surpass the pace of chalk moving across a blackboard. The world is speeding up, expanding outward while also seeming to get smaller. Everywhere we turn, we hear the demand that education change in order to keep up. A serious problem arises when educators and students, swept up in the culture of busyness that permeates most schools, labor under the illusion that change *is* occurring, that they *are* keeping up.

Many factors help to create this illusion. It stems from the steady stream of students moving through schools and from the clamor of constantly clanging bells and beeping buzzers. There are always new mandates, new standards. Veteran educators can claim they've heard the heralding of change in education most of their adult lives, but when trying to envision the future, they are often blinded by

the present. Swiftly passing years within the school system create an *illusion* of change in an environment where there is little time or encouragement to step back and reflect upon *real* change.

Meanwhile, with every ring of the bell and beep of the buzzer, with every graduation and matriculation, the nonacademic world is changing. Things move fast in this outside world, far faster than within the confines of institutions such as schools, despite the illusion of change that often prevails there. These changes in the outside world are not abstractions, and they are not challenges students can deal with *after* graduation. Nor are they changes educators can ignore because they seem to involve only young people. To think so would be myopic. These forces have a direct and immediate impact on what takes place in the classroom—and where they do not now, they soon will. Consider just a few changes that have recently had an impact on our schools: privatization, charter schools, teachers' pay structures, political reforms, economic trends, infrastructure concerns, and environmental requirements.

The Reality of Change

These big changes come from the realm of continuously developing trends in demographics, global economics, generational differences, a retiring workforce, ever-evolving technology, energy consumption, environmental issues, and a constant blend of language and cultures.

Asia has emerged as an enormous player in the international marketplace. The level of education in this part of the world exceeds our own, particularly in the areas of math and science. The workers of India, China, the Philippines, and other up-and-coming countries enjoy increased job security and employment in fields that Americans cannot or will not work in. In this country a huge retirement wave of 77 million professionals will create an employment vacuum, and there will be a shortage of workers to fill it.

With the rise of energy costs and the increase in telecommuting, we are now looking at very different ways of doing things. Why do we have to leave home to go to work? Or for that matter, why do students have to go to school to learn? According to Clayton Christensen, Curtis Johnson, and Michael Horn, the authors of *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*,¹ nearly half of students' classes will be taken online by 2019. As technology becomes more and more portable, the growing web of connectivity will expand the classroom—and the workplace—far and wide.

In his influential book *The Black Swan: The Impact of the Highly Improbable*² Nassim Taleb describes the phenomenon of unpredictable events that come along to change the course of history. The book takes its name from the black swans of Australia: before the first European explorers arrived there in the seventeenth century, Europeans had never seen black swans. In their experience, empirical knowledge pointed to the assumption that all swans were white. When the explorers saw black swans, therefore, a whole new perspective opened up.

Other examples of “black swans” are the attacks of 9/11 and the invention of the Internet. Before these events occurred, no one could have predicted them; after they occurred, the world was a different place. Taleb believes that the existence of “black swans” underscores how fragile our knowledge really is.

Some of the changes coming to education may be predictable. We may speculate that “green” buildings will replace older, environmentally inefficient facilities. Employers—possibly including school districts—may be fined for not going green (or rewarded for efforts to do so). Being entrepreneurial and self-starting will be essential in the environment of telecommuting. The trend of Generation Y already leans toward working independently; Gen Ys do not see themselves as working “for” someone else. In like fashion, they may not see studying “for” the teacher as relevant either. Why not be entrepreneurial about what they learn and when they learn it?

Global economics, advanced technology, the Internet, social networking, volatile worldwide politics, a planet urgently in need of replenishing and preservation, and other changing aspects of this fast-paced world—including even second lives with avatars—suggest that a completely different focus for education is urgently needed.

And while the world may change before our eyes, the eyes of students will still look to educators for guidance, wisdom, and hope for the future. Those who express an urgent need for change in education, however, stress that students going through the classrooms of America today will not possess the skills, behaviors, or aptitudes necessary to successfully compete in tomorrow's labor force. They may find themselves with low wages, unsatisfactory employment, or an inferior standard of living compared to their counterparts in other parts of the world.

Without a college education, their prospects get worse. Those who opt not to go to college may be faced with a larger burden because of the way job outsourcing is leading to the demise of our manufacturing industry and its related fields. One in three high school students drops out of school every year, often from boredom or in protest against an education that does not serve real needs.

How did this happen? Books, theories, studies, and reports abound about the changing workforce and the skills it requires, yet we have an educational system that has been slow to respond. Laden with layers of standards and a focus on tried-and-true core subject matter, education, for the most part, has been left behind, becoming more and more irrelevant in the changing world. People in today's workforce need skills that enable them to be mentally nimble, innovative, and creative.

More importantly, education has not included in curriculum in any uniform or focused way skills of critical thinking that teach students how to solve complex, multidisciplinary problems. Crucial skills of creativity, entrepreneurial thinking, communication, collaboration, innovation, and civic responsibility have been mostly ignored.

To be sure, the core subjects that have been taught in schools for generations will continue to be necessary and desirable in education. The Partnership for 21st Century Skills, an organization consisting of both public and private institutions, was formed in 2002 to create a successful model of learning with a focus on identifying twenty-first-century skills and incorporating them into education. When reporting on the achievement gap between the lowest- and highest-performing students, the Partnership stated:

People with only basic competencies are the most likely to flounder in the rising high-skill, high-wage service economy. To prepare students to be competitive, the nation needs “NCLB plus” agenda [No Child Left Behind] that infuses 21st century skills into core academic subjects. This is not an either-or agenda. Students can master 21st century skills while they learn reading, mathematics, science, writing, and other school subjects.³

Abundance, Asia, and Automation

Daniel H. Pink’s *A Whole New Mind: Why Right-Brainers Will Rule the Future*⁴ offers an alarming, yet lighthearted encapsulation of trends that are transforming the world in ways comparable to such dramatic shifts as moving from the Agricultural Age to the Industrial Age, and from the Industrial Age to the Information or Knowledge Age. He identifies three major forces that are causing a paradigm shift in the world: Abundance, Asia, and Automation.

Abundance

As a premise, Pink makes the point that skills and types of thinking used in the Knowledge Age, such as computing, linear thinking, logic, and analysis, are left-brained functions. (He refers to these as

left-directed, or L-directed, thinking.) These skills and types of thinking have brought about technological breakthroughs and allowed us to create fast-speed services, global connections, and multiple products that give us the abundance we now enjoy.

But the abundance underscores Pink's point. We are, in fact, drowning in material goods and services that are becoming more and more available at lower and lower costs. Most essentials today cost less than they did in our parents' day simply because there are so many of them. Such proliferation engenders indifference: services and products have begun to lose significance to the consumer. We are now looking for products that are special—designer-based, aesthetic, and meaningful. These products must be created, and the creative process stems from right-directed thinking.

Asia

Pink shows how routine, “L-directed” white collar jobs, such as those in computer programming, financial services, radiology, news reporting, legal services, and similar linear and functional processes, are now being outsourced to India, China, the Philippines, Russia, and other countries where college graduates are earning a fraction of what Americans earned for doing the same work.

Left-brained jobs, in short, are going overseas, leaving Americans to find employment requiring more right-brained thinking that cannot be exported or duplicated by a computer. The new products and services derived from right-brained thinking tend to add significance to the abundance that surrounds us.

Automation

Pink points out that more and more functions formerly performed by humans can now be accomplished through automation and technology. Even software, he notes, can be designed by computers.

This situation again eliminates a need for entry-level workers and creates a need for workers who are more creative, collaborative, and innovative. In summary, Pink believes we are now moving out of the Knowledge Age to the Age of Conceptualization, in which these skills and more creative ways of thinking will be paramount.

Pink is not alone in urging the development of different skills for a different world. Eighty percent of American voters believe skills students need in order to be prepared for jobs in the future are vastly different from what they needed 20 years ago. Eighty-eight percent of voters believe schools should play a vital role in teaching these twenty-first-century skills.

Skills, Skills, and More Skills

To be fair, education today *does* prepare students for many types of careers, and it also prepares them to be better citizens and more successful human beings, regardless of workplace competition. Many educators are aware of changing trends and demographics, and they understand the impact technology has had on the world and the workplace. Yet few teachers have much direct control over how they will respond to these changes by better preparing students for successful future employment. Rather, educators spend their time struggling to prepare students for standardized tests, having insufficient opportunity to focus on their students' future careers and lives.

The word *skill* is defined in *Webster's New World College Dictionary* as "a great ability or proficiency; expertness that comes from training, practice, etc."⁵ Most studies on skills intend the broadest interpretations of the term, including aptitude, behavior, ability, understanding, and flexibility. Skills usually encompass the abilities to think and innovate, to manage information, and to develop social and leadership connections. They involve both right- and left-brained thinking. In short, skill is the ability to do something well.

In the context of education, there are many different kinds of skills. Learning skills consist of knowing how to use knowledge and apply it to new situations; knowing how to analyze information and understand new ideas; knowing how to communicate and collaborate; and knowing how to solve problems, recognize patterns, and make decisions. Interpersonal skills involve the abilities to work on a team and be socially responsible, accountable, and self-starting; an aptitude for showing empathy and the ability to communicate are also vital interpersonal skills. Critical thinking skills are used for problem solving, making choices, appraising, and evaluating. Creativity, curiosity, predicting, and the ability to communicate new ideas are also extremely important critical thinking skills.

The Partnership for 21st Century Skills has compiled an outline of learning skills from studies done by a wide range of educational and research associations (page 9, Figure 1.1). The Partnership has broken the skills into categories and added brief explanations of how these skills play out in action. Their thinking—and ours—is that the important core subjects students learn must be accompanied by the teaching of these skills.

The belief that students must develop skills more relevant to the various changes occurring worldwide does not necessarily mean that what teachers have been teaching has been for naught—not at all. What it does suggest is that a new model of education is necessary, one that integrates the old skills with the new, including the higher-level thinking skills required to successfully negotiate contemporary life. In developing such an approach, educators may find themselves desirous of extending their own higher-level thinking skills as well. Questions for Life provides a model for teachers to use in enhancing these skills in themselves and developing them in their students.

Why do we need a new approach? Traditional curriculum teaches specific core subjects: math, science, history, English, reading or language arts, geography, economics, fine arts, foreign languages, etc.

<p>INFORMATION AND COMMUNICATION SKILLS</p>	<p>INFORMATION AND MEDIA LITERACY SKILLS Analyzing, accessing, managing, integrating, evaluating, and creating information in a variety of forms and media; understanding the role of media in society.</p> <p>COMMUNICATION SKILLS Understanding, managing, and creating effective oral, written, and multimedia communication in a variety of forms and contexts.</p>
<p>THINKING AND PROBLEM-SOLVING SKILLS</p>	<p>CRITICAL THINKING AND SYSTEMS THINKING Exercising sound reasoning in understanding and making complex choices; understanding the interconnections between systems.</p> <p>PROBLEM IDENTIFICATION, FORMULATION, AND SOLUTION Framing, analyzing, and solving problems.</p> <p>CREATIVITY AND INTELLECTUAL CURIOSITY Developing, implementing, and communicating new ideas to others; staying open and responsive to new and diverse perspectives.</p>
<p>INTERPERSONAL AND SELF-DIRECTIONAL SKILLS</p>	<p>INTERPERSONAL AND COLLABORATIVE SKILLS Demonstrating teamwork and leadership; adapting to varied roles and responsibilities; working productively with others; exercising empathy; respecting diverse perspectives.</p> <p>SELF-DIRECTION Monitoring one's own understanding and learning needs; locating appropriate resources; transferring learning from one domain to another.</p> <p>ACCOUNTABILITY AND ADAPTABILITY Exercising personal responsibility and flexibility in personal, workplace, and community contexts; setting and meeting high standards and goals for oneself and others; tolerating ambiguity.</p> <p>SOCIAL RESPONSIBILITY Acting responsibly with the interests of the larger community in mind; demonstrating ethical behavior in personal, workplace, and community contexts.</p>

Adapted from the work of the American Library Association, Association of College and Research Libraries, The Big6, Center for Media Literacy, Educational Testing Service, National Skill Standards Board, North Central Regional Education Laboratory's enGauge, and the Secretary's Commission on Achieving Necessary Skills (SCANS). Partnership for 21st Century Skills (2006). *Learning for the 21st Century: A Report and MILE Guide for 21st Century Skills*.

Figure 1.1

These subjects are taught with the intention and assumption that their content will be applied in what we often call “real life”: arenas, such as law, medicine, technology, business, sports, government, and family life, that lie beyond the classroom. However, do the critical thinking skills required to learn these subject matters ever become the focus of the lesson? In most cases, they are never mentioned.

Implicit in the teaching of Shakespeare, for example, is the assumption that students will gain an understanding of archetypes that they can apply to future life situations. *Implicit* and *assumption* are the operative words here because so often a discussion about archetypes per se never takes place.

Another example is math. Math skills are usually taught in the context of solving problems in a textbook. If these skills were applied instead to real-life situations, such as balancing a checkbook or estimating revenue from a paper route, they would generate more interest because students would realize that what they were learning had a direct impact on their daily lives.

When a skill central to the thinking process is not specifically taught, students may incidentally pick it up, but they will fail to develop an understanding of how it relates to the thinking process. Yet this relationship is an important link that teaches students how to apply the skill in other situations.

The same may be true for educators. For example, using prior experience and the power of observation to identify which students might pass a test involves thinking skills nearly identical to those used in selecting ingredients for a special meal. Understanding what skills are used not only allows us to apply them to other situations, it provides an opportunity to use them in purposeful ways, to form strategies that will help us solve problems, create lesson plans, or make decisions.

On page 12 Figure 1.2 shows the Questions for Life model. Using shapes and cue words explained later in this book, the Questions for Life model identifies 11 thinking processes we use continuously in

our daily lives. The skills central to these processes can be applied to the compilation of twenty-first-century learning skills found in Figure 1.1 on page 9.

Change: An Opportunity

Given that world changes are very real and that they will keep on coming in ever-expanding ways, education has no choice but to evolve. Cultural changes alone will transform education. Students may be preparing for jobs that have not yet been invented, and they will certainly be involved with products and services that, if Daniel Pink is right, will far surpass past innovations. Students will be interacting globally on a daily basis with people from other cultures speaking differing languages, and they will be constantly improving ways to connect and share information.

It is difficult to know exactly which current core subjects will be most important in the future; nor can we predict to what ends they will be used. For these reasons we need to transform education by redirecting our emphasis to a focus on thinking itself—on thinking skills in the broadest sense and on how students can apply those skills in real-life contexts. Doing so will provide the basic tools both students and teachers need to do well in any subject or activity.

Rather than look at changes as a threat or an obstacle, we can see them as an opportunity to make schools the ideal laboratories for developing sound thinking patterns in people who can achieve great mental acuity and flexibility as they go forward to meet whatever lies ahead.

In Chapter 2 we will explore how an approach to schools that encompasses important life skills, critical thinking, and questioning strategies can prepare both students and educators for the fast-paced and exciting world in which we all now live.

Questions for Life®

Cue Words

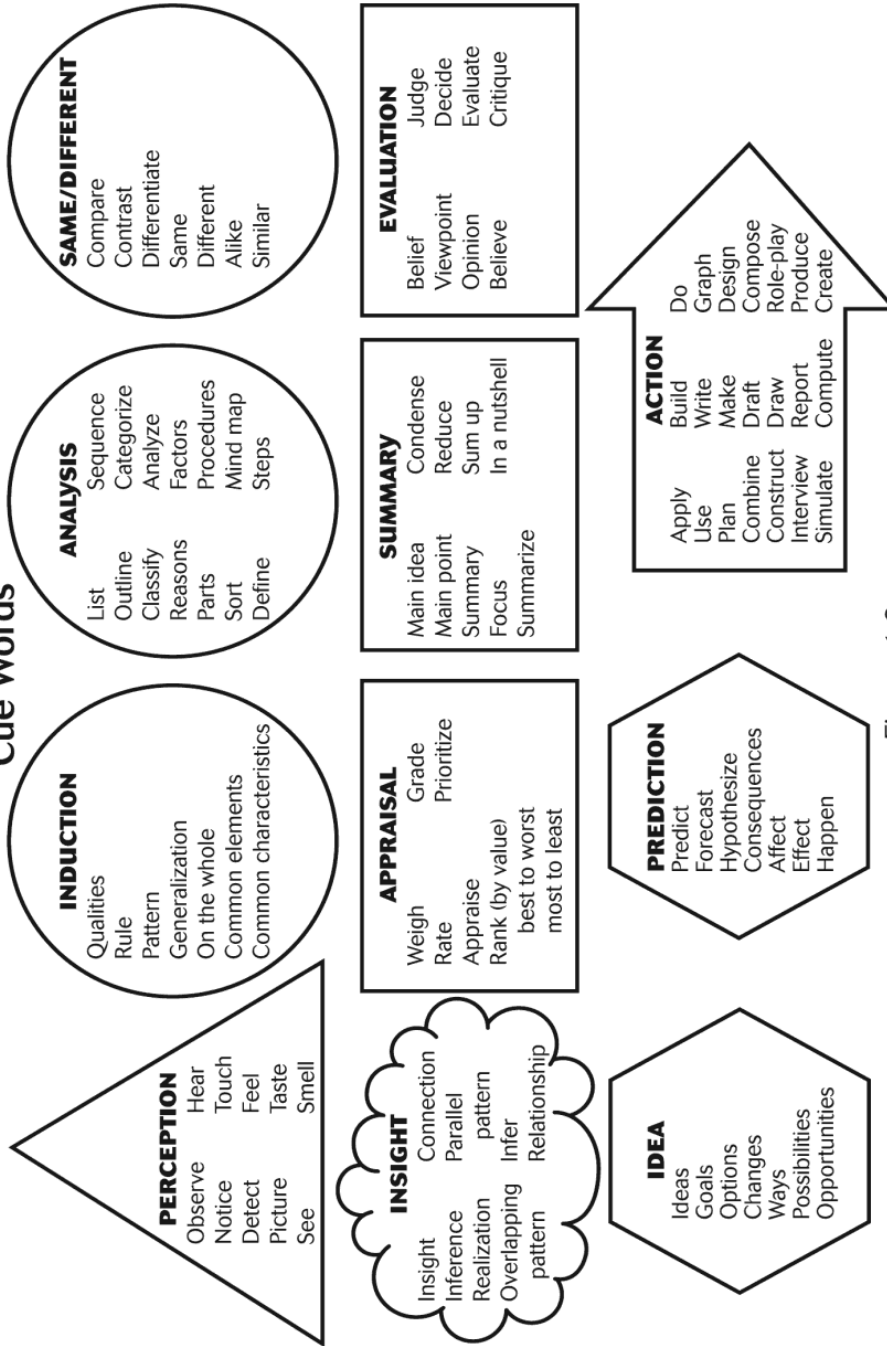


Figure 1.2

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Chapter 2

How Critical Is Critical Thinking?

Bags of Bark

To illustrate how skills are used in real life in ways that are different from how they're covered in classrooms, let's peek in on a beginning teacher who recently rented a house in the community where she is teaching. We'll call her Sarah.

Sarah found a cute little house to rent and was delighted with its backyard garden. Alas, the garden was adjacent to an unplanted area overcome with weeds. Sarah used a weed eater and then laid down black plastic over the weedy section, counting on the sun's heat to dry out the roots. She then intended to cover the area with redwood bark to nicely frame the garden.

The time arrived to purchase the bark. Sarah measured the area and found it was 13" by 4.5". She took her measurements to the garden section of a hardware store, where she discovered that the bark she wanted to buy was sold in bags of two cubic feet each.

Multiplying the length by the width, she calculated that her area was 58.5 square feet. That raised a question: How many cubic feet would she need to complete the job?

Sarah found a sales clerk and asked how many cubic feet of bark she needed to cover an area that was 58.5 square feet. “Oh, check with the paint department,” he told her. “They know about these things.”

“I was told you might know something about converting square feet to cubic feet,” Sarah said to the sales clerk in the paint department.

“I can try,” the clerk smiled.

“I’m not buying paint,” Sarah explained apologetically. “I want to put bark down in my garden. They sell it in two-cubic-foot bags. I don’t know how many bags I need to cover the area. Do you know anything about calculating cubic feet?” she asked.

“Well, a cubic foot is measured by adding up all four sides,” he said with confidence.

Something in Sarah clicked. She seemed to recall a formula from somewhere in her distant past. “Don’t you measure it by three?” she asked. “Height, width, length?”

“Well, picture a cubic foot,” he replied. “It has four sides. You measure that and then just flatten it.”

“Something tells me I need to divide by three.”

“Maybe 3.14?” offered the clerk.

Still unsure but anxious to complete her errand, Sarah decided she would just guess at three bags and see how it went.

At the checkout, however, Sarah continued her quest. As an educator, she wanted to know the correct answer. “Do *you* know how to convert square feet to cubic feet?” she asked. “I have 58.5 square feet and am just guessing that these three bags of two cubic feet each will be enough.”

The young checkout clerk’s eyes glazed over. He was thinking back to some formula he had learned in school. He picked up his

calculator and punched in some numbers, frowned, cleared it, and started over. “I used to know,” he said. “There’s a formula.” Then he shrugged, handed her a pickup slip, and told her to pick the bags up in the back of the store.

Sarah drove around to Will Call at the back of the hardware store. A clerk greeted her and she handed him her pickup slip. As he started to get the bags, Sarah once again posed her question: “How many square feet are covered by two cubic feet of bark?”

“One bag covers a four-by-four area.”

“How do you know that?” Sarah cried, delighted that someone had the answer.

“Because I ask customers who buy these bags to come back and let me know how far they go. They come back for more or come back to return them if they guessed wrong, and they tell me one bag covers about 16 square feet, if you’re putting on only about an inch.”

Sarah added one more bag of bark to her stack, paid for it, and drove away, happy with her purchase and her new knowledge.

What happened here is common. In order to come up with the information they needed, Sarah and the clerks were using memory skills to recall math formulas learned years before. But Sarah also used other skills in her attempt at problem solving. One of them was *picturing* her garden area as she used her perception to envision two cubic feet of bark separated into four sections and spread out on the area she wanted to cover. Another skill she used was *comparing* cubic feet to square feet. She also *analyzed*, *appraised*, *predicted*, and *communicated* with others. In the end, her answer came not from those relying on memory, but from someone who used the very important skill of Induction (a Questions for Life thinking process) to make a *generalization* based on the experiences—incidents—of others. (In a classroom, asking this clerk for the answer would be called cheating; in real life it’s called collaboration.)

Had Sarah sought her information in a more strategic way, she might have chosen her questions differently. Better questions yield

better responses. For example, who might know the answer from having had a similar experience? What ideas had been tried before? How could she have summarized her needs so the clerks could better understand her situation? Such questions could have led Sarah and the clerks into the type of thinking that would have better assisted them in finding the answer they sought.

As simple as this example might be, it illustrates how we all seem to fumble through life with only part of our thinking engaged. Sarah's decision was not crucial; she could have returned a bag if she'd bought too many or bought another if she had too few. But what if an important life decision had been at stake?

Critical Thinking

There is no common agreement on the meaning of *critical thinking*. It is often associated with math and the scientific method, but it does not mean thinking about or remembering facts or formulas. A problem-solving skill that applies to all disciplines and all aspects of life, it is a creative way of thinking that, with practice, enables us to make choices and decisions, resolve issues, and become responsible. Most notably, critical thinking relies on the ability to think independently, to make decisions based on reliable information, and to carry out those decisions responsibly.

Thinking about how many bags of bark cover a garden area, while important to the gardener, might be considered at the lower level of critical thinking. Thinking that is reflective, responsible, skillful, and focused on making decisions about what to do with our lives or what to believe can be considered a higher form of critical thinking. The following are examples of important questions this kind of thinking should address:

How do I *weigh* when it is the right time to purchase a home or a car?

How can I *predict* whether to take the new job or a promotion?

How do we accurately *judge* the positions of various political candidates?

How can we *sum up* the ideas that go into determining the impacts of global warming?

Should we as a nation *decide* to use nuclear power? Why?

What are the *consequences* of maintaining integrity and self-respect if doing so means losing support from others?

How can I *analyze* the value of investing in a college education?

What *analytical* choices concerning life and death do I have if I am a juror in a murder trial?

Students, too, must apply critical thinking skills to make good decisions as they go through life:

How can I *analyze* ways to improve my math skills?

What *options* do I have when someone offers me drugs?

How can I *prioritize* what classes to focus on in high school?

How can I *weigh* whether to go to college or vocational school?

What *possibilities* do I have when I arrive at a party and don't know anyone? What should I *do*?

What *decisions* should I make about having sex?

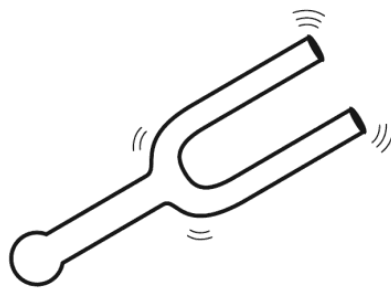
In a nutshell, how can I handle a situation in which someone is bullying me?

What *ways* can I create to get other kids to like me?

What *focus* should I choose to post on my social networking site? What will the *consequences* be?

Two Prongs of a Tuning Fork

Education consists of two important and related aspects that can be likened to the two prongs of a tuning fork. The first attunes students to the content of important core subjects, imparting knowledge of *what* to think about. The second attunes them to ways to interpret, understand, evaluate, and apply that content to their lives—in short, it teaches them *how* to think. (See Figure 2.1) When these two aspects of education work together in an appropriate harmonious balance, they produce students who know how to turn well-considered information into meaningful action.



Education:

- 1. Provides students with the content of important core subjects.**
- 2. Offers students opportunities to apply that content to their lives.**

Figure 2.1

Faced with the increasing growth of available knowledge and a constant flood of information, standards, and mandates, teachers are hard-pressed to accomplish even the first prong of education, much less the second. Teachers and students have their energies so focused on imparting and acquiring the fundamental content of core subjects that they seldom have time to share, debrief, or reflect together before they have to press on to the next thing.

Yet the second prong of education offers a hugely important part of the learning process: figuring out how to think about content. This is *metacognition*—thinking about one’s thinking, a process that entails critical thinking. If we know that our thinking process served us well in one decision-making, problem-solving, or creative endeavor, wouldn’t we want to understand how the process worked so we could use it again in another situation?

Unfortunately, we seldom review that process, and even more seldom do we point it out to others as they are learning. In fact, the critical thinking piece—the second prong of education—is so often ignored that students don’t even realize it’s missing. The same may often be said of educators. Who has time to discuss how they came to a solution or a lesson-plan strategy when they’re so busy managing knowledge, activities, and curriculum? How often do teachers engage in critical thinking by reflecting on how they arrived at a decision or a solution? We’re hoping Questions for Life will provide the tool to help teachers and students begin to engage in that important part of learning, teaching, and living.

Once students absorb the information delivered by a teacher through a project or assignment and apply it successfully in follow-up exercises, they believe (and their teachers believe) that they have truly learned. Whether they can now go out into the world and apply the same thinking processes they understood for one or two assignments is another story. Without focusing on *how* they came to conclusions, gathered information, analyzed it, worked with it, and applied it successfully, students find it difficult to connect the

thinking patterns they used to other situations, including some of the important ones that life throws their way.

Part of the resistance to change in education stems from the value placed on scholarly pursuits undertaken by an elite culture of gentlemen of wealth and position in the eighteenth and nineteenth centuries. Life moved a lot more slowly then, and scholars had time to ponder the ramifications of the literature they absorbed or debate the philosophical trends of their times. Now, although education has been largely modernized to accommodate more contemporary topics of interest, there lingers an almost romantic nostalgia for the days when parsing Chaucer, reading volumes of civics history, or poring over complex mathematical equations for the sheer mental exercise of doing so made up the sinew of a good education.

This group of scholars, however, faced challenges that were neither as complex nor as urgent as those we face today. While our reality insists that students need to get their minds around math, science, technology, and other disciplines in order to compete economically, it insists even more emphatically that they be able to apply the process of critical thinking to the knowledge they acquire. So yes, mental exercises in traditional disciplines are essential, but their framework has changed: now it is crucial that the thinking behind exercises be analyzed, understood, and applied to real life.

To think critically, we must be able to raise vital questions or pose problems and then organize our thinking clearly and precisely, in a way that suggests solutions. Critical thinking requires gathering information and using abstract ideas to interpret it. We need to come to well-reasoned conclusions or solutions, testing them against criteria and standards gathered for the purpose of understanding.

Critical thinking requires remaining open-minded, using alternative systems of thought, and being able to distinguish facts from opinions. It means being creative and having the mental resources to be confident in taking risks. It requires the abilities to distinguish

what is practical from what is merely desirable and to discern who might be implicated in the consequences of an action.

Perhaps most importantly, critical thinking requires effective communication to support us in finding solutions to complicated problems and sharing them with others. In a fast-paced and complex world, connecting with others to discuss issues of common interest not only solves problems and makes individual lives less isolated but also benefits everyone by paving the way to a more peaceful planet. As we have seen, gone are the days of silo thinking and isolation within communities, races, cultures, and countries. We live in an inclusive environment in which it is increasingly important to think globally, collaboratively, and creatively in order to address what lies ahead. To adapt to oncoming changes and meet the challenges we face, we must have knowledge and skills beyond those that have traditionally served us.

From a fourth grader's point of view or from a middle school teacher's busy perspective, this talk of change and urgently needed new skills may seem daunting, to say the least. For educators grappling with mandated curriculum, nutrition, safety, discipline, counseling, social interactions, politics, and all the rest of what it means to be a teacher today, adaptation to a changing world may just seem to add another layer of obligation.

Shifting Perspective

Yet weary educators may take heart. There's a bright side to shifting the perspective of teaching from delivering knowledge to facilitating the recognition of one's own thinking processes. As students internalize the Questions for Life model, they acquire awareness of questions they can ask to develop their own critical thinking. Once they learn how to ask discerning questions, they are equipped to dive into problem solving on their own and to create solutions or arrive at answers that, yes, the teacher may not have

exactly intended, but that are nevertheless the legitimate result of their own thought processes.

This thinking ability takes students out of the classroom and into the realm of real-life problems and concerns that sincerely engage them. In that environment the job of teaching becomes easier because students are learning and thinking on their own. And if students come up with an answer that is not the “right” one—not the intended one—the teacher has the tools to uncover their thinking process by using the Questions for Life model to debrief and perhaps guide them to a different answer.

Questions for Life was originally developed for educators when it was found that they were not making the connection between the type of thinking they understood in one staff development program and the similar type of thinking that was needed in another. They were not seeing, for example, that analysis they applied to a reading class was also applicable to a classroom management class. They had no common language for both of these applications. In the development of Questions for Life it was an easy move to take the model for teachers and apply it to students. Both benefit from investigating and understanding the thinking processes they use.

Teachers who readily employ Questions for Life in lesson planning have found that the critical thinking questions they design elicit answers that are more in-depth and reflective than ones they used to get before they understood and used the Questions for Life model. Rather than drawing blank stares in group discussions, teachers who ask questions from the model create a structure to elicit purposeful, meaningful communication based on inquiry that naturally causes students to think along certain pathways.

For instance, when each student in a cooperative learning group is given focused questions, group communication proceeds readily and enthusiastically, bypassing the usual problem of a few students dominating others who are hitchhiking onto the discussion. As students embrace the process, they know what to do to arrive at a

summary, for example, or how to articulate why they arrived at a particular conclusion.

Likewise, students are able to respond to essay questions in ways that reflect thinking patterns inspired by familiarity with the cue words taken from the Questions for Life model. This process can be tailored to prepare students for college entrance exams. Additionally, student work in lab experiments and math assignments guided by questions using Questions for Life cue words shows the teacher what critical thinking processes students followed to arrive at their answers.

Teaching students how to think critically is like teaching them how to fish instead of merely giving them a fish. Empowering them to work with the Questions for Life model will transform them into people who can learn and work skillfully with others, collaborating on how the content of their learning plays out academically, socially, globally, and in every other aspect of their lives.

The model will also aid students in learning how to make sound decisions. Those who are incapable of making a decision or who make decisions using little forethought, unable to ask the kinds of questions that point to effective solutions, will be left behind to deal with the consequences. Questions for Life is a tool for decision making.

Providing students with the benefits of critical thinking requires teaching that will shift their perspective, but that is not as difficult as it may sound. There exist many schools, programs, and methods that reframe teaching to enable educators to help students internalize real-life skills as they acquire content and knowledge—with the major focus on skills, as content changes while skills essentially do not.

For example, here's how a third-grade teacher can work on reading by teaching her students what it means to summarize a story. *In a nutshell* is a cue word (or phrase) within the Questions for Life thinking strategy Summary. The teacher brings in a story on a sheet of

paper and reads it with her students. She then asks, “*In a nutshell*, what was the story about?” She holds up an actual nutshell she has brought to class and proceeds to teach Summary by showing that the whole story will not go into the nutshell—attempts to fold the paper and cram it into the nutshell fail. But by identifying and literally cutting out and rolling up one or two main sentences or paragraphs—by condensing them, or summarizing the main points—they will fit nicely into the nutshell.

In Chapter 3 we’ll visit teaching methods that develop critical thinking and look at how critical thinking skills benefit from questions designed to bring out learning in relevant, real-life situations. We’ll see how debriefing what is learned can occur in all learning and in all situations that replicate life, even within the confines of a traditional classroom.

Chapter 3

How Tomorrow Learns

A New Focus

Charter and private schools with an approach to learning that encompasses real-life situations, critical thinking, and community involvement have popped up all across the country. Where resources and leadership allow, public schools are also opening to new curriculum or advances in technology that allow students to emerge from the confines of the lecture-based classroom into an arena where the stuff of schools begins to resemble the stuff of life.

The Bill and Melinda Gates Foundation¹ invests millions in preparing students for college, careers, and life itself. By encouraging schools across the country to focus on learning by doing and on applying knowledge to everyday life, the Foundation is helping to rethink schools. Its “3R’s Solution” transforms the old “reading, writing, and ’rithmetic” to “rigor, relevance, and relationships.”

Innovative high schools, in particular, are characterized by academically rigorous curriculums that offer project-based teaching and adapt course work to make it relevant to the real world. These

schools offer a program-based, problem-based, or performance-based curriculum that uses classroom projects to address questions, issues, and technological concerns meaningful to students' everyday lives. The intent is to involve students in inquiry and deep learning that require critical thinking, self-direction, and communication with people in the larger community.

A couple of examples of such high schools within the United States are Metro High School² in Columbus, Ohio, and Chicago Public Schools Student Zone. Metro High was created in 2006 through a partnership between The Ohio State University and the Educational Council of Columbus, Ohio, and Battelle,³ a scientific research think tank whose mission is to “translate scientific discovery into innovative solutions for the benefit of our fellow citizens, and to be a benefactor for charitable activities—especially education.” The school is small and its curriculum emphasizes four subjects: science, technology, engineering, and math, to which they have applied the acronym STEM.

Students are chosen to attend Metro by lottery, which creates a diverse population with a cross section of cultures. There is no tuition. Freedom and flexibility reign, and the school has no bells, lockers, or schedules. The catch is that students need to meet 90 percent of the requirements developed—they have to get A's to receive credit.

While the purpose of Metro High is to prepare students for success in college, it focuses on giving eleventh and twelfth graders opportunities to practice hands-on, self-directed learning outside the classroom with teachers and mentors from the community. Students learn by doing. “Lectures are an extremely inefficient way to teach students,” states Robert Perry, a professor at the school and a parent of one of the students. Specifically, students learn through:

- Independent research projects.
- Group projects with other students.
- Community internships at “learning centers” in the community.

At Chicago's Student Zone,⁴ a prime example of project-based learning, students are initially asked, "What do *you* want to learn?" Their projects are live, real, and out in the world. Collaboration, teachable moments, and interaction with the community provide the cornerstone of the school's educational focus.

K–12 students are not the only ones who are meeting reality head-on and learning how to change their approach to learning. Daniel Pink, writing about the need to be more collaborative and right-brain-directed, notes enthusiastically that the "curriculum at American medical schools is undergoing its greatest change in a generation." He cites as an example students at Columbia University Medical School who are undertaking "narrative medicine," a practice that helps them to communicate better with patients by listening to their stories. Students at Yale School of Medicine are studying painting to hone their perception skills and thus their ability to notice subtle details in their patients. These skills go beyond clinical, diagnostic thinking to a kind of thinking that involves perception, comparison, and induction (similar to the thinking processes in Questions for Life).

Beyond our borders a focus on thinking takes top priority. At Olentangy High School in Finland, where all teachers are required to have master's degrees, educators enjoy complete freedom with school curriculum. The goal is to encourage students to think for themselves, a reflection of the Finns' conviction that today's students represent their country's future. At the same time, university entrance exams are very rigorous. Students who qualify can attend college tuition-free. The dropout rate at Olentangy High School is less than one percent.

In Aruba, a small Dutch island in the Caribbean, a ten-year vision for educating students focuses as much on good citizenship as on scholarly pursuits. Education is intended to create students who are global thinkers, who can communicate well in four languages, and who display proficiency in technical, communication, and social skills.

Developed by focus groups made up of students, parents, educators, and other community members, the Strategic National Education Plan from the Ministry of Education in Aruba⁵ lists desired student achievement under categories that include:

Thinking and Learning Skills:

- Demonstrating effective communication
- Working on a team
- Using initiative
- Thinking creatively

Life Skills:

- Demonstrating leadership by mobilizing others, using interpersonal and problem-solving skills
- Applying knowledge to practical endeavors
- Showing effective, efficient work habits
- Demonstrating ambition, a positive mental attitude, self-confidence, adaptability, accountability, integrity, and social responsibility

ICT Literacy:

- Information and communications technology

Knowledge:

- Demonstrating awareness of global issues
- Participating in practices that promote health, fitness, and well-being

These skills, behaviors, qualities, and attitudes reflect parallel skills developed independently in the United States by Partnership for 21st Century Skills,⁶ listed in Figure 1.1 on page 9 in Chapter 1.

Other project-based or problem-based schools work toward the same end—offering opportunities for students to engage in live or

at least simulated projects that will help them make connections between what they learn in school and what is happening in the outside world.

The Future of Work

James P. Ware and Charles Grantham cofounded a research and advisory firm called Work Design Collaborative that manages The Future of Work, a collaborative organization dedicated to creating and implementing new ways to work effectively in the modern world. The Future of Work assists global organizations in accommodating many current changes, including, for example, changes due to technology and the need for more green businesses, traffic mitigation, and holding global meetings. Ware and Grantham also authored *Corporate Agility*,⁷ a book that encourages corporations to allow employees more freedom to choose where they will work, whether in the office, from home, or in a “third place” (i.e., a place other than the home or office), which stimulates creativity and innovation.

When asked what critical thinking skills future students should know for tomorrow’s workplace, Ware referred to the types of skills learned in math and science: evidence-based thinking, logic, the scientific method, and hypothesis formation.⁸ All of these skills are built on abilities that include prediction, data comprehension, analysis, distinguishing fact from opinion, and formulating good questions. Critical thinking is highly systematic, and like any system, it follows a flow, or a path, as it moves along in a series of interconnected questions and answers that eventually develop into a decision or a plan.

In the real world most questions deserve more than pat answers—one must use a process of skilled critical thinking to come up with appropriately useful, thoughtful, and responsive answers. To survive, according to Jim Ware, students must be “architects” of

thinking, able to build their own conclusions based on their own thought processes.

How can educators reframe their teaching techniques to help students acquire the skilled thinking processes they will need to perform the work of the future? “Begin immediately with performance-based learning,” Ware suggests. “Give students responsibility for literally cleaning up the classroom at the elementary level, and move to collaborating with the teacher on how or what to learn in later grades. Debrief everything you do and connect the learning with real life.”

He continues: “Teachers need to create real-life lessons, and students need to be involved with real tasks for real people. They need to see that what they do makes a difference and has a consequence, that it counts, and that it deals with reality.”

Live Events

Real-life lessons—or live events, as we prefer to call them—are learning activities or actions that have some consequence in reality. They count. They typically involve the emotions and the senses, and they always hold relevance or meaning for students. Often teams are created, collaboration takes place, relationships are formed, and presentations are made to the public.

Some live events are more complex and have more meaning or relevance than others. Some are quiet, simple events. Some are exciting, busy, noisy, and fun. In the best of all possible worlds, we would be living each moment with aliveness, finding rich meaning, emotional satisfaction, and profound learning in everything we do. That is how we live when we are having a wonderful day, when the world is at our feet. That is what is always available to us—and to our students—when we make the time and create the environment to notice.

Some live events take on an existence of their own. A live event, for example, might center on the plight of the homeless as students

visit a homeless shelter. Their experience might inspire them to initiate and manage a coat drive. Within that activity (as within every student plan, observation, or sentiment) lie opportunities to implant learning, from studying economics and social behaviors to writing publicity and doing the simple math involved in counting and distributing coats. Through questioning and debriefing as the event unfolds, teachers and students have opportunities to make real-life connections. The live event may have started simply as one lesson plan, one unit of study on the homeless, but fueled by real student interest, the coat drive might continue every year, long after the first students have completed their lesson.

The role of educators when teaching live events is to make students aware of the learning as it unfolds by helping them identify exactly what goes on in their thinking process, and why.

Briefing and Debriefing Live Events

Live events need to be briefed and debriefed. During the briefing process, which occurs before and during the activity, the teacher lets students know what to look for, giving them a summary and pertinent instructions or information about what might occur in the live event. Using Questions for Life, the educator can prompt or guide students' thinking so they will observe, generate ideas, or use other desired thinking processes as they work. For example, the teacher may set up the live event by asking, "What are you going to look for?" and "What steps will you be taking?" Using the questioning strategies for planning helps a teacher focus and keep the lesson on track. And it allows a teacher to address learning styles: global and sequential, analytical and creative.

By sharing with students the process used to prepare for a live event, including how and why particular questioning strategies were developed, the teacher can model how to plan and develop strategic thinking. This kind of transparency allows students to learn how to

become aware of and develop their own thinking processes—and this, in a nutshell, provides students with the skills and knowledge they need in order to become lifelong learners. (Teachers would do well to point this out to their students, since lifelong learning, while often touted as something we should all strive for, seldom gets explained.) Opening up the thinking process empowers both teacher and student, and allows the juices to flow. In that open environment far more real learning occurs than in a closed, rigid situation in which students are struggling to get one “right” answer or find one “right” solution.

A good example of this transparency occurs in science experiments set up by teachers who explain the teaching process and then let the experiments further the learning on their own. Teachers, of course, know and understand the ideas behind what they want their students to learn—slicing these larger ideas into smaller pieces of learning constitutes the backbone of good teaching. But sharing the big picture of what the teacher wants students to pick up in their slice of learning also augments the learning and encourages student buy-in.

An example of briefing a live event might occur when a group of middle school students who have been studying their district’s court system actually sit in on a courtroom hearing for someone who was arrested for driving under the influence. Students have been briefed on the DUI law and its consequences and have had a look at the roles various people play in a court hearing: bailiff, judge, attorney, defendant, and witnesses.

In explaining the court process, the teacher suggests that students pay attention to what they observe and perceive. The teacher encourages them to take notes on what they are thinking about the case and to formulate questions in their minds as the event unfolds: What do I see? How do I feel about the courtroom environment? How do I think the hearing might end?

At the conclusion of the live event, the students connect what they learned about the situation as it was set up for them and what actually happened as the situation unfolded. The teacher had briefed