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Building Relationships and Resolving Conflicts: *Infusing Critical Thinking into Workplace Practices*

— JOSEPH P. HESTER
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Introduction

As we are now living in a world characterized as a “new normal,” nothing is more important than leaders who are adept at critical thinking enabling them to enhance their businesses by making judicious decisions while remaining sensitive to the needs of their employees.

“In a world of growing uncertainty one thing is certain; we will need sharp critical thinkers who can size up the situation, realize the potential where others may not, and seize opportunities through prompt decision-making.”

— John Baldoni

When talking about critical thinking, often neglected is the descriptor “critical.” Among other things, “critical” means significant, vital, essential, and analytical, and involving

skillful judgment as to truth and merit. From the point of view of commonsense, “critical” may also imply an effort to see a problem or situation clearly and truthfully in order to make fair judgments and wise decisions. Thus, critical thinking is more than learning to use specific thinking skills deemed necessary for business and everyday life. A critical thinker will have a sense of ethics governing his or her decision making and business acumen. Consequently, critical thinking necessitates life-long learning, experience, developing one’s intuitions, and above all, being creative, flexible-minded, sensitive to one’s environment, as well as being trusted and fair-minded. The ethical overtones of becoming a critical thinker are obvious making critical thinking an essential component of values-based leadership.

A Critical Thinking Mindset

Catherine J. Rezak comments,

The mind-set that made leaders successful in the past probably won’t ensure success in the future. In fact, several recent studies and surveys have identified critical thinking as the number one requirement for successful leadership in the 21st century. Yet there is mounting evidence that many current and emerging leaders lack this quality. And it is this competency gap that is shaking up and reshaping leadership as we have come to know it.¹

We can conclude that critical thinking is a necessary for business success as it focuses on a skill set that builds on the intrinsic and learned strengths of values-based leaders. Values-based leaders understand each person as unique with particular strengths that are of value and must be respected; therefore, building upon their talents and abilities rather than weaknesses is a positive feature of the working environment.

Keeping this in mind, John Baldoni² moves this discussion by providing clues to the critical thinking mindset. He adeptly points out that “critical thinking” is a way of thinking involving:

Questioning Assumptions. Critical thinkers are inquisitive and look to find the *what* and the *why* behind every proposition. We saw the need for this when our financial markets melted in 2008. Crisis can bring out the best critical thinking because it forces you to question how and why you ended up in trouble.

Adopting Different Perspectives. Critical thinkers respect and take advantage of the diversity represented in today’s diverse management landscape. An Indian-trained engineer may not view a problem the way one raised in Iowa will. Both may have the same problem-solving tool kit, but their different experiences can provide valuable insights.

Seeing Potential. Assumption-busting and harnessing multiple perspectives are deductive skills. Critical thinkers should also have a creative bent that allows them to see opportunities where others see obstacles. For example, one executive may see a production snag as a problem whereas a savvy thinker must view it as an opportunity to revamp the process to produce something new.

Managing Ambiguity. The speed of business, intertwined as it is with global factors and complex supply chains, dictates that you will never know all the variables. Therefore, you need to get comfortable with operating in an environment where change is constant and rapid decisions are required.

Although the main purpose of this article is to outline and sharpen the skills normally falling under the rubric of “critical thinking,” it is how these skills are utilized or managed and the experience leaders bring to the workplace, including their creativity, insights, and how they view their employees, that are foundationally important. Leaders need to know, understand, take pride in, practice, develop, and enjoy their own strengths while amplifying and growing those around them. This is the essence of values-based leadership. As reading specialist Leanna Trail has said, “Highlight my strengths and my weakness will disappear.”³

“Having established the need for a mindset shift to more critical thinking, we need to be clear on what that means in the workplace. In general, critical thinking is the ability to deal with the contradictions and problems of a tumultuous environment in a reasoned, purposeful, productive way. Decisions are made using an approach that is fair, objective, accurate and based on information that is relevant to the situation. Critical thinking is also reflective and focused, constantly evaluating the thinking process itself. It is thinking with a purpose.”

— Catherine J. Rezak

Focusing on Growth

Critical thinking focuses on growth, efficiency, and dialogic communication. This is the foundation of values-based and servant leadership,⁴ a principle that has grown from the moral and civil foundations of democratic societies. As we are aware, not all leaders share this philosophy. This has been poignantly displayed in American politics and businesses these past few years as ideology, Constitutional violations, and personal gain have and are replacing the moral and civil foundations of our democratic system.

As we know, servant or values-based leadership is not a given in our society and neither is a commitment to the moral principles undergirding Constitutional democracy. Constant and

“A servant-leader focuses primarily on the growth and well-being of people and the communities to which they belong. While traditional leadership generally involves the accumulation and exercise of power by one at the ‘top of the pyramid,’ servant leadership is different. The servant-leader shares power, puts the needs of others first, and helps people develop and perform as highly as possible.”

— Robert Greenleaf

critical attention is required for egalitarian maintenance, especially among political, community, and business leaders. Albert Einstein insightfully acknowledged, “The world we have created is a product of our thinking. It cannot be changed without changing our thinking.”⁵ To

the point: not only are we losing contact with the moral and civil foundations of democracy, but also with the cultivation of reason (thinking) in our schools, universities, and businesses. Among the skills required are creative flexibility, insight, intuition, and the ability to communicate with friends, colleagues and employees.

Building relationships and resolving conflicts are essential skills amid the diversity of the

“The critical-thinking approach is a powerful analytical method which helps managers and entrepreneurs to consider intended and unintended consequences of behaviors on their teams, organizations and communities. Organizations need managers who think independently without judgment and bias and predict patterns of behaviors and processes. They ask the right questions: how and why versus just what, in order to make effective and thoughtful decisions.” — Christopher P. Neck, Jeffery D. Houghton, & Emma L. Murray

workplace and without, especially the ability to survive in the global marketplace faced with an ongoing pandemic of historic proportions. The leader who is a critical thinker will question assumptions, challenge old ways of doing things, and willingly harness multiple perspectives, seeking opportunities where others see only obstacles.

Strengthening Values-based Leadership

In a values-based culture, leaders who are critical thinkers are not only skill-oriented but service-oriented as well, understanding the importance, worth, and usefulness of all who work within the organization. Vladislav Lektorsky agreed that critical thinking is an important means of cultivating moral and civic virtues “...because many people cannot make political and moral judgments, cannot argue their positions, cannot foresee the consequences of their actions, and cannot, therefore, make a reasonable choice between different alternatives.”⁶ Underlying this observation are the leader’s willingness and ability to think creatively and critically. As Catherine J. Rezak has mentioned,

While some classic leadership strategies and skills will continue to be effective, leaders in this brave new world will need to lead differently — and think differently. Critical thinking enables leaders at every level to understand the impact of their decisions on the business as a whole and ensures both alignment with organizational goals and accountability for results. The “new normal” is a different kind of competitive landscape, buffeted by geopolitics and global instability, rapid technological change, unique

*financial pressures, a rising tide of data and information to filter through, and the proliferation of new corporate business models.*⁷

Rezak points out that on the *Watson-Glaser Critical Thinking Appraisal*, a widely used assessment tool for evaluating the cognitive ability of current and future leaders, five sub-tests measure critical thinking as a composite of attitudes, knowledge, and skills:

- Inference
- Recognition of assumptions
- Deduction
- Interpretation
- Evaluation of arguments

Obviously, these skills are but place-holders or generalities pointing to more detailed critical thinking operations. As P. A. Facione has said, “We understand critical thinking to be purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation,

Contemporary evidence of the importance of critical thinking skills for employment has been provided from the National Association of Colleges and Employers [NACE] (2016) which indicated that critical thinking/problem-solving skills were ranked most important by the 144 surveyed employers (Table 1). This is also consistent with the research results obtained by Bassham, Irwin, Nardone, and Wallace (2013) which indicated that college education is responsible for the development of critical thinking skills which, in their turn, lead to higher-order thinking. This is also consistent with (Costa & Kallick, 2014) who stated that critical thinking skills are consistently included in all the lists of essentials behind college and career readiness (Kraisuth & Panjakajornsak, 2017).
— Changwong, K., Sukkamart, A., & Sisan, B.

and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based.”⁸

Thus, understanding the depth and purpose of critical thinking, this article will limit itself to a description of the basic skill sets and sub-skills comprising critical thinking functions offering suggestions for infusing these into leadership practices. In general, with regard to critical thinking, we are talking about “learning.” An effective organization is a learning (thinking) organization promoting the skills necessary for effective problem-solving and moving the organization ahead with purpose and vision.

Goal Oriented

A major question is “What would we have a 21st century leader to be?” The answer many believe is a person who is open to new ideas and knows how to learn and solve problems, and is mentally flexible and personally considerate. This person is a life-long learner and has reconsidered the value of life, made a commitment to moral principles, has mastered the content and work-related skills of his or her chosen profession, and is committed to continuous learning. Searching for an answer to this question, Christopher Neck comments,

“The latest research shows businesses are desperate to attract employees with critical-thinking skills, because organizations are undergoing such rapid change that they need employees to consistently introduce new, fresh ideas to stay ahead of the competition.”⁹

As experience has taught, learning facts and work-related skills and procedures are not enough; comprehension demands understanding which calls our attention to the critical thinking skills necessary for solving problems, resolving personnel issues, and evaluating results. An important consequence of becoming adept at critical thinking comes in connecting what is being learned to past experiences and making personal and collective decisions based on an appreciation of all who work within and outside an organization. Suffice it to say, critical thinking is a major component of values-based leadership and lies at the heart of ethical behavior.

The relationship between leadership training and critical thinking was extensively explored by John C. Ricketts in his evaluation of the National FFA Organization in 2002. Two things are revealed in Ricketts’ research: (1) We cannot easily divide education along lines of skill and/or content and (2) A goal of leadership is to develop future leaders. Ricketts concluded,

If the National FFA Organization believes effective leaders in their organization should be able to think critically, think creatively, practice sound decision-making, be effective problem solvers, commit to life-long learning, articulate their opinions to persuade others, practice sound study skills and maximize mental assets as well as compensate for mental limitations as the task force reports suggests, then a greater effort should be put forth to substantiate the relationship between leadership education and critical thinking.”
— John C. Ricketts

A concerted effort to teach critical thinking in leadership training could yield greater impacts on critical thinking skills. Because of the low, but positive relationship between leadership experience (FFA activities) and critical thinking, leadership educators should begin to foster critical thinking. They should do this by encouraging students to be more active and to participate in more activities that have been proven to develop leadership.¹⁰

Thinking as an Inferential Process

Representing and Interconnecting

When surveying the thinking skill families below we discover they all involve inferring or inference-making. Inferring is the process of connecting bits and pieces of information and organizing the results holistically and meaningfully. Thus, inferring is basic to each critical thinking skill family. Technically and broadly, thinking is an ***inferential process***. Skill-family #2 outlines basic “inferring” processes singled out because they are fundamental to problem-solving and decision-making.

In everyday conversation, we label these “inferences” or “representations” in many different ways: we have ideas and hold beliefs; are able to use our imagination and think intuitively; we have hunches, explanations, and come to rational conclusions; and we possess feelings and attitudes, opinions, assumptions, and biases. As we gain perspective, we begin to assess our knowledge with the awareness that these behaviors have inferential thinking as their common ground. The language of thinking is a human process and inference is thinking’s common denominator.

In the workplace, leaders and workers bring with them their own ideas, hunches, and assumptions (and much more) about how to go about their daily routines. The language they use is a clue to understanding what they are thinking, not only what they are saying. In training sessions and when problems occur, listening to what others are saying is crucial. By listening we try to figure out — on the fly — in what seemingly cultural and familial ways our colleagues understand and comprehend, and the processes they are using in problem-solving and decision-making.

We often discover that like each of us, our associates make decisions about courses of action; evaluate assumptions, beliefs, and ideas; enter into discourse with their colleagues and argue, negotiate, and explain; weigh evidence; make associations and solve problems. While engaged in these behaviors they are apt to feel anger or happiness, anxiety or fear, or joy and pride in their accomplishments. Care should be taken for pride and self-esteem often interfere with working relationships and blur the edges of positive relationships. Critical thinking is, after all, an innately human process and personal feelings often get in the way of clarity and insight.

We should note that leaders, their colleagues and employees, are daily active in processes falling under the rubric of critical thinking including imagining and guessing, discussing, explaining, and often disagreeing. During these rich and varied interactions and within their working environment, learning and thinking are taking place. Again, we generally label all these processes as “thinking,” but thinking per se doesn’t capture their essence as thinking doesn’t occur in a normative vacuum.

A clue to thinking is found in the idea of “interconnecting.” Interconnecting reminds us that our friends and colleagues understand their world and develop meaningful connections with others, with events that occur around them, and with ideas discovered while working, communicating, and listening. The reality is that we all view the world differently as we make an effort to understand how each part of our environment, our work, is interrelated and interjoined. “Interconnecting” is a word that explains the workings of “inferring” itself. An important distinction between excellent and average leaders or workers is their *inferential ability*. Inferring is the key to comprehension, judgment, and decision-making. It is the process that precisely characterizes the operations of intelligence and of informal and abstract thinking.

If/Then

Briefly, inferring has the underlying structure of “If/then,” a simple logical formula that is often assumed but not explicitly expressed. We say, “If this happens, then this will also happen; if this is true, then that is true also,” but seldom stop to explain what “inferring” means; that is, the connection between “if” and “then.” An “if/then” statement is a “conditional” statement (often causal) presenting situations and their possible outcomes conditioned on supportive evidence. Following the “if” or antecedent is the “then” clause which is the conclusion — what is logically expected to happen — based on the evidence or data presented. The conclusion is thus conditioned on the evidence presented.

In everyday life and within a working environment nothing is unconditional. Usually there is a reason or purpose for everything that is done implying personal and collective responsibility. Again, care and patience are required, for when work-related problems arise, what is presented as factual or causal is sometimes questioned necessitating explanatory clarity.

Leaders, at any level, should not get on the defensive but understand that others are also deliberating and thinking, that they too wish to become an essential part of the problem solution.

Fundamentally, an if/then statement is an inference representing the interconnecting of ideas and experiences, of work-related issues and procedures all of which are able to be evaluated for consistency and factual reliability. Plainly, inferring is the key operational skill underlying all critical thinking. As we know, every thought moves, grows, and develops, fulfills a function, and moves to solve a problem. Thus, set out as the basic thinking skill operation, inferring involves associating, connecting, predicting, evaluating, and hitchhiking one thought to another to establish a relationship or meaning between things, experiences, events, or words.

With this we can conclude:

1. “Thinking” is a process of connecting bits and pieces of experience with other bits and pieces of experience to establish relationships between things, people, ideas, places, or events.
2. “Thinking” is a process that allows us to move from the simple to the complex or break the complex into smaller-related parts for clarity and understanding.
3. “Thinking” is a process that grows and develops, fulfills a function, and solves a problem.
4. The goal of “thinking” is to understand through inquiry and explanation. Competence is needed as understanding depends on knowledge, experience, and the ability to communicate what is seen, heard, thought, and felt.

In summary, “thinking” can be defined as a problem-solving or decision-making process having both sound and useful qualities. The “skill-families” below demonstrate the interconnections among functional thinking and reasoning processes.¹¹

Basic Skill Families

1. **Attributing** (ascribing and organizing characteristics, parts, or features of objects, ideas, events, etc.)
 - *Classifying* (categorizing, arranging, sorting)
 - *Sequencing* (placing in a series, chain, or progression)
 - *Seriating* (placing in a certain, predetermined order)
 - *Comparing and Contrasting* (distinguishing significant similarities and differences)
2. **Inferring** (deducing, concluding, surmising)
 - *Hypothesizing* (theorizing, imagining, assuming)
 - *Predicting* (forecasting, envisaging, calculating)
 - *Generalizing* (drawing conclusions, taking a broad view)
 - *Analyzing relevant/irrelevant data* (exploring, investigating, questioning, probing)
3. **Explaining and Justifying** (finding sources, reasons, grounds that explain an event, idea, or thing)
 - *Searching for causes* (accounting for, justifying, clarifying)
 - *Accounting for/against the likelihood of a conclusion* (providing evidence for, clearing up, explaining)
 - *Assessing relevant evidence* (evaluating, considering, reviewing, gauging)
 - *Explaining relationships* (amplifying, connecting, associating)

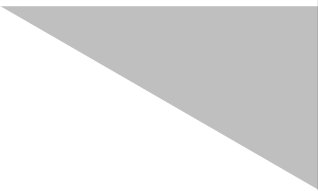
4. **Evaluating** (assessing, appraising, calculating, or estimating)
 - *Prioritizing* (situating evidence, values, etc. from main to least concern or reliability)
 - *Assessing reliability of evidence* (weighing, judging, reconsidering)
 - *Establishing criteria of valuation* (setting forth principles, conditions, and standards)
 - *Generalizing or drawing conclusions* (drawing conclusions, taking a broad view)
 - *Decision making/Problem solving* (deciding, choosing, making up your mind, settling, determining right course of action)

Steps to Problem Solving Improvement

Obviously, critical thinking is problem-solving oriented. Problem-solving is converting an actual current situation (the NOW-state) into a desired future situation (the GOAL-state). A “problem” is any situation where there is an opportunity to make a difference and make things better. Whenever you are thinking creatively and critically about ways to increase the quality of the workplace environment you actively involved in critical thinking and problem-solving.

Leaders should be aware that most thinking occurs when a problem has blocked customary ways of behaving and even common-sense thinking. Problem-solving, as an open-ended and

communal process, helps to settle doubts, improve workplace conditions, and resolve personnel and other workplace issues. As much as possible, emotion needs to be divorced from this process. Problem-solving is more effective when done with a clear head and disentangled from emotional outbursts, anger, and strong feelings. With a clear and calm mind, including respect and dignity for one’s colleagues and fellow workers, the resolution of workplace issues can move forward with insight and dignity, reducing the tension and anxiety normally found in such situations.¹² As possible answers are discussed, solution alternatives (SA) can be offered for problem resolution.



“Critical thinking is the ability to think clearly and rationally; it includes the ability to engage in reflective and independent thinking. A leader with critical thinking skills can understand the logical connections between ideas, identify the relevance and importance of arguments, detect inconsistencies or mistakes in reasoning, and make proper decisions.”

— Martine Sanscartier

Developing a Problem-Solving Format

The purpose of the following problem-solving format is to arrive at more and better solution-alternatives. And don’t look for quick fixes or for immediate agreement among workers and colleagues; time and patience will be required. As a leader (CEO, supervisor, manager, department head, etc.) directing the problem-solving process, the following guidelines will assist in guiding your efforts:

1. **Understand:** that a problem is a reality expectation gap. Use your experience and intuition for understanding what kind of problem or situation you are facing.
2. **Problem Definition:** Ask, “How can I define the problem or situation clearly and in a way that makes it easy to solve?”

3. **Generating Alternative Solutions:** Have I used my experience, the experience of my co-workers, and the other resources available to generate as many alternative solutions as possible?
4. **Go Back Over.** Ask, “Have I included those involved with the problem to offer possible solution alternatives?” If possible, consult with others and gather their input.
5. **Evaluate:** What are the consequences of each alternative solution? Which is the best solution? Calculate carefully the short- and long-term consequences of each alternative before making a final choice.
6. **Making a Decision:** Have I narrowed my options to those that will work the best? Did I gather all the information that I needed for making a decision? Were my option alternatives and their consequences evaluated correctly and thoroughly?
7. **Choose a Final Solution:** Now is time to choose a final solution. Once you make your choice, review again the above steps. Write out your reasons for your choice and be prepared to revise as you discuss it with others.
8. **Implementing a Plan of Action:** Develop a plan and ask, “Am I committed to this plan?” “Is it working?” “Do I need to revise my plan?” and “Did I give it my best effort?” Become more open to suggestions and flexible in your decision making.

Making Problem Solving More Efficient

As leaders we face problems daily. This is a natural course of events. But many are not adept at resolving conflicts, solving problems, or including others in this process. Below are some informal suggestions to help get you started:

Knowledge. Leaders must have some cursory knowledge of the work their employees are doing and understand who’s involved in either causing the problem or solving it. This requires building up a knowledge bank. Experience is necessary as well as building solid human relationships.

Defining the Problem. Giving adequate knowledge, a leader must be able to recognize that there is a problem and then be able to state the problem simply and clearly. An unclear problem statement will send mixed messages to others and compound finding solution alternatives. An effective method is asking those involved to offer their opinions and even a

Employers value workers who know how to think critically. Critical thinkers bring creative solutions to the table and help businesses to innovate and remain competitive. Critical thinking examples exist in every part of the workplace, from the corporate executive offices to the sales floor. Whether you’re the boss or an intern, knowing how to think critically gives you the power to make positive contributions to the company.
— Jessica L. Mendes

statement of the problem. Including as many stakeholders as possible will generate not only many problem definitions to consider, but ownership of the problem itself. When defining the problem many sub-problems or issues can arise and probably will. Each of

these must be handled before tackling the main problem or there is left a quagmire of unanswered questions. Clearing up sub-problems will assist in resolving the larger problem and whatever issues are involved.

Solution-Alternatives (Hypotheses). An open-ended session of brainstorming with those involved and with the purpose of seeking solution alternatives (SA) will be productive. Explore each SA purposefully and thoroughly by asking, “Which SA actually resolves the problem?” Each of these will become an alternative (hypothesis) to be tested. From these solution alternatives a final solution can be chosen.

Critical Thinking Skills Involved. Many critical thinking skills in the thinking skill families above will be involved in this process. Familiarize yourself with them and learn their importance. Mainly these will include the following:

1. **The ability to prioritize.** This depends on your knowledge and the requirements of your assignment or work. Which SA works? Which problem or sub-problem is most important? What are the demands of your work? What is your job assignment? All of these and more should enter into your deliberations. Make a list of the SAs suggested and put these in order of their importance. Two basic thinking skills will be involved: sequencing and prioritizing.
2. **Comparing and Contrasting.** When SAs are on the table compare and contrast these for similarities and differences. In the end, you may wish to combine one or more of these for their benefits and throw out others because they either don’t resolve the problem or could cause other problems. Don’t skip this step for it can save time and energy as you may find something that did or did not work in a similar situation in the past.
3. **Either/Or or Either/Or but Not Both.** The first E/O is inclusive while the second is exclusive. In the first more than one SA can be considered or chosen to see how each works out, but in the second, one or more is eliminated. The disjunct “either/or but not both” is sometimes called a “disjunction elimination” because something in the equation is being removed. When eliminating one or more SA, move slowly and deliberately. A quick reference to the activity of comparing and contrasting will enhance this process.
4. **If/Then.** This is a hypothetical or conditional in which the “then” or consequence of an action or decision is conditioned or dependent on the “if” or the antecedent. The purpose of the antecedent is to provide the necessary information or conditions for decision making and action. Ask, “If I do this, then what will be the result?” If you don’t like the result, then examine why (the “if”) upon which the result is “conditioned.” This is where dialogue becomes vitally important. Some colleagues and work associates will have information vital to resolving a problem and therefore should be welcomed into the problem-solving process. Remember: all work and associated work-problems are conditioned on the work of others, decisions previously made, and/or workplace procedures; nothing is unconditional; all is interconnected.
5. **Causal Explanation.** Once a decision is made the leader (CEO, manager, department head, etc.) will be called upon to explain the outcome or the “why” or the decision. Such an explanation will uncover the causes/conditions/circumstances that combine to bring about the outcome. This is a form of reverse thinking – of going back and reviewing the decision-making process, and providing explanations for each step or decision that has been made.

The Importance of Questions

The Leader as Teacher

One thing to remember as a leader is not to get defensive. Those involved in the problem-solving process will often disagree with your suggestions; let them speak and weigh their

suggestions with dignity and with an open mind. As a leader, you are also a teacher. An effective way of becoming a teacher is using questioning skills. Discussions and questioning provide an opportunity for colleagues and employees to express ideas, their knowledge, intuitions, and feelings. Remember, directed questions will help others learn to think and make more efficient and independent decisions. Questions also challenge others to venture beyond the commonplace and seek creative solutions to their problems. Their contributions will add to their confidence and self-esteem.

Above all else, questions encourage the learning process in the following ways:

1. Leaders can use employee responses to sense gaps in their understanding and knowledge.
2. Leader responses can be used to steer employees to information, correct procedures, and encourage their persistent thinking about a problem or concern.
3. Leaders can design questions explicitly to elicit specific types of answers or thinking.
4. Questions can be used to teach critical thinking skills as leaders model the skill in discussions.
5. Questions are thus a means to self-improvement and the improvement of the working environment.

With critical thinking ranking among the most in-demand skills for job candidates, you would think that educational institutions would prepare candidates well to be exceptional thinkers, and employers would be adept at developing such skills in existing employees. Unfortunately, both are largely untrue.

According to a 2016 survey of 63,924 managers and 14,167 recent graduates, critical thinking is the number one soft skill managers feel new graduates are lacking, with 60% feeling this way. This confirms what a Wall Street Journal analysis of standardized test scores given to freshmen and seniors at 200 colleges found: the average graduate from some of the most prestigious universities shows little or no improvement in critical thinking over four years. Employers fare no better. Half rate their employees' critical thinking skills as average or worse.

— Matt Plummer

Critical thinking is a question-guided process. Employees could have difficulty in asking appropriate questions about their work, finding and/or developing appropriate answers to those questions, and presenting their findings in appropriate ways. The following general procedures will help leaders ask and answer questions that assist employee learning.

Questions teach employees to. . .

1. Evaluate everything they know about their work or the problem being discussed. Give them time to answer and when they can't think of anything more, give them a few minutes to look for details they may have missed.
2. Re-organize the problem or their work into categories or groupings, by asking, "How do these things fit together? What elements are related and how are they inner related? What general groupings are there?"
3. Ask, "What is the significance of all this? What can it be used for? What are its implications? Is there anything that doesn't fit, or that doesn't agree with the facts, or with your personal experience?" Provide time for explanations and discussions.
4. Always push past the point at which employees and colleagues think they have said everything that needs to be said. Tell them to always ask questions that they can't answer, and always ask more questions than they can answer. Solutions to problems are

often hidden in the details of previous answers, solutions, or past ways of completing their tasks.

5. Be respectful of the answers, comments, and questions of others. There are a number of reasons for this: (1) We sometimes forget ideas generated by brainstorming; (2) This will encourage the retracing of the steps taken to arrive at a solution alternative; (3) We can learn to deliberately apply the same steps in the future when faced with a similar problem; (4) New energy among employees will be generated when respectful of their effort – good ideas often come from apparently trivial or insignificant ideas. This will encourage all involved to think more.

Develop Questions to Mirror Each Thinking Skill Family

Because a values-based leader has an interest in building positive working relationships and resolving workplace issues and problems, an excellent way of engaging colleagues in critical thinking is by using questioning, not as intimidation, but as a process of engagement. The series of question below have been developed to mirror the thinking skill in each family of skills. These questions can be modified or adapted to various situations, and they should be. They are meant to be flexible and adaptable. In general, these questions are a gateway to critical thinking. To become a leader-teacher, a manager, supervisor, department head, or even CEO one should become intimately knowledgeable of each thinking skill family and the questions that mirror them. This will take time and effort, including practice. Patience with self and others is a necessity.

SKILL FAMILY #1: ATTRIBUTING QUESTIONS

1. Do the descriptors accurately describe the characteristics of...?
2. What relationships/order/patterns are found among these characteristics?
3. Are the various characteristics alike in any important ways?
4. What conclusions do you reach from these descriptors?
5. From these relationships and characteristics can you begin to develop an outline for preparing a report or for doing additional research?

SKILL FAMILY #2: Inferring Questions

1. What might happen (consequences) as a result of choosing a certain option?
2. Can you evaluate each consequence as relevant or irrelevant to the problem-solving situation?
3. Can you evaluate each consequence as having a positive or negative effect on the decision being considered?
4. What reasons can you give for choosing one option over all others?
5. Can you apply this information back to the report you are preparing?

SKILL FAMILY #3: Explaining Questions

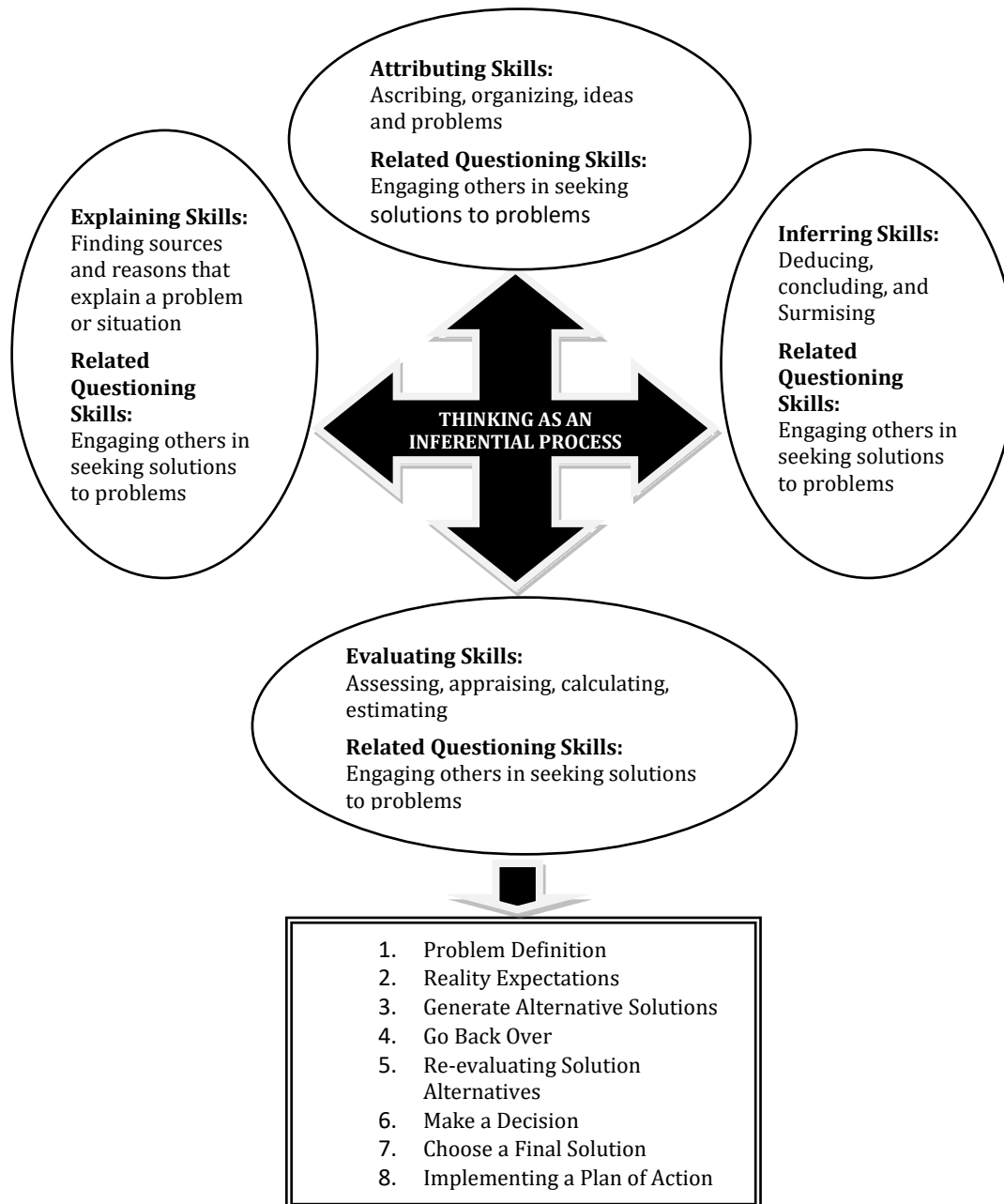
1. What causes can you think of that would account for an event, action, or behavior?
2. What evidence do you have or can you find that accounts for or against an event, action, or behavior?
3. What reasons can you give for reaching a conclusion you have drawn?
4. Do your reasons or does your evidence support your conclusions?
5. What causes, reasons, or evidence most explains the event, action, or behavior?

SKILL FAMILY #4: Decision Making/Problem Solving Questions

1. What is it that makes a decision necessary?

2. Can you identify the problem that needs solving?
3. What options do you have for solving this problem and do you have information to support the consequences of each option?
4. How reliable is the information that you have about each option? Should you seek additional supportive information?
5. Considering these factors, what options should you choose? This could be an either/or question or a both/and question. Many times, several solution-alternatives are possible and, pragmatically, should be pursued.

For quick reference, the following problem-solving organizational chart summarizes, in a graphic form, the basic skill families and questions leading to problem solving proficiency:



Conclusion

Infusing Thinking into Workplace Learning

It is often said that what is needed is commonsense. As E. A. Burtt explains, “We want to find out how the revision of commonsense in the direction of a wiser common sense is accomplished, and what role changing presuppositions [assumptions] play in the process.”¹³ Jonathan Baron calls for actively open-minded thinking because “. . . we must work actively against wishful thinking and bias toward pet possibilities. Because good thinking involves competition among possibilities, evidence, and values, it is almost always quantitative, in the sense of weighing things against each other. When we pit safety against price, we must ask how much safety for how much price, and how much we care about each. Sometimes it may help to make the quantitative aspects explicit.”¹⁴

Baron provides the following suggestions for overcoming bias, probing assumptions, and releasing commonsense from the tentacles of tradition. These can be adapted to workplace problem solving. As a supervisor or manager becomes a teacher, he or she should:

- Explain her or his questions and why they are important.
- Present the most obvious answer or answers.
- Consider less obvious alternatives, or objections to the obvious answers.
- Rebut the criticisms, or explain how the original answers can be modified to deal with them.

Baron has observed that many individuals will have trouble with this. Thus, good thinking can be promoted by encouraging discussion in which alternative points of view are requested and debated. Individuals should be praised for bringing up an alternative or a criticism. Most importantly, we can help our colleagues learn to think by telling them explicitly what our standards are and then acting consistently with these standards in everyday work practices and when evaluating subordinates. These recommendations are important for critical thinking development where all employees are encouraged to develop their abilities to think independently and reflectively.

Critical thinking has always been a prized attribute of leadership, but over the years, especially as business schools have emphasized quantitative skills over qualitative ones, critical thinking dropped by the wayside. Now as the rate of complexity rises, the need for critical thinking resurfaces. — John Baldoni

Above all else, the workplace can be a place for teaching and learning, especially learning to adapt to workplace changes and complexities. Change is perhaps the one constant in our lives. But what kind of change brings with it the improvement of people and society? I would suggest it is deliberate change created by people of value who consistently use rational decision making in their lives. Here, the reference is to thinking that is creative and critical, positive and developmental, and supports the ethical dimensions of a values-based organization. Critical thinking requires a context. Whether we are a business person or engineer, a scientist or minister, thinking is and should be molded by the ethical principles supportive of our lives and livelihoods. Such thinking has moral underpinnings, including the courage to apply these principles and practices in daily activities and decision-making.

Matt Plummer asks Why is it so difficult to teach people how to think critically? He answers by saying,

It starts with the fact that there is little agreement around what critical thinking is. From there, it gets even less clear. Most employers lack an effective way to objectively assess critical thinking skills and most managers don't know how to provide specific instruction to team members in need of becoming better thinkers. Instead, most managers employ a sink-or-swim approach, ultimately creating work-arounds to keep those who can't figure out how to 'swim' from making important decisions.¹⁵

Experience has taught that employees bring to work their own ideas, hunches, and assumptions (and much more). The language they use is a clue to our understanding of what they are thinking, not only what they are saying. In this way we are challenged to understand in what seemingly cultural and familial ways they are able to manipulate their own ideas and resolve workplace problems. This requires both reason and imagination—the adaptive logic that sets us apart as a species.

Also, a goal of workplace education involves life-long learning. When the workplace is flourishing at its best, there is joy and excitement for all participants. Active learning and willing involvement are far removed from the lifeless task of listening to a lecture or just obeying a directive from above. This will narrow workplace inclusiveness and causes boredom. Active dialogue and discussion can create excitement, motivation, and creativity. When employees are engaged, learning happens.

End Notes

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About the Author

Joseph P. Hester is an independent writer living in Claremont, North Carolina. He earned the Ph.D. in Moral Philosophy from the Franklin College of Arts and Sciences at the University of Georgia in 1973. During this time, he held a teaching assistantship with the Department of Philosophy and a research assistantship with what became the Torrance Center for Creative and Critical Thinking. He was selected as the 1995 International Torrance Scholar of the Year for his 14-book series, *Philosophy for Young Thinkers* and his book, *Teaching for Thinking*. His post-doctoral work included education and leadership about which he has written widely. Now retired, he serves on the Editorial Board for the *Journal of Values-based Leadership* and the Advisory Board for the *Humanities Bulletin*.

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