

Facing the Future: What skills will your employees need?



By: Lee Weisser, MEd, ACC

Harold Jarche, Harold Stolovitch, and Ruth Clark, keynote speakers at CSTD's two symposia this spring (in Montreal and Edmonton), remark on how learning and development professionals can help employees acquire skills to solve problems and find creative solutions to workplace challenges.

When employees in your organization face unfamiliar challenges or opportunities, are they equipped to dive right in? New situations or new roles may require additional skills.

Phil Jarvis, Director of Global Partnerships at Career Cruising, writes: "Accelerating technological advances have rendered many jobs obsolete, raised the skills requirements of the remaining jobs in all sectors, and are producing new types of jobs at an unimagined rate. More formal education, technical training, and soft skills are now demanded of workers in all job sectors, but especially in new and emerging career fields. Employers need people who can problem-solve and innovate, collaborate effectively with others of diverse backgrounds, have a thirst for learning, are responsible and dependable, and are fully committed to their employer's success."

What can you do, as a learning and development professional, to help employees gain creative and critical thinking skills?

When you're asked to consult with a

manager in your organization about employee development needs, you use critical thinking skills to assess the problem and recommend solutions. You observe the context, gather information from a variety of sources, interpret and analyze data, recognize unstated assumptions and values, and hypothesize solutions. These are skills that employees in other areas of your organization need, too.

You may work with teams using brainstorming or other techniques to entertain a whole range of ideas when there is no fixed solution to a problem. This is one aspect of creative thinking—generating ideas by exploring many possible solutions, often in a spontaneous free-flowing manner. Creative thinking also includes making connections between seemingly disparate things to come up with new perceptions and hypotheses.

Harold Jarche's words echo Phil Jarvis': "Many jobs are now automated or outsourced. The jobs that are left are complex and always changing and require creative thinking skills. Innovation is

created through diversity of opinion and experience, openness to new ideas, and transparency about what you're learning."

More and more, employees are being asked to demonstrate their commitment to their organization not by rote attendance, but by thinking about and finding new ways to solve company problems. What can be done to prepare them to take on this role?

The what

Jarche insists critical thinking must include a questioning of assumptions, including our own assumptions. Our thinking may be unclear, inaccurate, imprecise, irrelevant, narrow, shallow, illogical, or trivial, due to ignorance or misapplication of the appropriate learned skills of thinking. According to him, learning and development professionals should model a willingness to question all assumptions. He also maintains that the core skill needed for creative and critical thinking is attitude—an attitude that is always open to learning, curious about the world—or, what he calls

“life in perpetual Beta.”

Ruth Clark has written extensively about guided discovery as a way to build these skills. She asserts that critical thinking skills can be developed through problem-based learning:

- Learning in the context of solving a real-world problem;
- Learning through an inductive approach that builds through experience;
- Learning by taking action or making decisions, and experiencing the consequences of those activities;
- Reflecting on what decisions were made, what worked, and what might be done more effectively.

Clark says, “There has been a large body of research on expertise in cognitive and physical domains demonstrating that expertise is primarily based on experience. But when real world opportunities to build expertise are infrequent, unsafe, lengthy, or too costly, guided discovery simulations can accelerate the speed of gaining the required expertise.”

Harold Stolovitch contends we move too quickly to creative problem solving. “First, we need to build foundational skills through clear expectations, a solid set of tools, guidelines for practice, and lots of feedback.”

Stolovitch says, “Most jobs don’t require excessive creative thinking. Most of our real life skills are automated—they require flexible application. Look at the processes we use to solve problems: we gather data and analyze the issues using strongly built-up diagnostic thinking patterns. We then hypothesize different types of solutions or variations of these derived from a solution repertoire also acquired over time. We need to access our expertise to address work requirements and challenges. In reality, we require more practice and feedback in building our skill sets by learning principles and procedures and applying these to increasingly more complex and unique instances.”

He is referring not to mechanical practice, but organized, deliberate practice where we build experience and gradually learn new things. Think of pianists who must run through scales every time they practice, before they start playing pieces. Then they play and practice ever more demanding pieces in accordance with increasingly tougher standards.

Stolovitch insists we need more

Speaker Presentations at Spring Symposia:



Harold Stolovitch, PhD, *It Ain't Necessarily So: Science versus Lore in Learning & Performance*, April 12 in Montreal



Harold Jarcho, MEd, *The Future of the Training Department*, April 13 in Montreal



Dr. Ruth Clark, *Scenario-based Multimedia Learning to Accelerate Expertise*, May 31 in Edmonton; *Evidence-based Training*, June 1 in Edmonton

emphasis on building capability in employees in systematic ways based on what learning and human performance research evidence tells us actually works. Evidence-based management is derived from the practice of evidence-based medicine—evaluating research, and rejecting conventional wisdom and casual

“Employers need people who can problem-solve and innovate.”
— Phil Jarvis

benchmarking.

Jarcho agrees that critical thinking goes hand in hand with evidence-based practice. One way of sharing good practice is to help employees connect with each other, since so much of learning is informal. Jarcho suggests introducing tools such as video cameras and video conferencing to help people share their work.

The how

Clark states that whether using a guided discovery or more traditional instructional design process, there are some techniques trainers can use to build critical and creative thinking skills.

Step 1: Identify tacit knowledge and skills linked to problem solving

First, perform a job analysis to identify the skills. We know that expertise is domain specific, so study experts solve problems in a specific domain. Often experts can’t articulate their reasoning, so you need to use more inductive methods to elicit their unspoken knowledge. For example, you can ask experts to write out three situations in which they resolve a specific class of problem. Ask each expert to work alone and write a situation that was easy, moderately difficult, and very challenging. Then bring the experts together and use their stories as a basis to identify the criteria for easier and more challenging scenarios as well as to identify the principles and knowledge behind critical decisions made or actions taken.

Step 2: Create examples of expert performers that include both action steps and rationale

You probably routinely use examples or demonstrations in your skill training lessons. Critical thinking skill courses also require examples. Research has shown the learning benefits of providing demonstrations in place of some practice exercises. In a cognitive modeling demo, the learner can see and hear what the on-screen expert is doing and at the same time “see” the rationale or thinking process through, for example, an on-screen thought bubble.

Step 3: Provide opportunities to practice, get feedback, and reflect on problem solving

As with any form of skill training, offer practice opportunities in which learners

resolve realistic job problems.

Learning from each other

Clark points out that learning through informal channels has received a big boost from social media tools. Knowledge management is not a new idea, but the evolution of social media has made it more practical to implement. For example, in *Boots On The Ground: Introducing A Community of Practice at Bechtel*, Paul Drexler and Ani Mukerjee write of a recent initiative at this engineering consulting firm in which a YouTube-type application allowed engineers and field specialists to enter text, photos, and video summaries of lessons learned from projects. The summaries are searchable and provide a growing repository of stories and checklists, providing an opportunity to learn through the experience of others. Clark says, "Once restricted to a chance meeting, peer learning through social media offers the opportunity to capture and house context-specific experience."

Learning by failing

We know that we learn the most through our mistakes. But why do we resist failure so much? Harold Jarche states "We need to fail about 50% of the time in order to learn. But we are our own worst enemies because we can't face this." And it's true that in most organizations success—not failure—is valued and rewarded.

A girls' high school in London, England recently ran a "Failure Week."

The purpose was to raise awareness for students and parents that it is acceptable and completely normal to not succeed all the time. Parents were encouraged to discuss any failures they had in the past and what they learned from them. The Headmistress of the school, Heather

"The lessons you learn best are those you get burned by."

– Julien Smith

Hanbury, said: "Successful people learn from failure, pick themselves up, and move on. Something going wrong may even have been the best thing that could have happened to them in the long run—in sparking creativity, for instance—even if it felt like a disaster at the time." Experience tells us that creativity flourishes when we take risks and openly learn from our failures.

In a recently published ebook, *The Flinch*, about pushing your own barriers and doing things that scare you, author Julien Smith writes, "The lessons you learn best are those you get burned by." There's just something about putting your hand on a hot stove that really teaches a lesson.

And Paul J. H. Schoemaker recently published *Brilliant Mistakes: Finding Success at the Far Side of Failure* (Wharton Digital Press). "If you want to innovate, you have to be willing to make mistakes. I take that as a given. In my book I chronicled scores of missteps and supposedly doomed experiments—all of which led to great breakthroughs."

Conclusion

Open to failure, open to not knowing the answer, open to different ways of thinking, and open to being observed while we're learning—are these things we can teach if we don't practice them ourselves? Hardly.

Perhaps the best description of what we want to model is given by Roger Martin and Hilary Austen in *The Art of Integrative Thinking*. Their concept of integrative thinking "places a central value on learning. It welcomes rather than fears surprise, keeping an eye keenly attuned to disconfirming data and using surprise to innovate. It embodies tolerance for the temporary incompetence that comes with the development of new skills. Integrative thinkers ... learn to hold tension and fear long enough to continue to search for the creative solution. This requires a high tolerance for ambiguity and uncertainty, and an attitude of openness to continuous optimization, rather than a push toward closure." – Rotman Management (Fall 1999).

A career of learning

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but suits in the C-suite. I know your technologies may be more diverse, complex, and confusing; your audience more varied and global and your budgets more strained. But, I can see common threads linking what was happening back then with what's going on here tonight.

Sesame Street attests to the fact that learning initiatives—when well done, nurtured, and promoted, can have an immense, powerful, and long-lasting impact.

And, when I look over the awards tonight, it's clear to me that many of the same basic themes that marked Sesame

Street's success are alive and well in our community: creative thinking, skilful and insightful design, and application of evidence-based practice.

In 1975, there was just a small group of us who shared this passionate pursuit of excellence. Happily now you fill this huge ballroom. I think we have CSTD to thank for this.

CSTD has given the very important work we do in learning and development an identity. It has defined the competencies, set the standards, and raised the profile of our profession.

Perhaps most importantly, it has

nurtured and promoted excellence and innovation as we can see here tonight.

Back in the day, I was excited to be a part of the pioneering story of early educational television.

Tonight, I am equally excited to be a part of this unfolding success story. I'm proud to be part of this energized and creative community as it pioneers its own frontiers—this is something we should all be proud of. This is our story. Our lasting legacy of learning excellence.

I am honoured and humbled to become a Fellow of the CSTD.