

Training for Creativity-and-Innovation in the Workplace

Consider this situation. An employer had two positions to fill. One could be filled by members of Union Y or Union Z, but the collective agreement required the 2nd position be filled by Union Z. Not knowing this, the employer posted the 2nd position to Union Y and qualified people submitted applications. A supervisor was upset because they felt that members of Union Z were not qualified to handle the other position and insisted that the hiring be halted. The manager overseeing the hiring process acknowledged the mistake, but said that the rules required that the hiring proceed despite the accidental error. The supervisor kept insisting and would not accept the manager's assessment.

At that moment, the administrator assisting the manager and tracking the hiring meeting quietly invited the labour relations specialist to the virtual meeting. The specialist confirmed the manager's statements, and the authoritative response calmed the supervisor so the hiring could proceed.

The manager sent a private note to administrator thanking them for the creative idea to invite the labour relations specialist to the virtual meeting and for making it happen so quickly.

Creativity comes in many forms, sometimes in the form of revolutionary new products like ChatGPT and the iPhone, sometimes in the form of seemingly small but high-impact acts like stretching a tight budget to provide more resources or inviting a specialist to a meeting at the last minute to resolve a conflict.

Closely related to the concept of creativity is innovation. If creativity represents the generation of ways to address challenges, innovation is the process of taking those ideas and turning them into realities.

And as workplaces increasingly integrate digital technology, automation, and Artificial Intelligence (AI), even everyday activities require creativity-and-innovation by workers: the ability to devise novel solutions to challenges and to successfully implement those solutions according to Monica Santana and Mirta Diaz-Fernandez in their 2023 article, Competencies for the artificial intelligence age: visualisation of the state of the art and future perspectives.

Also driving the push for creativity-and-innovation is the “innovation paradox” identified in a 2024 report by Statistics Canada. According to the report, the country needs to increase productivity to ensure long-term economic growth, yet has lacked in that area. Issues like these suggest why Employment and Social Development Canada (ESDC) has identified creativity-and-innovation as a Skill for Success.

To learn how employers teach creativity-and-innovation skills in their workplaces and share teaching techniques learned from the literature, a team from the Institute for Performance and Learning, Concordia University, and George Brown College reviewed the research and professional literature. This report shares what the team learned. It

first explains what creativity-and-innovation are (including why these seemingly two separate competencies are treated as one), followed by a high-level overview of what we found in the literature, then shares specific suggestions for teaching creativity-and-innovation in the workplace. The report closes with key-takeaways.

What Are Creativity-and-Innovation?

According to the Skills for Success website of Employment and Social Development Canada (ESDC), creativity-and-innovation refers to:

“the ability to imagine, develop, express, encourage, and apply ideas in ways that are novel, unexpected, or challenge existing methods and norms. For example, [people] use this skill to discover better ways of doing things, develop new products, and deliver services in a new way.”

ESDC notes that employers seek creativity-and-innovation because these are the skills to develop and promote ideas and new approaches to everyday work and life tasks, ideas and approaches that can improve the effectiveness, productivity, and pleasure in these tasks.

Though treated as a singular Skill for Success by ESDC, the literature usually treats creativity and innovation as actually separate skills.

In the workplace, creativity refers to generating ideas that are both new and useful, a result of solving challenging problems, according to a variety of authors including Kamal Birdi in the 2021 article, *Insights on impact from the development, delivery and evaluation of the CLEAR IDEAS innovation training model* and Kwok Leung, Tingting Chen, and Guoquan Chen in their article, *Learning goal orientation and creative performance: The differential mediating roles of challenge and enjoyment intrinsic motivations*, the ideas should also be appropriate to the context and valued and accepted by the work community, according to Elizabeth Watson in the 2007 article, *Who or what creates? A conceptual framework for social creativity*.

By contrast, Gerard Puccio, Marie Murdock, and Mary Mance define innovation as the implementation or use of those new and useful ideas in their 2005 article, *Current developments in creative problem solving for organizations: a focus on thinking skills and styles*. Birdi adds that innovation requires the social processes of negotiating and influencing to gain the acceptance and resources needed to put ideas into practice.

Suggestions for Teaching Creativity-and-innovation in the Workplace

This section offers specific suggestions for teaching creativity-and-innovation in the workplace. It starts with a general comment about the literature we reviewed and another about the challenge of teaching creativity-and-innovation skills in the workplace. Then it offers suggestions for seven general techniques for teaching

creativity-and-innovation to all workers, four more techniques for teaching managers how to support creativity-and-innovation in their workplaces, and one additional technique: self-assessment questions from the Skills for Success website from Employment and Social Development Canada that people can use to assess their own creativity-and-innovation skills.

We limited the focus of our review to training for creativity-and-innovation in the workplace. But in doing so, we separately searched for teaching creativity and

A General Comment about Teaching Creativity-and-innovation Skills
innovation, as well as teaching them together.

We reviewed peer-reviewed articles (articles from journals that use a double-blind review process, in which neither the authors nor the reviewers know one another's identities, often report research studies, and are generally considered to have the strongest quality within the research community): we reviewed 68 articles on creativity; and 42 articles on innovation, 110 articles in total.

We also reviewed professional articles: ones from magazines and webzines whose content is determined by an editor-in-chief: 7 articles on creativity, 24 articles on innovation, and 9 articles on creativity-and-innovation: 40 articles in all.

We did not review blogs and other self-published materials. For each article, we captured the following information: class of article (peer reviewed or professional), type of research (research articles only), organization type, industry, definition of creativity or innovation (or both), type of intervention, success of the intervention, and other notes.

We found that nearly 80% of the peer-reviewed articles reported empirical research on this subject (that is, studies of data collected from the field). But most of the studies did not focus on training interventions. Rather, training was part of a larger creativity or innovation effort that researchers studied.

In addition to the findings from the literature, we also conducted a convenience search of commercially available courses for the workplace, to see if perhaps those reflected different patterns. They did not.

Unlike the teaching of adaptability and collaboration (the other two Skills for Success explored in this series of reports), the literature and the convenience sample of courses suggests that creativity-and-innovation is a skill that can be more easily taught in the workplace, especially when the instruction focuses on workplace applications of these skills.

But like the teaching of adaptability and collaboration, other sectors of education also focus on teaching these skills. For example, universities offer degrees and micro-credentials (that is, shorter programs that lead to some recognition of completion of a program) in creativity and innovation. Many universities also offer courses on creativity

and innovation through their continuing education programs as well as through co-curricular programs: series of courses on work-related skills that are not covered in academic courses.

Preparing workers for to integrate creativity-and-innovation skills on the job involves the application of several teaching techniques in training for workers. This section explores those general techniques. It starts with techniques that focus on general dispositions—like anyone can be creative—and the creative process, continues with techniques for handling particular tasks with creativity-and-innovation, such as unblocking barriers to creativity, promoting divergent thinking for creativity and convergent thinking for innovation, and recognizing the limits of creativity training.

Technique 1. Note that anyone can be creative. People hold back their creative ideas for a variety of reasons. As Elizabeth Watson notes in the 2007 article, Who or what creates? A conceptual framework for social creativity, some people don't feel creative, or believe creativity comes from geniuses developing groundbreaking changes.

Some people believe less-risky achievements are more likely to be rewarded in their organizations and that creative efforts will meet resistance from colleagues who want to maintain the status quo.

In other words, the people, processes, and cultures within organizations affect creativity and innovation. But as noted at the beginning of this technique, under the right conditions, anyone can produce creative ideas. Table 1 suggests the conditions under which different types of workers can generate creative ideas within the context of the workplace.

Table 1.

Different Types of Workers and the Conditions Under Which They Can Generate Creative Ideas Within the Context of the Workplace

Type of Worker	Work Context	Process for Generating Creative Ideas	Product or Result of the Creative Effort
Unorthodox Genius	Any	• Problem finding • Extreme discipline and concentration	Breakthrough ideas
Average person with: • Domain expertise	Innovation culture with: • Challenging work • Autonomy	• Complex jobs that raise challenges • Autonomy within that job	Individual solutions

• Creativity skills (learned, not necessarily innate)	• Resources, support	that workers used to apply creative skills • Persuasion of others	
People in a group in which a division of labour exists	• Different disciplines • The impact of leadership	Same as above plus the adaptation of others' ideas	Individual solutions influenced by others

One other difference has been noted: the differences between masters and novices within the same occupation. Each can generate creative ideas; each can also learn from the other.

Technique 2. Help workers in all types of jobs to master the creative process. As Leung, Chen, and Chen noticed, many people who embrace creativity merely expect it to be an enjoyable exercise. Puccio, Murdock, and Mance add that many of these people jump onto the first idea they have and fail to develop the idea further, much less explore alternatives.

Within the context of the workplace, creativity is a more thorough and thoughtful activity: one that helps people generate several ideas, explore alternatives among them, and choose the ideas to pursue. That's because, in the end, the purpose of creativity-and-innovation is to generate useful ideas that organizations implement in their work.

The creative process provides a means for doing so. As the Skills for Success website notes, creativity-and-innovation "requires a structured process for identifying and engaging with stakeholders to secure input, support, and resources for implementation."

The process is intended to provide some structure to the creative effort: enough to keep the idea generators focused not only on generating ideas, but reminding them to consider alternatives and the implementation of their ideas. But the creative process is not intended to be so structured that it stifles creative thinking.

Table 2 shows one general creative problem-solving process.

Table 2.

A Creative Problem-Solving Process

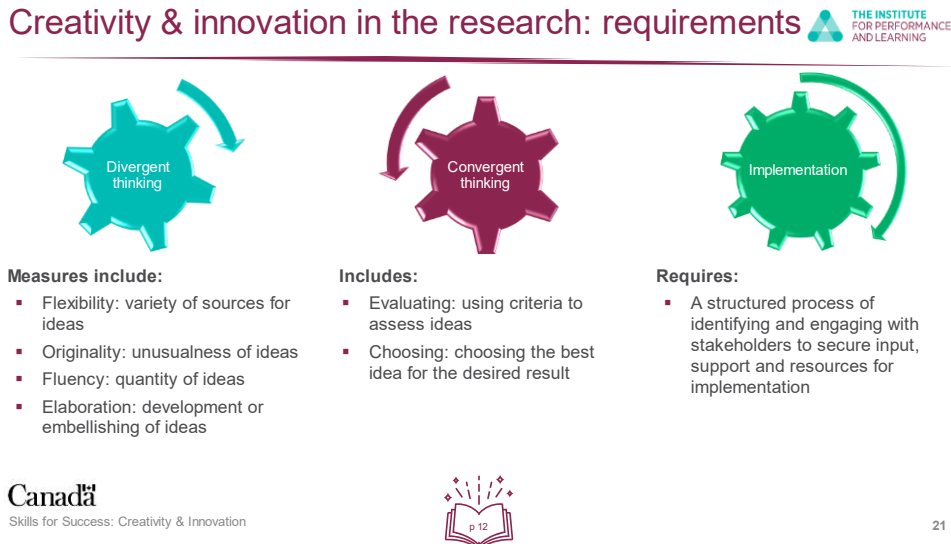
Assess the situation	• Choose aspects of problem to focus on • Choose appropriate CPS phase to enter
Define and clarify problem	• Describe the problem that needs to be addressed • Explore desired vision for the future • Contrast with the current situation • Formulate the challenge, generating reasons why the problem exists and issues that need to be considered in resolving that problem

Generate and transform Ideas	• Explore ideas for solutions • Formulate and explore possible solutions • Identify issues that might arise with each solution: not only positive impact but difficulties, challenges, and similar negative factors • Choose ideas to propose
Plan actions and implementation	• Explore gaining acceptance: who will be allies and how they might help and who might be resistors or neutral and why they might play those roles, so their objections can be identified and addressed • Formulate a plan to implement the chosen idea(s)

As part of training people for a creative problem-solving process, Kamal Birdi, Desmond Leach, and Wissam Magadley note in their 2012 article, *Evaluating the impact of TRIZ creativity training: An organizational field study*, some specific techniques that training in the creative process should cover include:

- Breaking something into several smaller pieces or steps to make the challenge more manageable
- Removing a piece from something to cause people to see it from a different perspective
- Converting waste from a process into something of value: once again, to gain new perspectives

In addition, as the Skills for Success website notes, training in the creativity-and-innovation process also focuses on divergent and convergent thinking. Later techniques in this report explore both types of thinking and their roles in the creative process. Figure 1 shows the role of creativity-and-innovation in research.

Figure 1.**The Role of Creativity and Innovation in Research (from the Skills for Success website of Employment and Social Development Canada)**

Technique 3. Unblock common barriers to creative thinking. Although creativity may be associated with genius and breakthrough ideas, Watson notes that, in the context of the workplace, average people develop creative solutions to the everyday problems they face using their domain (professional) expertise.

But as Deborah Smith, David Paradise, and Steven Smith comment in their 2000 article, Prepare your mind for creativity, these average people face many barriers in applying their creativity, such as:

- Sticking with the familiar
- An inability to envision different ways of using familiar objects and ideas
- Concerns about rejection of the ideas

Creativity training should acknowledge barriers like these and teach workers specific techniques they can use to overcome them.

Technique 4. Promote “outside-the-box” thinking by teaching divergent thinking processes. One of the barriers to creative thinking is overcoming familiarity. One way to move beyond familiarity and generate new ideas is through a process called divergent thinking, the ability to generate new ideas, often resulting in multiple possible solutions.

According to Watson, divergent thinking requires these four characteristics:

- Fluency: the quantity of ideas generated
- Flexibility: the variety of courses for these ideas
- Originality: the uniqueness of the ideas
- Elaboration: the ability to develop or embellish ideas

Birdi notes that training on divergent thinking can help to develop all four of these characteristics by teaching people to generate ideas. Furthermore, Birdi notes that people can learn to think divergently through a structured process like the one described in an earlier technique. Rather than stifling creativity, structured problem-solving approaches with broad phases help structure divergent thinking and channel it.

The challenge that arises with effective divergent thinking is that it has the potential to generate numerous options, more than can realistically be implemented, as Knowinnovation comments in its 2017 book, *Creative Problem Solving: A quick, down-and-dirty handbook*. Knowinnovation and Inclusive Innovation.

That's the purpose of developing convergent thinking, the next technique.

Technique 5. Help learners convert “outside-the-box” ideas into workable ones through convergent thinking. In addition to being new, workplace creativity requires ideas to be useful. That's the purpose of convergent thinking: a means of taking the ideas generated through divergent thinking, narrowing options, and then preparing plans to implement the chosen options.

Birdi notes that convergent thinking involves:

1. Evaluating ideas using criteria established by the team to assess the extent to which particular ideas meet the criteria. Those that best meet the criteria ideally have the greatest likelihood of being chosen.
2. Choosing the idea to pursue to achieve the desired result.
3. Working with specialists, leaders, and other stakeholders to plan for, and implement the chosen ideas in the context of the organization. For this particular aspect of convergent thinking, workers need to develop planning skills to think through the process of implementation, and negotiation skills so workers can request the resources needed to successfully implement ideas. Because implementing ideas might cause disruptions to the organization, change management issues might also be considered.

Technique 6. Increase the likelihood of the success of training on creativity-and-innovation. Even if people use creativity at work, they may still suffer from an “innovation gap”, meaning a failure to implement their new and useful ideas into accepted solutions. To reduce the likelihood of such a gap, take particular actions before, during, and after training. Table 3 lists particular efforts that Learning and Development professionals might take.

Table 3.

Particular Efforts That Learning and Development Professionals Might Take to Reduce the Innovation Gap with Creativity-and-innovation Training

Before training	• Train managers first to set expectations • Ask managers to describe pressing problems, who will be trained, and how they will be supported • Ask participants to bring strategic problems to work on
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During training	• Teach a structured problem-solving process and avoid unconstrained exploration • Teach several specific creativity-and-innovation techniques so learners have a variety of 'tools' at their disposal that helps them handle a broad range of challenges • Describe and demonstrate the skills with relatable examples • Provide lots of challenging practice on real-life problems, using group work with diverse perspectives • As a later technique suggests, also consider asking learners to bring current workplace challenge requiring creative approaches to class. That's because creativity training can be enhanced by linking the training to current issues in learners' workplaces.
After training	• Provide assignments to apply learning, and have participants set goals • Debrief managers to support and coach participants • Offer ongoing coaching • Have participants share their applications of learning

Example: CLEAR IDEAS Creativity + Innovation Training

Based on years of research and delivery of creativity training, Birdi describes the CLEAR IDEAS, which enhances the proven Creative Problem-Solving approach with a module on implementation, in a 2021 article, Insights on impact from the development, delivery and evaluation of the CLEAR IDEAS innovation training model.

The first module in the two-day program focuses on creativity and is known as Illuminate, Diagnose, Erupt, Assess, Select (IDEAS). This module focuses on using divergent and convergent thinking to identify opportunities, define problems, generate ideas, then assessing them, and selecting the most appropriate ones.

The second module in the program, another 1-day module, known as Commit, Lead, Engage, Align, Review (CLEAR) focuses on innovation. In this module, participants identify stakeholders and ways to gather their input, then schedule an implementation of tasks with named leaders and personnel. In this module, participants also prepare and deliver an innovation pitch to their cohort for feedback.

Here is the agenda for the two modules.

The 2-day workshop structure is presented in the Table 4.

Table 4.

Agenda for the IDEAS and CLEAR Modules for Creativity-and-innovation Training

Day 1: IDEAS	
1. Illuminate	Choose strategic workplace problem (product, service or process)
2. Diagnose	- Identify causes of the problem (divergent) - Prioritize causes needing creativity (convergent) - Demonstrate Fishbone, 5 Whys tools
3. Erupt	- Generate many ideas to address priorities - Demonstrate brainstorming, morphological analysis, synectics, lateral thinking
4. Assess	- List criteria their organization would use to judge ideas - Score ideas based on criteria - Demonstrate scoring techniques
5. Select	- Select best scored options - Integrate best options to address overall solution - Demonstrate ways to choose, such as aggregating or weighing pros and cons
Day 2: CLEAR	
6. Commit	- Identify relevant stakeholders in their organization - Develop arguments to convince each stakeholder - Discuss ways to motivate and persuade

7. Lead	• Prioritize what a leader needs to implement innovation • Identify someone who fits the leader profile • Identify others who fit needed roles for implementation Discuss leadership, empowerment, championing
8. Engage	• Identify users of the innovation who could provide opinions, pilot-testing, or re-engage in the IDEAS phase • Specify methods to collect user input (e.g. Focus groups)
9. Align	• Identify customers, clients, users of the innovation • Identify how to provide skills and resources they need
10. Review	Create implementation schedule with tasks and names of responsible people

Technique 7. Recognize the limits of creativity-and-innovation training.

According to Birdi, creativity training at its best can improve ability to generate new and useful ideas and, more fundamentally, the motivation to innovate in the workplace.

But Birdi cautions that this training might fail to address real-world problems. For instance, assessments of learning from creativity workshops often focus on general familiarity with terminology, concepts, and processes rather than applications of those to addressing real problems in learners' organizations.

Birdi also cautions that creativity training often overlooks the equally important challenge of implementing the ideas generated: innovation. For example, Birdi noted creativity training often does not address the motivation and skills needed to secure support from management and other stakeholders for implementing ideas.

But most significantly, Birdi cautions that:

- Training tasks that are most effective are concrete and ones that are justified by a business case
- Learners must have the authority to implement whatever changes they explore in class. For example, less senior participants or participants with limited responsibilities might lack the authority needed to implement ideas arising in creativity-and-innovation training. At the least, they are likely to fail at creativity-and-innovation efforts. At the most, they might become discouraged from participating in future efforts.

Techniques for Teaching Managers to Support Creativity-and-Innovation in their Workplaces

In addition to general techniques for teaching creativity-and-innovation to all workers, the literature suggests specific techniques for teaching managers to support creativity-and-innovation in their workplaces. This section explores four of them, including fostering creativity and the team and organizational levels, integrating creativity-and-

innovation into organizational processes and activities, including training, helping managers leverage differences among workers, and inviting managers to train teams together on creativity-and-innovation skills and bring immediate challenges to class.

Technique 8. Foster creativity at the team and organizational levels. Like many aspects of work, success depends on effectiveness at every level. So in addition to motivating individuals to work creatively and innovatively, managers also need to motivate teams and entire organizations to do so, too. Bringing creative ideas to life usually involves the efforts of entire teams and, in some cases, entire organizations.

Learning and Development professionals can share a number with managers a number of methods for promoting creativity at the team and organizational level.

- Build the skills to frame problems for creative and innovative solutions. Watson comments that organizational creativity often means facing crises together and, in response:
 - Adjusting assumptions and perspectives. Just as individuals need to adjust their own assumptions and perspectives to generate creative ideas and successfully implement them, teams and entire organizations need to do the same so the groups see challenges in a new light and gain a new clarity to the problems faced. Doing so might also require that different parts of the organization negotiate with each other to question assumptions, and develop a problem statement.
 - Learning from experience. As Yin Cheng notes in the 2005 article, Development of multiple thinking and creativity in organizational learning, such learning helps members of a team or organization with the challenge of defining problems and generating solutions.
- Engage with the six perspectives of problem-solving when defining problems. Cheng specifically identifies these perspectives from which teams and organizations should consider problems when trying to address them. Each perspective is associated with a particular problem-solving approach: one that might surface issues that other perspectives might not. Table 5 presents these six perspectives.

Table 5.

Six Perspectives and Their Associated Approaches to Solving Problems

Perspective	Problem-Solving Approach
Technological	Engineering, technology, procedure, method
Economic	Efficiency, cost-benefit, resources, finances
Social	Interactions, relationships, development, motivation, solidarity
Political	Managing conflicts, negotiating over interests and power, compromise, alliances
Cultural	Shared values, beliefs

Learning and adapting	Continuous improvement, new ideas and adapting
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- Cheng advises groups to employ these perspectives as follows:
 - Choose one of the perspectives to explore a problem.
 - When doing so, identify possible solutions and their implications.
 - Choose another perspective to explore one of the suggested solutions.
 - Consider the impact of that perspective on the first one chosen.
 - Continue until the group has explored the problem and possible solutions from several perspectives.
 - In the process of doing so, the team might decide to combine ideas or consider two or more perspectives at the same time. The process is flexible.
- Go for an appropriate solution. Cheng also observes that effectively achieving organizational creativity involves engaging problems at the appropriate level. Some challenges merely require a change in behaviour while other challenges require major shifts in the organizational mindset.

Leveraging the levels of knowledge described by author Richard Saul Wurman in his 1989 book, *Information Anxiety*, Cheng proposes an approach described in Table 6, which shows these different levels of knowledge and the types of creativity they engender.

Table 6

Levels of Knowledge and the Types of Creativity They Engender

Level of Knowledge	Thinking Level	Types of Creativity Engendered
Higher	Intelligence: Synthesizing knowledge into abstract concepts and theory to guide new developments and evaluations	- Deep learning - Changes in organizational mindset - Shifts in organizational approaches
	Knowledge: Linking and analyzing information from various inputs, processes, outcomes to understand an area	
	Information: Reviewing data to create meaning about specific actions and results	- Shallow learning - Changes in organizational behaviour and operations
	Data: Monitoring actions to collect data	

Lower	Action: Doing things in the world	
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- Strengthen groups' abilities to negotiate so that creative ideas can be realized. These efforts might unfortunately happen when an organization faces a crisis.

Technique 9. Integrate creativity-and-innovation into organizational processes and activities, including training. One way to promote creativity-and-innovation within organizations is to incorporate many of the techniques already presented here into formal organizational processes.

For example, incorporate components of the process for creative thinking into general organizational processes, such as ones for developing new products and services and strategic planning, a synthesis of suggestions by N.K. Napier and Kengo Usui in their 2008 article, 3-D creativity in organizations: Discipline, discipline, discipline and Joanna Knight and Fiona D'Arcy in their 2011 article, Meet ambiguity head-on and win.

Knight and D'Arcy advise that carefully incorporating creativity techniques into broader organizational processes can help organizations avoid the trap of single-loop learning, which a person or group simply adjusts actions based on results. Knight and D'Arcy suggest that double-loop learning—which uses results to reflect on the contributions of underlying goals, values, and strategies to a problem—produces more creative and innovative results. As Smith, Paradise, and Smith note, an organization's efforts to improve creativity and innovation may fail if its underlying values and strategies prioritize control and productivity. Knight and D'Arcy add that such efforts might also fail if the organization does (not provide the necessary resources, risk-tolerance, and rewards for creative-and-innovative thinking to thrive.

Technique 10. Help managers leverage differences among workers. Learning and Development professionals need to help managers address two categories of differences to promote creativity-and-innovation on their teams.

The first is creative problem-solving style. Puccio, Murdock, and Mance note that people approach creative problem-solving with habits and preferences, which can be described as styles. In the 2011 article Developing creativity, Mark Batey notes that differences in creative problem-solving styles might arise from personality and motivation, to which Napier and Usui add types of expertise and experiences using formal problem-solving strategies. Puccio shared Basadur's four general categories of approaches to creative problem-solving and link them to divergent and convergent thinking:

- Generators, who focus on discovering problems and looking for facts: that is, divergent thinking.
- Conceptualizers, who focus on defining a problem and finding useful ideas: that is, divergent thinking
- Optimizers, who focus on evaluating and selecting ideas and related planning: that is, convergent thinking.

- Implementers, who focus on gaining acceptance of an idea and putting it into action: that is, convergent thinking.

Although many people like working with people who share their personal style, teams and organizations need all four categories of problem-solving styles to successfully generate and implement creative and innovative ideas. Ideally, managers would mix people with different styles on a team to ensure some level of balance. In reality, teams might have an imbalance of styles. So by identifying the extent to which some styles are present in a group and who has each, managers can help their teams determine in which styles their teams have strengths and in which ones they have weaknesses.

The second category of differences that Learning and Development professionals need to help managers address are differences in goal orientations among team members. Goal orientations refer to the types of behaviours that individuals prioritize in the face of a challenge, according to Hsu-Hua Lee and Tsau-Tang Yang in their 2015 article, Employee goal orientation, work unit goal orientation and employee creativity. These authors add that a goal orientation affects workers' motivations to use creativity and innovation skills in the workplace. In their 2013 article A multilevel model of team goal orientation, information exchange, and creativity, Yaping Gong, Tae-Yeol Kim, Deog-Ro Lee, and Jing Zhu note that a goal motivation describes what guides a person's potential learning, creativity and innovation. Three goal orientations exist:

- A learning orientation, which prioritizes seeking and processing information to enhance their understanding so they can solve problems
- A performance approach, which prioritizes gaining recognition and praise
- A performance avoidance approach, which prioritizes the avoidance of mistakes and criticisms

These goal orientations have practical implications. Consider the impact on mentoring. A protégé who has a learning orientation is likely to get more mentoring and coaching while one with a performance approach, who is likely to brag, take credit for work, and alienate co-workers is not.

Similarly, in their 2016 article The role of perceived feedback sources' learning-goal orientation on feedback acceptance and employees' creativity, Sujin Son and De-Yeong Kim reported that managers who project a learning orientation are seen as more credible, informative and helpful by employees, leading to their feedback being more accepted and creativity being enhanced.

Similarly, Giles Hirst, Daan van Knippenberg and Jing Zhou found that learning-oriented workers take advantage of empowerment that comes with reductions in bureaucracy to be more creative in their 2008 article A cross-level perspective on employee creativity: goal orientation, team learning behavior, and individual creativity. However, these authors also found that, under the same circumstances, performance approach workers need an expectation of rewards and recognition to spur more creativity while performance avoidance workers needed more rules to require their participation and protect them from criticism.

Watson notes that although workers have goal orientations, when they work together, they are influenced by one another and produce different kinds of results (Watson, 2007). If members of a team produce individual solutions, those solutions are influenced by other team members' experiences and ideas. When working together to produce a single solution, team members engage in action together to improve their ability to perceive and define a shared problem (Watson, 2007).

Most significantly, managers and leaders can intervene to promote creativity-and-innovation among teams by crafting goals that can influence both novelty and usefulness of solutions, as suggested by Ella Miron-Spektor and Gerard Beenen in their 2015 article, *Motivating creativity: The effects of sequential and simultaneous learning and performance achievement goals on product novelty and usefulness*. Managers and leaders can set one of these categories of goals to influence the team:

- Learning goals, which encourage using and combining skills from different domains—an approach known as cognitive flexibility—and that, in turn, improves the novelty of results
- Performance goals, which encourages teams to freeze ideas, prefer familiar methods and certainty, a process known as cognitive closure and that improves the usefulness of ideas
- Combined goals, which encourage a balance in the flexibility of learning goals and the certainty of closure, to produce ideas that are both novel and useful. But combining goals risks increasing stress levels on the team and, if they become too high, workers have difficulty balancing the competing goals

Technique 11. Invite managers to train teams together on creativity-and-innovation skills and bring immediate challenges to class. Knight and D'Arcy also suggest that Learning and Development professionals might need to help learners not only learn about creativity-and-innovation, but assist them with implementing the new skills in the contexts of their jobs.

One way to do so is for managers to send entire teams to training at the same time and when they have a common challenge to address, so that the team members can not only develop the skills together, but immediately apply them on a current shared project.

Technique 12. Assess creativity-and-innovation.

Employment and Social Development Canada has also developed an online assessment in which people can assess all their Skills for Success. The assessment of creativity-and-innovation skills asks participants to rate themselves on these statements:

- I imagine different possibilities
- I avoid judging new ideas
- I challenge ways of doing things when appropriate
- I look beyond constraints for opportunities to innovate
- I generate ideas through asking questions and thinking differently

- I effectively handle uncertain and unpredictable situations
- I explore opposite viewpoints to test my own ideas
- I expand on my ideas
- I create something tangible/useful from my creative ideas
- I learn from failures
- I try to be creative and innovative
- I encourage creativity and innovation in others

The responses to these questions help workers and the managers and Learning and Development professionals with whom they work to pinpoint the specific aspects of creativity-and-innovation in which workers have strengths and ones in which the workers would benefit from further development.

To take this particular self-assessment, visit:

https://implus.ca/snapshot/start/?&frm_page=6

For the complete assessment, visit <https://implus.ca/snapshot/start/> .

The site also links to [Find tools to improve your creativity and innovation skills](#)

Key Takeaways

- Employment and Social Development Canada defines creativity-and-innovation as “ the ability to imagine, develop, express, encourage, and apply ideas in ways that are novel, unexpected, or challenge existing methods and norms. For example, [people] use this skill to discover better ways of doing things, develop new products, and deliver services in a new way.”
- Researchers distinguish between:
 - Creativity, the process of generating new ideas
 - Innovation, the process of determining which ideas to pursue and implementing them
- Employers seek creativity-and-innovation skills because skills to develop and promote ideas and new approaches to everyday work and life tasks, ideas and approaches can improve the effectiveness, productivity, and pleasure in these tasks. They also help more immediate challenges of the rise of digitization, automation, and artificial intelligence in the workplace, as well as address a productivity challenge in Canada’s economy.
- Employers can use training to develop creativity-and-innovation skills.
- Although 110 peer-reviewed and 40 professional articles address training for creativity-and-innovation in the workplace and the team concluded that the body of literature contained several helpful ideas, no single set of suggestions for training for creativity-and-innovation dominate in the literature. It is also noted that the literature treats creativity and innovation as separate topics.
- In addition to workplaces, creativity-and-innovation are addressed by several other educational sectors including colleges and universities which offer degree programs,

micro-credentials, and co-curricular programs. Continuing education programs also address creativity-and-innovation.

- General techniques for teaching creativity-and-innovation include:
 - Noting that anyone can be creative.
 - Helping workers in all types of jobs to master the creative process
 - Unblocking common barriers to creative thinking. Although
 - Promoting “outside-the-box” thinking by teaching divergent thinking processes
 - Helping learners convert “outside-the-box” ideas into workable ones through convergent thinking.
 - Increasing the likelihood of the success of training on creativity-and-innovation
 - Recognizing the limits of creativity-and-innovation training.
- Techniques for teaching managers to support creativity-and-innovation in their workers include:
 - Fostering creativity at the team and organizational levels
 - Integrating creativity-and-innovation into organizational processes and activities, including training
 - Helping managers leverage differences among workers
 - Inviting managers to train teams together on creativity-and-innovation skills and bring immediate challenges to class
- Also take advantage of resources like self-assessments of creativity-and-innovation from Employment and Social Development Canada.

Further Resources

- Knowinnovation offers a handbook for implementing Creative Problem Solving: https://brdo.berkeley.edu/sites/default/files/cps_handbook.pdf
- App stores offer a TRIZ-style app called 40IP (Inventive Principles) that offers many prompts and examples for divergent thinking

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Credits—

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