Imagination first: Unleash the power of possibility

Manoj Chandra Handa
Oceans of Excellence, Gifted Education Consultancy, Sydney, Australia

Abstract
The creativity program, “imagination first: unleash the power of possibility,” implemented in public primary and secondary schools in Northern Sydney, New South Wales, Australia, deals with the power of imagination in unleashing creativity among gifted students and teachers. Following an in-depth literature review on creativity for gifted students, a Learner-centered Framework of Creative Pedagogy was developed. The framework is guided by the key question: “How can creative development be enhanced among gifted learners in schools?” The framework proposes that creativity can be fostered through the interplay of three key dimensions: creative practice, creative learning, and creative process.

The program demonstrates that the role of imagination is at the heart of creative learning. Activities that foster creative thinking should challenge gifted learners to think laterally, be open-minded, inquire into possibilities, and kindle their imagination. Significantly, schools need to promote creativity across all areas of the curriculum. Practical strategies for implementing the framework in schools are shared.

Keywords
Creative learning, creative practice, creative process, creativity, imagination, innovation

Corresponding author:
Manoj Chandra Handa, Oceans of Excellence, Sydney, Australia.
Email: mchandrahanda@gmail.com
Website: www.oceansofexcellence.com
Introduction

To see a world in a grain of sand,
And a heaven in a wild flower,
Hold infinity in the palm of your hand,
And eternity in an hour.

— William Blake, “Auguries of Innocence”, from Blake (1977)

The creativity program, “imagination first: unleash the power of possibility”, conducted in 10 public primary and secondary schools in Northern Sydney, New South Wales, Australia, deals with the power of imagination in unleashing creativity among gifted students and teachers. The central purpose of this program is to foster creative and innovative mindsets among teachers, students and school leaders.

Following an in-depth literature review on creativity for gifted students, a Learner-centered Framework of Creative Pedagogy was developed. The framework demonstrates how creative development can be enhanced through the interplay of three key dimensions: creative practice, creative learning, and creative process.

The program was jointly planned and facilitated by a creativity expert—Jason Clarke from Minds at Work, Melbourne, Australia—and the author. Based on the principles of the Learner-centered Framework of Creative Pedagogy (Chandra Handa, 2011) and the IDEA model (Clarke, 2011), school leaders, teachers and students from the participating schools engaged in enhancing creativity among gifted learners. This paper discusses theoretical assumptions behind the framework, explores the process of creative journey of the participants, and outlines how the framework can be implemented in schools.

Research overview

Defining imagination, creativity, and innovation

Imagination is the ability to conjure new realities and possibilities (Liu and Noppe-Brandon, 2009). It is the power to see beyond the present moment and our immediate environment. It is the capacity to transcend the actual and to construct the possible. In imagination we can “bring to mind things that are not present to our senses” (Robinson, 2011). We can visit the past and can reinterpret the past. We can anticipate many possible futures.

Creativity is the ability to generate ideas, products, or solutions that are considered novel and useful for a given problem, situation, or context (Amabile, 1996; Beghetto, 2008; Plucker et al., 2004; Runco, 2004). Creativity involves putting your imagination to work. In a sense, creativity is applied imagination (Robinson, 2011).

Innovation is the process of putting new ideas into practice. Innovation can, therefore, be referred to as applied creativity (Robinson, 2011).

Why put imagination first?

Of the three—imagination, creativity, and innovation—imagination is foundational. Without a robust imagination, there is no creativity or innovation. It is by exercising our imagination that we find a better outcome the smarter way, a simpler solution, or a brighter future. It is the
source of our hopes, optimism, and purpose. It is the essential ingredient in our strategies and plans and it is the first step toward any real difference we want to make. It is the very basis from which we make the future. We may not be able to predict the future but we can help shape it.

No wonder Einstein said that “imagination is more important than knowledge” (Pratt, 2007: 82).

Gandhi first *imagined* the creative vision of active non-violent resistance, or “stayagraha”, when all around him in India was only the repressive and discriminatory foreign regime (Merton, 2007). Then he put his vision into practice when he launched the innovative campaign of deliberate non-cooperation to liberate India from British rule. Martin Luther King first *imagined* a peaceful and inclusive world where the people will “not be judged by the colour of their skin but by the content of their character” (Washington, 1986). Then he embarked upon the civil rights movement to promote tolerance and racial equality.

Imagination is the source of all divergent thinking and it demands of us intentional, mindful cultivation.

**Defining giftedness in relation to creativity**

Academically successful students are those who have domain-specific knowledge or skills, task commitment, and high intelligence, whereas highly creative students are those who have domain-specific knowledge or skills, task commitment, and high creativity (Kim, 2009). Both highly academically successful students and highly creative students are gifted. Each student’s strengths should be recognized and fostered in order to transform his or her gifts into talents. Creativity is important to the development of gifted students as it has the power to transform giftedness into eminence (Khatena, 1983).

**Creativity development frameworks**

Creativity enhancement frameworks gained prominence when Guilford described creativity as an *ability*—a “learned skill”—in his address to the American Psychological Association in the 1950s (Piirto, 2004). Guilford and Torrance’s work outlines the classic four creative abilities: *fluency, flexibility, originality,* and *elaboration,* which are all measured by the Guilford tests (Guilford, 1967) and the Torrance Tests of Creative Thinking (Torrance, 2006). Whilst these pioneering frameworks enhance creative abilities, they do not necessarily look at the other aspects of creative practice and creative learning.

Other creativity development frameworks focus on the *creativity process*—a sequence of stages through which one might proceed in solving a problem creatively. The best-known set of stages in the creative process is the *preparation, incubation, illumination,* and *verification* stages suggested by Wallas (1926). Csikszentmihalyi (1996) described the creativity process as an interaction of three parts of a system: *domain, field* and *person.* Creativity occurs when the *person* creates or innovates within the *domain* and the creations/innovations are accepted as novel and valuable by other professionals in the *field.* The creative problem solving (CPS) model originated by Osborn (1963) and later articulated by Parnes (1981) contains, in its original form, three stages: *fact finding,* which includes identifying a problem and gathering facts; *idea finding,* and *problem finding,* which includes evaluating and implementing ideas. Piirto’s Creative Process (2011) model outlines seven
“I”s of the creative process: inspiration, imagery, imagination, intuition, insight, incubation, and improvisation. Piirto’s model needs to, however, also include the “implementation” stage (Davis et al., 2011) and focus on the outcomes of creative learning.

There are frameworks that are grounded in the realm of intellectual functioning. Renzulli’s model (1986) encompasses three attributes: above-average ability, task commitment, and creativity. Sternberg’s (2000) Triarchic Theory of Intelligence focuses on three types of intelligence: analytic, creative, and practical. In Gagné’s (2009) updated Differentiated Model of Giftedness and Talent, creativity is one of the many domains of giftedness and it is treated as a separate functional component that can be enhanced or hindered by the environmental or intrapersonal catalysts. The author is of the view that creativity cannot be isolated as a separate construct. It is holistic and dynamic part of our personality and informs all mental, physical, and social functions of an individual. These frameworks predominantly focus on the domain of intellectual functioning rather than the practical aspects of creativity enhancement of gifted learners.

**Learner-centered Framework of Creative Pedagogy**

The literature review of creativity development frameworks demonstrates that they tend to be informed by key aspects such as creative abilities, creative processes, intellectual functioning, or, in some cases, creative outcomes. The creativity enhancement framework, Learner-centered Framework of Creative Pedagogy (Figure 1)—a driver of the “imagination first” program—is underpinned by three key dimensions that contribute to creative outcomes:

**Figure 1. Learner-centred framework of creative pedagogy (Chandra Handa, 2011).**
1. creative practice;
2. creative learning; and
3. creative process.

Although the proposed creativity enhancement framework is informed by the rich work carried out in the past, predominantly at abilities, process, or intellectual functioning levels, this holistic framework also encompasses the practical aspects of classroom practice, including creative outcomes. Details of this framework, including the supporting literature, are outlined below.

Dimension 1: Creative practice

The first dimension of the framework is about teacher pedagogy and teacher practice for fostering creativity among students.

Adaptive expertise and “imagination effect”. Hattie (2003: 15) makes a distinction between expert and experienced teachers. In particular, Hattie identifies three major elements that separate expert from experienced teachers:

- challenge;
- deep representations about learning and teaching; and
- monitoring and feedback.

Expertise, however, does not necessarily guarantee creative or novel products or performances (Scott and Dinham, 2004). Studies have led to the view that expertise comes in two main forms: “artisan” and “adaptive” (Hatano and Ignaki, 1986; Miller, 1978; Wineburg, 1991, 1998).

Artisan experts commonly regard expertise as knowing everything that is necessary and thus having all the answers. They tend to have, using Carol Dweck’s phrase, a “fixed mindset” (Dweck, 2006). The artisan experts “approach new problems as opportunities to use their existing expertise for doing familiar tasks more efficiently” (Bransford et al., 2000, cited in Scott and Dinham, 2004).

Adaptive experts, however, view their expertise as a “work in progress,” are happy to seek out new information, and seek assistance from others. They tend to have, using Dweck’s phrase, a “growth mindset” (Dweck, 2006). They are also more metacognitive creative thinkers. These adaptive experts—valued for their mastery of knowledge, understanding, and skills—also continue to view the world around them with fresh eyes and a sense of wonder. The author describes this as the “imagination effect.” This is seen in experts who are able to break out of the bounds of their own expertise, look at their subject with a child-like sense of wonder, and imagine the possibilities. As twentieth-century playwright and literary critic T.S. Eliot puts it in “Four Quartets”:

We should never cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.

— (Eliot, 1943)
The Learner-centered Framework of Creative Pedagogy proposes that teachers can become adaptive experts, and engage and inspire their students in the creative process. The adaptive expert teachers:

- encourage students to believe in their creative potential and to nurture confidence to try. They motivate and encourage independence of thought, foster resilience and persistence, and are willing to take risks.
- help students discover their own creative strengths. They help them identify their core passion: whether they wish to become a creative musician or a creative scientist, for instance. Identifying gifted students’ creative abilities means helping them to find their creative strength: “to be in their element” (Robinson, 2011: 270).
- assist students in developing the skills of independent creative work. In teaching for creativity, teachers aim to promote experimentation and inquiry; foster generative thought; encourage the expression of personal ideas and feelings; stimulate students to play with ideas; and facilitate critical evaluation of ideas.

To use an expression of the Italian Renaissance sculptor, Michelangelo (Michelangelo Gallery, 2012), the adaptive expert teachers “see the angel in the marble and carve until [they] set him [/her] free.”

Creative habits of mind. The second element of creative practice in the Learner-centered Framework of Creative Pedagogy (Figure 1) is about people exhibiting creative habits of mind—such as curiosity, risk-taking, embracing ambiguity, attentiveness and adaptability, thinking bigger, experimenting and problem-finding—that, taken together, form the acronym CREATE.

Curiosity. Creative practitioners demonstrate an unrelenting quest for continuous learning. It is the ability to question oneself and others; the relentless pursuit of knowledge and truth; learning to ask better questions; and the ability to solve the most challenging problems by keeping an open mind (Fisk, 2011).

Risk-taking or “creative courage”. Risk-taking enables one to try new things. It is about having the courage to stumble, fail, and, after rejection, try again. The psychologist Rollo May (1975) calls it “creative courage”, i.e., finding the new pathway, through imagination. The creative artists and scientists unsettle “what is.” Creative writers are well known for their creative courage.

Embracing ambiguity. Creative practitioners are willing to embrace ambiguity, paradox, and uncertainty. They seek ambiguity in everything they explore—in the learning of students, in product composition, in ways of thinking and more. They explore possibilities by asking questions to which there may not be an obvious response.

Leonardo da Vinci was able to think beyond his peers because he combined opposite and adjacent fields—art and science, logic and imagination. This required a new way of thinking—the ability to synthesize information in new ways and even hold two opposing views at the same time (Fisk, 2011).
**Attentiveness.** Claxton et al. (2006) point out that creative people seem to have a propensity for intense, effortless concentration. When creative people are in the process of designing or discovering something new, they often experience a sense of such total involvement that time seems to fly and they become rapt in their imaginative experiences. Csikszentmihalyi (1990) labels this experience *flow*, which refers to the feeling of intense concentration and enjoyment people experience when they work on satisfying tasks.

**Thinking bigger.** Thinking bigger is about understanding people outside their boxes, schooling young people for lifelong learning rather than getting them through from K-12, and exploring opportunities beyond the three year “school plan.” It is about understanding a person’s background, and then the person: process before product; attitudes and values before behaviours. It is about having the imagination to stretch beyond what is known, predictable or expected.

**Experimenting and problem-finding.** Creative thoughtworkers like experimenting and playing with “ideas, actions and possibilities” (Claxton et al., 2006: 58). They have a playful approach to solutions and are always looking for new angles and perspectives. “What if . . .?” and “could be . . .” are the guiding motifs of creative minds as they engage in their quest for problem finding. Problem finding, or the identification and framing of problems, is fundamental to creative thinking and creative process. It is an act that is distinct from, and perhaps more important than, problem solving (Jay and Perkins, 1997).

**Motivation.** The third element of *creative practice* in the framework (Figure 1) is motivation—the inner candle. Amabile (1987, 1989) identified intrinsic motivation as one of the three key elements in creative behavior. However, as her research continued, Amabile (1996, 2001) revised her original hypothesis that any extrinsic motivation is detrimental to creativity. She argued that “intrinsic motivation is conducive to creativity; controlling extrinsic motivation is detrimental to creativity, but informational or enabling extrinsic motivation can be conducive to creativity, particularly if initial levels of intrinsic motivation are high” (Amabile, 1996: 119; emphasis added). In other words, intrinsic motivation is supportive of creativity, and, while some types of extrinsic motivation are harmful to creativity, some are not.

Classrooms that operate under a constant threat of tests and grades are focused on “controlling extrinsic motivation,” as are those that focus students’ attention primarily on prizes, stars, or accolades rather than on learning (Starko, 2010). Our role, as educators, is to determine how best to use both intrinsic and extrinsic motivation in classrooms.

**Creative climate.** The fourth element of *creative practice* in the framework (Figure 1) relates to fostering creative learning environment. Runco and Albert (1990) and Starko (2010) found that a classroom environment that supports unusual ideas and provides freedom of thought and choice is conducive to creative environment.

A learning environment where humour is welcomed by the teachers is conducive to creative thinking. Creativity expert Roger von Oech has remarked that “there’s a close relationship between the ‘ha-ha’ of humour and the ‘aha’ of creative discovery!” (von Oech, 1998: 126). Edward de Bono (1990) explicitly links creativity with humour: “Lateral Thinking is closely related to insight, creativity, and humour. All four processes have the same basis” (1990: 9).

Novelty and surprise are the defining characteristics of both creativity and humour. Humour, like creativity, can be characterized by divergence followed by convergence. The familiar is made strange, then the strange is made familiar (Gordon, 1961).

Creativity tends to be fostered in a relaxed, positive mood (Ziv, 1983). Humour and laughter can lead to improved creative problem solving (Isen et al., 1987). Research by Ziv (1976) found that laughter response to humorous stimuli increases creative thinking in adolescents.

What teachers need to avoid is the use of sarcastic humour, which is hurtful to students (Piirto, 2011). Discriminate use of humour by a teacher, and his or her acceptance of such expression by his or her pupils, can contribute to the creation of a more relaxed atmosphere, and generate a sense of freedom and play—all conducive to creative thinking. Students also appreciate the use of humour by their teacher.

**Dimension 2: Creative learning**

*In search of Xanadu.* Whereas the first dimension, “creative practice,” focuses on teacher pedagogy, the second dimension, “creative learning,” specifically focuses on those aspects of student learning that are essential in initiating and enhancing their creative mindsets and creative behaviours.

Creative learning is distinct from creativity in its focus on the process of learning itself (Jeffrey and Craft, 2006). The nineteenth-century poet Coleridge describes this creative process so tellingly in the poem, “Kubla Khan”:

And from this chasm, with ceaseless turmoil seething,  
As if this earth in fast thick pants were breathing,  
A mighty fountain momently was forced: ...  
And 'mid these dancing rocks at once and for ever  
It flung open momently the sacred river.

— Coleridge, *Kubla Khan* (16–18; 22–23)

Research has shown that creative learning develops our capacity for imagination leading to outcomes which are considered novel and useful for a given problem, situation, or context (Spendlove et al., 2005, cited in Craft et al., 2007). This definition of creative learning:

- acknowledges the engagement of imagination;
- focuses on the production of an outcome—which may be a product, idea or an attitude/behavior—derived from individual engagement or from collaborative activity; and
- identifies the need for such outcomes to be judged novel and useful for a given problem, situation, or context.

Studies exploring creative learning have been informed by social constructivist models of meaning making (Craft, 2005; Jeffrey and Woods, 2003). Team learning and team thinking have played a significant role in the “imagination first” program.
Drawing on research studies (Craft et al., 2007; Jeffrey and Craft, 2006; Lin, 2011; Piirto, 2011; Qualifications and Curriculum Authority, 2004) and classroom practice, six elements of creative learning experiences that specifically focus on initiating and enhancing student creativity were identified in the Learner-centered Framework of Creative Pedagogy:

- imagination first;
- posing questions and challenging assumptions;
- making inventive connections;
- tolerance of ambiguity;
- exploring fresh alternatives; and
- reflecting critically on ideas, actions, and outcomes.

**Imagination first.** A key element of creative learning in the Learner-centered Framework of Creative Pedagogy is the proposal that imagination comes first. Creative learners explore the possibilities and envisage what might be before composing any creative work.

**Posing questions and challenging assumptions.** The proposed framework is underpinned by the research-based findings that gifted creative learners tend to be curious, question, challenge, and do not always follow rules (Clark, 2002; Silverman, 2004; Renzulli et al., 2002). In order to stimulate creative development among gifted students, the use of questioning techniques has proven to be a useful strategy for encouraging purposeful inquiry (Daniels, 1997; Feldhusen, 1994; Gallagher, 1985).

**Making inventive connections.** Creative learners think laterally and make associations between things that are not usually connected. Creative insights often occur by making unusual connections: seeing analogies between ideas that have not been previously related. Arthur Koestler (1975), in “The Act of Creation,” describes this as a process of bi-association: when we bring together ideas from different areas that are not normally connected, so that we think not on one plane, as in routine linear thinking, but on several planes at once (cited in Robinson, 2011).

**Tolerance of ambiguity.** Creative learners embrace ambiguity so that they do not focus on one solution too soon. Keats called it “negative capability”; the ability to intentionally keep contradictory ideas in the mind (Keats, 1817). Albert Einstein was described by biographer Walter Isaacson (2007) thus: “He retained the ability to hold two thoughts in his mind simultaneously, to be puzzled when they conflicted, and to marvel when he could smell an underlying unity” (cited in Piirto, 2011: 29).

**Exploring fresh alternatives.** Creative learners explore possibilities, keep their options open, and learn to cope with the uncertainty that this brings. They experiment and play with ideas (e.g., by using creativity tools such as SCAMPER, a mnemonic for “substitute, combine, adapt, modify, put to another use, eliminate, reverse”); visualize and try fresh approaches; respond intuitively and trust their intuition; anticipate and overcome difficulties; and keep an open mind, adapting and modifying their ideas to achieve creative results.
Reflecting critically on ideas, action, and outcomes. A key dimension of creative learning in the Learner-centered Framework of Creative Pedagogy is that critical thinking goes hand in hand with creative thinking. Creative learners are able to evaluate critically what they do. They monitor and review progress; invite feedback and incorporate this as needed; put forward constructive comments, ideas, and explanations; and make perceptive observations about originality and usefulness.

Both the creative learning process and the creative products were jointly critiqued by the teachers and students in this program.

Dimension 3: Creative process

It is the creative process that acts as a bridge and stimulant between the two dimensions, “creative practice” and “creative learning,” described above. This process involves the teachers to imagine, develop, evaluate, and implement creative ideas, as outlined below.

Imagining. The students are encouraged to explore their moments of creative insight as they embark upon their work.

Developing. Many “big ideas” are brainstormed and discussed with creative learners. In order to further extend the ideas, we used a divergent thinking tool, FFOE (a mnemonic for “fluency, flexibility, originality, elaboration”), outlined below:

- fluency (the ability to generate many ideas and solutions);
- flexibility (the ability to generate conceptually or categorically different ideas and solutions);
- originality (the ability to generate novel or unique ideas and solutions); and
- elaboration (the capacity to provide extended and detailed ideas or solutions).

Evaluating. The teachers and students engage in group evaluations together. The formative feedback is given at task, process, and self-regulation levels (Hattie and Gan, 2011).

Acting. The final step involves ensuring that the programs are completed on time, deadlines are met, and the students’ completed products are shared and celebrated in schools.

The “imagination first” program

The participants in this program consisted of principals, teachers, and students from 10 public schools—six primary and four secondary—in Northern Sydney in the State of New South Wales, Australia, including two selective secondary schools and one primary school with opportunity classes. The program’s participants included 10 principals, 20 teachers, and 20 gifted students from primary and secondary schools. The school principals nominated teachers from their schools. The teachers, in collaboration with the school leaders in each school, selected two students who had already been identified as gifted learners for the program sessions. Face-to-face creativity sessions were held with 10 representative secondary 20 gifted students. However, the participating teachers
shared the program’s creative activities with all the gifted students back in their schools. Later, 20 representative primary and secondary gifted students were involved in showcasing the program’s outcomes at the annual Gifted and Talented Education (GATE) Conference in Sydney.

**Program details**

We ran two parallel programs for the 10 public schools: one for the school principals and the other for the students and the teachers as *co-learners*.

**School Leaders of Imagination.** The School Leaders of Imagination program encompassed the following four sessions on creative leadership:

- **Creative problem solving**—how to focus the power of imagination toward elegant, lateral solutions to almost any problem that might be crowding our thoughts.
- **Decision making**—how to make informed decisions with tools that could be shared with the rest of the team.
- **Innovation**—how to guide others in the journey from “ideal” to “real” to transform ideas into practical (but no less than wonderful) outcomes.
- **Anchor the creativity in school culture**—how to ensure that creative mindsets and processes become part of the school culture.

**Students and Teachers of Imagination.** The Students and Teachers of Imagination program included the following four sessions:

- **Rediscovering your imagination**—how to regain those moments of creative insight that most of us have experienced at least once.
- **Tapping the genius of others**—how to work with the team members and how to harness those differences to create real change.
- **Imagination in the classroom**—what works, what does not work, and why.
- **Innovation**—how to guide others in the journey from *ideal* to *real* to transform ideas into practical (but no less than wonderful) outcomes.

The students and teachers attended the workshops together. In this article, the author will discuss the creative learning journey of “Students and Teachers of Imagination.”

The program’s participants intentionally fostered imagination to develop creative programs. In order to make learning relevant to the learners, teachers gave students a considerable amount of “ownership and control over the materials, techniques and processes” in order to facilitate innovation (Figure 2) (Jeffrey and Craft, 2006).

**Creativity tools.** In each session, we discussed and shared creativity tools such as SCAMPER, Synectics, divergent thinking tools such as FFOE, mind mapping, provocative questioning, visualization, IDEA tool (an acronym for “imagine, develop, evaluate, act”), and TRIZ (a Russian acronym, *Teoriya Resheniya Izobretatelskikh Zadatch,* that stands for “Theory of Inventive Problem Solving”). We discussed how to use these creativity tools to address the “inhibitors of imagination” (Figure 3). We looked at emotional
blocks (Adams, 2001) such as fear of ridicule, fear of making a mistake, inability to relax, and preference for judging rather than generating ideas. We also explored cultural blocks (Adams, 2001) such as playfulness is for children only, fantasy and reflection are a waste of time, and tradition is preferable to change. The program’s participants also

Figure 2. Imagination first programs: Beauty Point Public School (top), and North Sydney Demonstration School (bottom).
shared the impact of using such creativity tools leading to “healthy signs of imagination” such as free expression, greater flexibility, and complexity.

Creative process

During our workshops with the program’s participants, facilitated by the creativity expert Jason Clarke, the teachers and students engaged with the IDEA model (Clarke, 2011) to imagine, develop, evaluate and act upon their creative ideas, as outlined below:

Imagine. Participants were encouraged to explore their moments of creative insight as they embarked upon their individual projects (Figure 4).

North Sydney Demonstration School teachers developed divergent thinking of their students in their classrooms by using:

- brainstorming for fluency (Figure 5);
- a creative scenario to re-imagine possibilities for flexibility;
- creative questioning to elicit a variety of responses for elaboration (Figure 5); and
- SCAMPER for generating original ideas.

Evaluate. The program’s participants openly engaged in group evaluations during the workshops, and formative feedback was given.

Act. The final step involved ensuring that the programs were completed on time and the completed student products were shared and celebrated in schools as well as at regional level through the annual State Gifted and Talented Education (GATE) Conference K-12.

Mode of communication. A password-protected SharePoint website was developed for generating ongoing dialog among the students, teachers, and school leaders.

In addition to regular workshops, the author also published newsletters that covered research articles on fostering creativity among gifted students.

Learner-centered learning. An innovative aspect of this program is that the teachers and the gifted students participated in this program as co-learners and attended all creativity workshops together. This required a paradigm shift from instruction to construction; from the teacher as a transmitter of facts to a scaffold of learning; from students being viewed as learners to both teachers and students learning together (Figure 6).
Student voice has been critical to this program. Students openly questioned and discussed their divergent thinking processes with the teachers in an environment that made them feel safe and secure. It is as if, together, both teachers and students wore a “learner” badge (L)—a mindset that allows us to experience personal change. In fact, at one workshop, as a fun exercise, every participant literally wore the “L” badge! As Stephen Covey (1989: 31) once remarked, “Suddenly I saw things differently, I thought differently, I felt differently, and I behaved differently.” In order to experience a learner-
**Figure 5.** Divergent thinking processes from North Sydney Demonstration School’s program.
centered paradigm, we need to change our perennial question from “How will I teach this?” to “How will I and students learn this?”

It is this learner-centered focus that permeates the Learner-centered Framework of Creative Pedagogy and the learning partnerships among teachers and students in this program.

**Creative outcomes**

**Reaching Xanadu.** In addition to the creative products that the students developed, the research project led to other creative outcomes.

**Divergent thinking.** Divergent thinking is an outcome of creativity learning. Students developed the ability to generate many conceptually different, unique ideas and solutions, and learned how to extend them with rich detail.
Research evidence (Beghetto, 2008) suggests that gains in divergent thinking are linked with learning programs that:

- have a cognitive focus;
- use strategies to develop specific cognitive processes (e.g., idea generation, conceptual combination); and
- teach specific thinking techniques (e.g., use of analogies).

In addition, the most effective approaches include programs of longer duration, those that apply a systematic framework of learning, and those that use a variety of instructional strategies (e.g., lectures, audio/visual media, individualized coaching). Importantly, divergent thinking can be undermined if learning focuses too much on providing instructional feedback (Scott et al., 2004).

**Creative attitudes and behaviors.** Creative attitudes and behaviors, such as individual reaction to creative ideas and the initiation of creative effort, are also project outcomes (Scott et al., 2004).

Positive attitudinal and behavioral outcomes have been associated with creativity learning programs that provide opportunities to engage in a wide variety of instructional exercises (e.g., classroom, field, performance, group).

Our study demonstrated that students tended to develop more independent mindsets; they became more perceptive, curious and open-minded, and exhibited greater self-confidence, persistence, and intrinsic motivation.

**Implementing the framework in schools**

In order to bring lasting change in fostering creative behaviors and creative mindsets, it is essential that schools engage in *collective capacity building*: developing teachers, school leaders, the school and the system capacity through sustained, evidence-based professional learning. It is about:

- leading systemic change in schools at both leadership and classroom levels; and
- fostering practical creativity enhancement strategies in schools.

**Leading systemic change in schools**

One of the most powerful lessons for change involves leadership. To be effective, leadership must spread throughout the organization (Fullan, 2008a). Change knowledge means seeking leaders who represent innovativeness—the capacity to develop leadership in others on an ongoing basis. Whilst each context will be unique and different, the following are some research-based leadership strategies for change process (Fullan, 2008b, 2010; Kotter, 1996) that helped us implement the creativity program successfully in schools at system and leadership level (Figure 7).

*Establish a shared vision and change strategy (result = anticipation)*. Identify a visible reason for change (e.g., foster creative and innovative mindsets among teachers, students, and
school leaders), clarify the change vision of the future of the organization, develop vision with the leadership team, and establish a change strategy. This will involve meeting with the key stakeholders in the region/district and the school.

Communicate the change vision and strategy (result = commitment). Communicate the change vision and strategy to the school community through parent committee meetings, school assemblies, staff meetings, and communicating with the feeder schools.

Empower broad-based action (result = systemic alignment). Engage the school community in deep, sustained learning conversations about the critical educational issues through a variety of forums, as outlined above. For example, this might involve conducting workshops with the school leaders, teachers, and students.

Establish and meet the professional needs of the team (result = empowerment). Identify staff’s professional learning needs to ensure that they have the skills to develop high-level student achievement outcomes. Ensure that professional learning is collaborative, ongoing, and evidence based and involves reflection and feedback. For example, this might involve conducting practical creativity enhancement workshops with the school leaders, teachers, and students.

Generate short-term wins (result = momentum). Organize regular “show and tell” sessions by the teachers and the students in which they showcase their creative learning, creative strategies, and ongoing creative outcomes by students. Short-term wins help build

Figure 7. Leading systemic change in schools: research-based strategies.
necessary momentum. Fence sitters are transformed into supporters and reluctant supporters become active participants. This momentum is critical; it is the energy needed to complete the process of change vision.

**Anchor changes into the school culture (result = lasting change).** Showcase both the processes and the products of the new initiative through a range of forums such as regional conferences, school community forums, school assemblies, year assemblies, staff meetings, executive meetings, and school newsletters. School culture is not something that can be changed easily. Culture changes only after people’s actions have been successfully altered, after the new behaviour produces some group benefit for a period of time, and after people see the connection between the new actions and the student performance improvement.

**Develop a culture of ongoing critical reflection (result = lifelong learning mindsets).** Develop a culture of ongoing critical reflection through sustained school self-evaluation processes, for example, using a shared school-wide rubric for self-evaluation, engaging with student focus groups, and conducting parent/student/teacher surveys.

**Practical creativity enhancement strategies**

The following practical strategies that foster creative practice, creative learning, and creative processes—as outlined in the Learner-centered Framework of Creative Pedagogy—can be used to incite imagination and enhance creativity in the classroom.

**Nurture and inspire imagination.** Kindle the power of imagination to unleash creativity among students. Encourage them to visualize possibilities, problems, and challenges by providing them with divergent learning activities that stimulate them to imagine and see things in the mind’s eye; play with ideas and materials; think flexibly about things from different points of view; experiment with novel concepts; and respond imaginatively to challenges.

**Pose open-ended, challenging questions.** Encourage students to develop their own divergent thinking questions in order to challenge questions. Effective open-ended questioning helps transforms a traditional teacher-centered classroom into a student-centered, inquiry-oriented community of learners (Walsh and Sattes, 2005). Encourage your students to ask “why?”, “why not?”, “what if?”; ask unusual questions; respond to ideas, questions, tasks, or problems in a surprising way; challenge conventions and their own and others’ assumptions; and think independently.

**Foster inventive connections.** Encourage students to make associations between things that are not usually connected. Help them extend current knowledge to new situations; bring together previously unconnected information; use analogies and metaphors; and communicate their ideas in novel or unexpected ways.

Use the Synectics tool (Gordon, 1961) to generate creative associations. Synectics methods are metaphor/analogy-based techniques for bringing together different elements together in search for new ideas or solutions. These methods have been used by think
tanks, businesses, and research organizations and have been the inspiration behind the ideas for Pringles potato chips, disposable nappies, the space-saver Kleenex box and a host of other innovations.

**Promote tolerance of ambiguity.** Help creative learners embrace ambiguity so that they do not focus on one solution too soon. Encourage them to embrace paradox and uncertainty (e.g., “The greatest good and the greatest evil have come from speeches. How can this be true?”); ask “what if?” (e.g., “What if there were no differences in people’s skin color?”; “What would happen if the Earth’s orbit moved closer to the sun?”); and value opposing viewpoints.

**Use creativity tools.** Use creativity tools such as SCAMPER and Synectics, and divergent thinking tools such as FFOE, mind mapping, provocative questioning, visualization, and TRIZ, to name a few. Ensure that the tools are used in an open-ended way so that the students can adapt them to suit their individual needs.

**Engage in targeted creativity enhancement programs.** Ensure that creativity learning programs are based on sound research, have clear goals, focus on effective instructional strategies, provide frequent instructional feedback, and are supported by the broader educational environment in your school. Research shows that targeted creative learning and creative practice—supported by sound frameworks and practical strategies—are effective in influencing a variety of creativity-related outcomes such as divergent thinking, creative problem solving, and creative attitudes and behaviours (Scott et al., 2004).

**Scaffold student learning.** Broaden the notion of scaffolding beyond the interactions among individuals used in a traditional sense. Use teacher- and/or student-led discussions, deliberate teaching of creative learning, technology resources, peer interactions and exemplars as scaffolding constructs for creativity enhancement, which can lead to very rewarding results.

Build in teacher–student interactions, a differentiated learning environment, creativity tools, and resources to scaffold student learning in the classroom. Share exemplars with students so that they are able to build on their existing knowledge and move on to the next stage in their cognitive and socio-emotional development.

**Generate humor and laughter.** Listen and laugh with students. A warm, supportive atmosphere provides freedom and security in exploratory thinking. Humour and laughter can certainly lead to a relaxed, positive learning environment that is conducive to increased levels of creative thinking.

**Motivate and foster supportive learning environment.** Encourage, recognize and celebrate students’ creativity both in classrooms and at school or year assemblies. Motivation—the inner candle—is central to creative learning as it can lead to persistence, enthusiasm, commitment, perseverance, and risk-taking. Encourage students to value the creativity of their peers. Foster a learning environment that promotes risk taking. Create a climate of mutual respect and acceptance so that students can share and learn from one another as well as independently.
**Emphasise process rather than product orientation.** Encourage students to enjoy the process of engaging in creative learning by stimulating their sense of wonder and imagination. The joy of the process and “flow” of learning has its own rewards. It is not the product per se but the process of learning that invariably brings out the “creative best” among the students. The process itself may become the product!

**Encourage student voice and harness the power of shared learning.** Encourage student involvement in curricular planning meetings, planning the school day, planning and co-constructing units of learning with the assistance of teachers or focus groups, or by joining teachers in discussion on school planning days. Stimulate student voice in your classroom. Inspire them to seek knowledge, raise questions, and take responsibility for becoming partners in establishing the agenda of learning in the classroom.

Student input has been very valuable in influencing thinking among all the participants. Shared, collaborative learning makes students more active participants in the learning process, improves their social skills and provides teachers with an insight into what students think and believe.

**Promote creativity across all areas of curricula.** Creativity is not just the domain of subject areas such as visual arts, music, and drama. Creativity can be applied to every domain of knowledge and to every school subject.

The state departments of education, regions/districts and schools can ensure that they develop and implement policies that promote a systematic, whole-school approach to embedding creativity across all areas of curricula.

### Conclusion

The Learner-centered Framework of Creative Pedagogy, with its interplay of three dimensions—creative practice, creative learning, and creative processes—and the associated practical strategies outlined above have the capacity to kindle imagination and enhance lasting creative behaviours among gifted learners if they are implemented at both leadership and classroom levels systemically in schools. In order to accomplish this goal at the whole-school level, we as educators need to actively advocate and promote creativity across all areas of curricula in schools.

Responding to the challenges of the twenty-first century requires young people to be imaginative, creative, and innovative with the motivation, skills, and dispositions to use creative and critical thinking purposefully.

Fostering imagination makes an enduring difference to the lives of gifted students. Imagination is a festival to the creative mind. Imagination enlarges the landscape of the mind. Imagination is what makes us human.

Imagination comes first.

*Prove true, imagination. O prove true.*

— William Shakespeare, *Twelfth Night* (Shakespeare, 2009: 3.4.374)
Postscript

Further research could examine the effect of using the Learner-centered Framework of Creative Pedagogy in specific subject areas and also across the curriculum. It would be interesting to follow up the case studies with reference to learners’ retention and consequent transfer of the creative strategies into their personal repertoire of learning tools.

Acknowledgements

This creativity research project was undertaken with the support of Jane Simmons, Regional Director, Northern Sydney Region, New South Wales Department of Education and Communities, Australia.

I thank Jason Clarke, Mind Worker from Minds at Work, Melbourne, for enriching our minds with his creativity, generosity, and openness.

I would also like to acknowledge that the title of this project is inspired from Eric Liu and Scott Noppe-Brandon’s book, Imagination First: Unlocking the Power of Possibility (2009).

My sincere appreciation goes to the leaders, teachers, and students from the following schools that were involved in the project: Beauty Point Public School, Castle Hill High School, Chatswood Public School, Lindfield Public School, Marsden High School, Mount Kuring-gai Public School, Normanhurst Boys’ High School, North Sydney Public School, Northern Beaches Secondary College Manly Selective Campus, and Turramurra North Public School.

References


Author biography

A passionate advocate of divergent thinking, **Manoj Chandra Handa** runs a gifted education consultancy, “Oceans of Excellence [www.oceansofexcellence.com]” in Sydney, Australia. He was formerly a Chief Education Officer at the NSW Department of Education and Communities. He served at the Department for more than 10 years. He has published papers and presented internationally on creativity, innovation, differentiated learning, and the education of the gifted. In 2012, he was recognised as one of the “Top 100 Most Influential People” in Sydney by “the (sydney) magazine” published by *The Sydney Morning Herald*. He is currently pursuing his doctoral thesis on “Leading Differentiated Learning for the Gifted” at Macquarie University, Sydney.