



Creativity:

**The use of imagination
or original ideas to
create something;
inventiveness.**

The Contraction of Creativity

P. 325

George Land, (1932-2016), was an author, speaker, consultant, and general systems scientist. In 1965 he founded a research and consulting institute to study the enhancement of creative performance.

He developed a creativity test which was used to select the most innovative engineers and scientists to work for NASA. The assessment was very successful, and he decided to test the creativity levels of children. “What we have concluded,” wrote Land, “is that non-creative behavior is learned.” Land’s conclusion was based on his research which he conducted in 1968. The research study tested the creativity of 1,600 children ranging in ages from three-to-five. He later re-tested the same children at age 10, and again at age 15.

The test results showed that creativity drastically lessened:

4-5 Years Old - 98% (Genius Level)

10 Years Old - 30%

15 Years Old - 12%

Adults - 2% (based on 280,000 adult, average age of 31)

The bulk of the percentage drop, 68%, occurs between 5 and 10 year-olds. There is a further drop of 18% between 10 and 15 year-olds. That amounts to a whopping creativity disintegration of 86% during the years children are in school!

Land then puts forward the theory of “convergent” and “divergent” thinking, introduced by the psychologist J.P. Guilford in 1956. Convergent thinking is to converge, to come together and find a single answer to a problem. The answer is already known and requires thinking to be speedy, logical and accurate, to spiral down and find that one unambiguous answer. Convergent thinking is what is generally used in school and is necessary, but to only use convergent thinking misses out on divergent thinking.

Divergent thinking, develops in different directions and focuses on spiraling up to explore and generate multiple free-flowing ideas. This information is then used to create new connections which were not previously considered.

Divergent thinking is associated with Openness and Extraversion from the Big 5 personality traits. Openness in particular is strongly tied to curiosity, imagination and creativity.

In his talk, Land says that “we ask children in school to do both kinds of thinking at the same time. Come up with ideas but start looking at them immediately.”

This amounts to a closing down of the openness factor necessary to think creatively. The closing down plays out through various responses including: time restrictions, impatience of the teacher (due to time restrictions), evaluating too quickly, the need to conform to prescribed answers and a fear of failing.

Land finishes his talk by encouraging us to believe we can re-learn to be as creative as we were as a five-year old.

P. 330

Sawyer also tells us creativity is viewed as extremely valuable in the Western cultural model. However, when it comes to investing in creativity, that doesn't always follow through.

He points to various sources:

- Studies have shown that most teachers associate creativity with undesirable student behaviours, like being stubborn, critical, rebellious, and nonconforming.
- Teachers rarely reward creativity in classrooms.
- Teachers' least favourite students tend to be the ones who score highest on traits associated with creativity.
- Most eminent creators say that they disliked school, many dropped out or skipped grades, and some were schooled at home by parents or tutors.

According to Sawyer, even if teachers do appreciate creativity in their students, there is a possibility that they are unable to nurture it. He points to a study which states that over half of the teachers surveyed say that “the school climate and curriculum guidelines prevent them from fostering student creativity.”

P. 332

Brown asked Surance what he thought was “the most significant barrier to creativity and innovation.” After he pondered the question, he told Brown that he thought it was the “fear of introducing an idea and being ridiculed, laughed at and belittled.” He went on to tell her that innovative ideas do often invite ridicule, because they are seen as ‘out-there’ or ‘crazy.’ He then went on to say:

Evolution and incremental change is important, and we need it, but we're desperate for real revolution and that requires a different type of courage and creativity.

(See Creativity Myths P. 329)

Creative Planning

P. 333

From George Land's work we can see that it is entirely human and natural to be creative, all five year olds show a genius level of creativity, but then non-creative behaviour is learned. He advises to add the time for the use of divergent thinking as well as the more traditional convergent thinking which is used in schools. But the nuts and bolts of divergent thinking is open to interpretation.

Also there are two distinct elements to divergent/creative thinking – the artistic and the intellectual.

The artistic side was fairly simple to provide in our schools - teach students the techniques of Drawing from the Right Side of The Brain let them paint, create music, produce videos, do woodwork. It was important to find the one area of artistic creativity which the student could relate to.

The cross-fertilisation of artistic and intellectual ideas was also important.

P. 337-338

Are the Left Hemisphere Attributes aligned with the Big 5 Conscientiousness Character Traits? A reminder of the attributes and traits:

CONSCIENTIOUSNESS	LEFT HEMISPHERE
Organised, Productive and Diligent	Analytical, Logical and Rational
Focused, Industrious	Narrow Thinking
Rigid and Inflexible	Attention to Detail
Compulsive, Risk and Change Averse	Mechanical Perfection
Conformist, Conventional	Demands Precision
Compulsive and Stubborn	Needs Tangible Categories

Are the Right Hemisphere Attributes aligned with the Big 5 Openness Character Traits? A reminder of the attributes and traits:

OPENNESS	RIGHT HEMISPHERE
Creative, open to new ideas.	Curious. Looks out for what might be different from our expectations
Adventurous.	Future oriented. Flexible. Finds solutions.
Intellectual. Manipulates abstract concepts.	Intuitive. Self-aware. Empathetic
Love of variety and novelty.	Displays insight imagination, visualisation and experimentation. Sees the whole interconnected picture.
Risk takers.	Is interested in individual concepts, not categories.
	Welcomes change and the concept of evolving. Takes risks.

As parents and educators, we would like to encourage our children and young people to develop a balanced personality. From the Big 5 and the Right/Left Hemispheres, we want to help them maximise the positive and useful traits and attributes, and minimise the negative and not useful ones.

However, if students have been educated “successfully” within a mainstream school, they will have well cultivated the Conscientious Character Traits, and the Left Hemisphere Attributes. Unfortunately, they will have neglected almost all of the Openness Traits and Right Hemisphere attributes – creativity being the main one.

In order to realign educational provision, would it be helpful if we had a balanced “personality” within our systems, specifically our educational system?

As it stands, this is mostly a conscientious system (C-System), heavily weighted with all of those traits and attributes. Why is that? Could it be that schools and universities are places where conscientious-type (C-Types) people succeed and go on to higher education, and then are part of the educational establishment who teach and produce educational policies?

In an article entitled: ‘The Big Five personality traits, learning styles, and academic achievement’ the authors tell us:

Personality and learning styles are both likely to play significant roles in influencing academic achievement. College students (308 undergraduates) completed the Five Factor Inventory and the Inventory of Learning Processes and reported their grade point average. Two of the Big Five traits, conscientiousness and agreeableness, were positively related with all four learning styles (synthesis analysis, methodical study, fact retention, and elaborative processing)

Instructors who are sensitized to the importance of these personality traits as predictors of academic achievement could design course assignments and testing methods that foster:

- conscientiousness (e.g., requiring drafts of assignments to be submitted in small parts),
- agreeableness (e.g., supporting and rewarding cooperative behaviors), and
- openness (e.g., capturing students’ imaginations by linking concepts to current events).

The educational system is effective at delivering the first two requirements, conscientiousness and agreeableness, but often lacks the third ingredient: openness.

When the number one predictor of creativity is openness, the problem is built into the educational system.

In their book: *Wired to Create: Unraveling the Mysteries of the Creative Mind*, Scott Barry Kaufman and Carolyn Gregoire reveal that openness to new experience is the “strongest and most consistent personality trait that predicts creative achievement.” and this is true of creative achievements in both the arts and sciences.

How are high openness-type students (O-Types) to thrive if there isn’t an openness system (O-System) in place to capture imaginations?

O-Types often fail in the C-System, which insists on conformity and convention. It can be a difficult requirement for students, from the earliest days of school through secondary school, as studies suggest conscientiousness is naturally low in young people and only begins to emerge in late teenage years.

The ensuing consequences of not providing a route for O-Types are serious: Low conscientiousness has been linked to criminal behaviours including, anti-social activity unemployment, homelessness, or serving prison sentences.

Obviously, the C-System has its place, but an O-System is desperately needed to create balance and offer an educational provision for O-Type students.

Flow

P. 211

“Flow” is the highly focused mental state, named by the Hungarian-American psychologist Mihaly Csikszentmihalyi. Flow seems the same as immersion (experienced by the students in a Portal Project) and displays the same components of Csikszentmihalyi’s description: clear goals; high degree of concentration; a loss of the feeling of self-consciousness (sense of serenity); distorted sense of time; direct and immediate feedback; balance between ability level and challenge; sense of personal control; intrinsically rewarding.

However, although immersion *does* elicit similar states as flow, it differs from flow in certain areas: Students can be immersed in the projects, but still be aware of external stimuli. Flow describes a serene mindset, whilst immersion is much more emotionally charged.

The authors say “these findings suggest that a key part of immersion in games is that they are provoking: not only are they viewed as positive experiences, but negative emotions, and uneasiness run high.”

This might sound like something to avoid within a school setting, however, negative emotions, uneasiness and uncertainty are carefully built into the mechanics of The Portal Projects.

Individual Flow

P. 275

Creativity had been a priority in the primary school. I found that the younger children were confident in their creative pursuits including drawing, painting and model building. They would just follow where their inner artist led them. It was wonderful to see a class immersed in their artwork. They were definitely getting lost in the moment of creating. It was meditative, not in the sense of emptying minds (which we had tried with the students with mediocre success) but in a sense of active meditation. They would finish their artwork in their own time and their mood would be Zen-like.

However, something quite distressing started to happen. As the students became older, they started to back away from any opportunity to draw. They would say it was silly, or that they couldn't draw. I thought this was a hugely important thing to lose, and set out to see what I could do about it. I wanted to find a way of learning to draw which would be easily transferred to the students.

When I found the art course at OTIS College of Art and Design entitled 'Drawing on the Right Side of the Brain' I was intrigued. When I read more about Betty Edwards, the founder of the programme and her approach to teaching and learning, I enrolled on the course right away. The programme was based on her book, which was published in 1979.

P. 76

The instructor told us that the key to learning to draw is in the seeing - it is the eye that needs to be trained, not the hand. If you have normal eyesight and if you can write your name legibly, you can easily produce beautiful drawings.

I know there are many who think that art is not as important as other subjects, but if you look deeper into the skills, you will find that to produce good art, you have to observe things in different ways, shift your viewpoints. It is a process of how you see, and it is a skill of perception.

This 'seeing' is different from your regular day-to-day seeing. This type of seeing is to determine relationships between one line and the next, looking for where the light is falling. It is wholly absorbing and all-consuming.

Because language generally dominates our minds, the natural tendency of the brain is to align with the left hemisphere. The first goal is to learn how to overcome this alignment and utilise the powerful function of the right hemisphere.

P. 279

I despaired at the fact that children would turn away the opportunity to both experience this peaceful state of mind and produce wonderful art pieces. I was wondering why the childhood passion for drawing disappears. In talking to my art instructor about it, she offered an explanation. She talked about young children using symbolic representation in their drawings, almost cartoon like, not what they actually see. As the child becomes older, they realise that the symbolic drawings do not match what they see in real life and they become frustrated and do not want to continue drawing.

This symbolic drawing is still used frequently by adults, so they are generally not too keen to embrace drawing either. A few people in my class were worried about this, admitting to their own cartoon-like drawing style. The instructor assured us that she would lead us out of symbolic drawing and into the world of "seeing."

One of our secondary students was skeptical about learning to draw. He would say he was not creative, and would never be able to complete a piece of art. He was a proficient maths student, and so I talked to him about how to learn from a mathematical perspective. I showed him how creating a drawing was all about measurements and relationships from one point to another. He really liked this approach and would then carefully measure out,

with a ruler, where each pencil mark would go. His final portfolio includes incredible pieces of artwork which although he doesn't admit to it, I can tell he is really proud of.

Every time a student benefits from the art course, I am grateful to have found and attended the art programme in Los Angeles where I learned that anyone could create art. This is beneficial for learning the actual skill, but it also teaches the students how develop openness traits and develops right-brain function, the home of intellectual creativity

Group Flow

P. 105

This was a frenzy of learning. The students were coming into school early in the morning to finish their case briefs. They would work through breaks and lunches, and again we would sometimes have to force them to leave the classroom, to eat or take a walk.

The projects are not re-enactments or simulations whereby the students act 'like' a character, they seemed to become the character, taking on how they felt about the issues swirling around them.

The students became immersed in the study of human nature, of others and their own.

TPP's provide this opportunity, which is an incredible way to study character traits in a dispassionate and considered way, and to learn how to look for the reasons behind the behaviour in a systematic and tolerant way. The diversity of the projects brought to life characters from different countries, time frames, and professions. This provided a world of social and psychological insight into human nature for all of the students.

P139

I struggled to think of an insightful analogy to compare the two approaches to education. It feels something like...finding yourself in alone in a cold grey room, sitting on a spindly wooden chair, at a bare table to eat a few stale crackers and drink water, whilst from next door you overhear laughter and excitement and the hum of authentic human connection as a crowd sits to enjoy a lavish feast...something like that.

Group Divergent Thinking – Group Flow

(New Addition)

Within a Team

Philosophers including Hegel have explored how thinking develops amongst groups. One of those propositions is a triad called thesis, antithesis, and synthesis. The process explores the three corners of an initial idea (thesis) followed by an opposing/negating idea (antithesis), then the tension and conflict of those opposing ideas, resolves with a final developed and advanced idea.

This is what occurs when the team are working together to build their case, the arguments they will use in an attempt to win the game. They will challenge each others plan and require explanations of the strength of a point of view. This is vital to help define and advance the thinking of each group member as they journey through the triad stages of thesis, antithesis and synthesis. It is an intellectual creative process.

Opposing a Team

When it comes time to use those arguments with the opposition, then the gelling of the group happens. Then they are a strong team with a common enemy.

Failure is built into the Portal Projects. This is when the resilience traits kick in, the antifragility, and the developing maturity required to face adversity, comes to the fore.

P. 337

Now is the time to be stubborn, critical, rebellious, and nonconforming. To be an anarchist. To be intellectually creative.

Soon, a team consciousness kicks in, the group genius - the scenious, and the students bond under the pressure, and support each other to design a new plan.

The ensuing awareness of a person's ability to face failure and emerge with renewed motivation, optimism and having created a new scenario, was really powerful for every one of them, life changing even.

Intellectual Creativity

P. 209-210

Pascual-Leone uses a skier analogy. If our brain was a snowy mountain the genes would be the rock formation and the angle of the mountain, the basic structure. Our neural pathways would be the tracks laid down in the snow by our skis. Infrequently traveled tracks will be light and frequently traveled ones will be deeply ingrained, allowing for a slick and quick journey down the mountain. New tracks are not easily made, we're unsure of where to ski and the journey is slow and clunky. We are much happier staying within our well-worn tracks. What is needed to get us off-track and into new territory is a road block within the track, something to make us change direction.

The blocks are events or situations, which lay outside of the normal terrain. They cause the brain to look up and shake free from passivity and fear. They can be a shock, a surprise, something unexpected or unusual.

So, the message from his Pascual-Leone's experiment* is - in order to develop areas of the brain, you have to block or interrupt those deep tracked pathways.

*(see Pascual-Leone's experimental road block – P. 209)

The Portal Project's are that block, they interrupt the usual pattern of thinking. The students are thrown into a world of emotional and imaginative experience. Who is this person they are assuming the character of? What happened to them? Why did they make those decisions? The interruptions to the regular patterns are also the disorienting changing environments, the challenges of preparing an argument, the plot twists, the humour - all contribute to frequent and on-going evaluations of their thinking. The conflict and confrontation throws their thinking into different areas of their brains.

P. 214

Neuroscientist V.R. Ramachandran says humor involves an unusual juxtaposition of ideas. He believes that humour, poetry and metaphor causes communication and cross-wiring to occur within the brain. This, he says, is the basis for creativity.

He thinks there should be courses in schools for humour and laughter.

P. 210

The blocks not only knocks the students out of their deep tracks, it drags them to the top of the hill and pushes them swiftly over the edge leaving them struggling to regain their balance as they flail down the hill.

This definitely interrupts their usual behavioural and attitudinal patterns. Why do they even attempt to stay on their feet, why don't they take off their skis, refuse to take part, and stomp off home? Because they are immersed in the game. If you think this is hugely challenging, you'd be right. If you think it induces anxiety, you'd also be right. If you think they can't cope and buckle under the strain, you'd be wrong, very wrong.

Rather than packing up and going home, they become immersed in the challenge of navigating the mountain terrain. Immersion is an interesting phenomenon as we'll see.