

# **The Amazing Connection Between Creativity, Critical Thinking, and Problem Solving**

## *A Move Towards da Vinci Creativity*

When considering the relationship between the academic world and the various modes of creative expression, have you ever spoken (or thought) anything which minimized the significance of *Art*? Historically, it has always been the tendency for the uninformed to behold a work of art and subsequently say something like, “That is wonderful!” Yet in the back of the person’s mind, he or she is actually diminishing its value by thinking something that goes like this: “But even so, it is just art.”

There are many who will flippantly dismiss the immense importance of *Art*, along with the thought, effort, and critical thinking that lie in back of a given project. However, cutting-edge educators in a world-class school understand otherwise. The most effective mentors of tomorrow’s leaders have fully realized the vital role which *creativity* has in developing innovative minds—minds that have the capacity to think critically and to navigate successfully through complex problems, and to derive original, creative solutions which display a significant measure of breadth, depth, and foresight.

Not only is there an amazing link between creativity and critical thinking, but many view the two as opposite sides of the same coin—the coin we call “problem solving.” Some ten years ago, this writer attended a highly informative and worthwhile seminar on critical thinking, creativity, and problem solving. At that time, the presenters emphasized this very thing:

*Creativity does not oppose, much less counter,  
critical thinking; rather, it awakens regions of the mind  
in ways to which nothing else may be compared.*

Regular exercises which require creative thinking actually develop the thought processes that result in markedly heightened problem solving abilities. It is the creative ability to adapt, apply, integrate, and synthesize that will give rise to needed solutions over the gamut of problems seen across the academic disciplines. And of equal importance, this ability will be no less useful as our young people take that gradual step into the adult world and become those who apply creative problem solving in everyday, true-life situations.

Hence, let us momentarily ponder the responsibility and privilege of the teacher, the parent, the mentor. The evidence indicates students who are led to develop their creative abilities also find a heightened ability to excel academically. And it is a potential of which many appear to be unaware. Yet, it is this *creative potential* which translates into academic and lifelong accomplishments in the lives of those who apply themselves via consistent diligence in hard work and unquenchable inquiry. While many possible examples may be cited in this regard, two will suffice for the sake of this discourse:

1. Not only did we sketch, draw, and color throughout our childhood years, but the writer's older brother took *Art* in all of grades 7–12. He subsequently scored competitively on the SAT and ACT exams and would later earn all three degrees in Engineering (B.S., M.S., and Ph.D.).
2. And an especially enigmatic, historical figure should loom large in the minds of many over this present inquiry. What amazingly creative person has also excelled in the most rigorous of academic disciplines? *Leonardo da Vinci* was not only an artist, but he was also a musician, an architect, a painter, a sculptor, a mathematician, a scientist, an engineer, and an inventor. *Da Vinci* might well be considered the epitome of the union between creativity and critical thinking as his problem solving skills produced many profound results. *Da Vinci's* parachute design, for instance (which he had no means to test), has been recently built and deployed, and it was shown to be effective.

In summary, if your students are seen doing anything creative as a required mathematics assignment across this school year, and if it appears to be more “artistic” than “academic,” please remember and be assured: Creativity and critical thinking are not *polar opposites*. Rather, they are two flowing rivers that—when consistently and properly nurtured—will powerfully converge in the developing minds of those who shall someday step forth into the adult world prepared to think clearly and to solve problems with creative ingenuity. This creativity will have been long since infused and developed from educational experiences which required original thinking in their early and formative years under the mentorship and tutelage of educators who recognized its essential role in a world-class education that not only prepares students for life, but for living it to the fullest.

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