Creativity in Plastic Surgery

A. Prado · P. Andrades

Creativity in plastic surgery has been a hot topic of the past decade. This is explained by the nature of plastic surgery, with its intense pressure for innovation and maintenance of a competitive edge.

Creativity is the ability to make or bring into existence something new, whether a new solution to a problem or a new method, technique, or device, or simply the act of making something new. Creativity also may be seen as a mental process involving the generation of new ideas or concepts or the process of making new associations between existing ideas or concepts [1].

The creative thought is original, and innovation applies such creative ideas in some specific context. For example, "invention," is a term usually understood as referring to new devices, instruments, and machines, but this is a narrowing of its original meaning, "to come on something, to fabricate in the mind." For this reason, it is equally proper to speak of an invention of an idea [2].

How do we define creativity in plastic surgery? Plastic surgeons are seen by other specialties as imaginative, original, inventive, and ingenious people. What the others do not see is that innovations in our specialty appear after the complete picture of principles is grasped, as shown in the *Principalization of Plastic Surgery* by Millard [3].

Attendance at several courses, meetings, and symposia enables us to recognize creative individuals when they communicate something partly or wholly new, invest an existing object with new properties or characteristics, imagine new possibilities not conceived previously, or perform something in a manner different from what was thought possible or normal previously. It is easy to distinguish these individuals from other less creative peers because they have a rich body of domain-relevant knowledge and well-developed skills. They are intrinsically motivated by their work; tend to be independent, unconventional, and more risk taking; have a wide interest and greater openness to new experiences; and have skill in recognizing differences and similarities and in making connections. These creative individuals have a true appreciation of and ability for writing and drawing, flexibility to change, and willingness to question norms and assumptions. They tend to have a discovery orientation and ask novel questions.

In work contexts, creative plastic surgeons tend to take the initiative, to work in teams, and to have extensive networks. The presence of stimulating coworkers promotes more creativity by adding excitement, energy, and synergy. Competitive pressure leads to enhanced individual and group creativity. The affective context also is important because it influences creative problem solving.

An important aspect of being in the University is the ability to teach, investigate, promote extension, communicate, publish, and finally, with free will, create. Observation of how things work and develop is transcendental. For this purpose, the creative individual must have time, imagination, and an open mind. The Greeks developed leisure so they could observe because this was the first step to innovation.

It is said that the University gives its academics a sabbatical year to "think and have time to create." But this utopia in our globilized world requires each one of us to "kill our own pig" to survive and "feed the family."

Creative minds in plastic surgery have imagination that sparks "brainstorming of ideas," the same as a schizophrenic

A. Prado (✉) · P. Andrades
Plastic Surgery Division, Department of Surgery,
School of Medicine, Jose Joaquin Aguirre Clinical Hospital,
University of Chile, Santiago, Chile
e-mail: pradoplast@yahoo.com

patient, but with a difference. Normal individuals have a period of incubation followed by a flash in which everything suddenly comes together. It is the "eureka" of Archimedes or the falling apple of Newton. The investigator then is possessed by the idea and must be compelled to express his thinking, with repetition, at the risk of opprobrium that makes him go back to the project while he continues speaking with potency to his colleagues. They see things that everyone around them sees while making connections that no on else has made.

The new idea then must be proved and verified with assay before any communication is done. Accurate examination of the literature is indispensable to avoid rediscovering the wheel because inventions are rarely wholly new and nearly always built on experience from the past. Many technological innovations that appear to be sudden bursts of novelty prove to have been preceded by a long series of inconclusive attempts. The notorious or well-advertised case often is mistaken for the first.

Innovation in plastic surgery is problem solving, for which there must be insight, intelligence, prior knowledge, planning, perseverance, and motivation. Another aspect is style because some plastic surgeons approach problems with more impulse than others who are more reflective. The successful problem solvers are those who combine when to act with impulse and when to act with great reflection.

Improvement in standards, modification of routine, and pioneering of new ideas in plastic surgery require innovation through creativity in which imagination sparks penetration beyond known boundaries. Ideas cause ideas and help evolve "new ideas" that are constantly in progress in plastic surgery, probably more than in most other specialties. The need to enhance and turn techniques into "gold standards" is a powerful stimulus to invention, but not the only one. Needs are always present, but the inventions may not be forthcoming.

How can we improve the inventive impulse and preserve creativity in the new generations of plastic surgeons? Research is fundamental to plastic surgery because this innovative specialty requires a constant infusion of new ideas to spur the growth of this field and to lead the way in devising new techniques and treatments. Universities are recognizing the importance of creative clinical research and its contribution to science [4].

We have experienced failure in nourishing and sustaining inquisitive plastic surgeons. This is tragic because our specialty attracts some of the brightest and most imaginative individuals in the study of medicine. It is our belief that we should continue teaching principles in plastic surgery. In the long term, the University will enjoy the privilege of having plastic surgeons who create improvements and new techniques and who will stay in academic surgery and continue to contribute to the scientific growth of the specialty. However, their activity will be possible only by current specialization of labor and availability of surplus capital to support their ventures and their choices to turn time out of private practice into part-time research [5]. Anything we can do to promote creativity is a step in the right direction.

References

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