

Waiting for that BIG IDEA!



We are inundated with information on that “one big idea” in media, scientific discourse, and clinical corridors! Orthodontics and its allied specialties have had many such ideas that have changed the course of our professional existence. The Advent of the Edgewise Bracket, Cephalometrics, Growth Modulation Concepts, Prescription-based appliances, Wires of differential modulus, TADs, Surgery First, CBTs, CAD/CAM, customized appliances, robotic wire bending, Aligners ... the list of these “big ideas” goes on! Every aspiring resident, inspired by many of these is searching for that one “big” idea to make his/her mark in the annals of orthodontic literature. The perception generally is that we do need big “ideas” to get started!

Most often, however, it is the smaller ideas that lead to big things. Scott Berkun, a renowned author, points out, “little ideas can be useful enough if you present them in the right place. Making your office run 10% more efficiently, cooking your food in a slightly easier way, or heck, even inventing a device that allows you to take selfies in a somewhat easier yet more visually obnoxious manner. All these ideas have one thing in common: They solve small problems, instead of trying to change the world.”^[1]

What holds most innovators from greatness is often a small thing that happened to be consistently overlooked. The lack of progress is not because there is a grand idea missing. Instead, the cause is a simple idea prevented by bureaucracy, killed out of ignorance, or buried under incompetence. If those simpler, smaller ideas were set free, the effect would be as potent as any grand theory. Somehow, we discount simple ideas for being playthings, for being too small to be worthy, not recognizing the surprising power hidden in what seem to be our littlest decisions.

The McDonalds brothers had a very simple idea. They made hamburgers at a few stands in California. Like any reasonable owner would do, they wanted to run those stands efficiently. How did they do that? They tried to make the process for making food repeatable, an assembly line for food construction. Any homemaker or line cook of the 1950s made the same discovery as making school lunches, or eggs over easy again and again motivates this kind of thinking. Had you shown the McDonalds’ business plan to any of the great business minds of the day, they

would ha thought you were insane: They would have said that the idea was not big enough to warrant interest of any kind. Fifty years later, McDonalds has 30,000 locations and \$22 billion in revenue. Certainly not all of that value can be attributed to the simple notion of creative efficiency, but dedication to the notion did enable their early domination of competitors. The point is simple: A small idea, applied consistently well, can have disproportionately large effects. The insight was not to find a big idea, but in seeing how a little idea, done right, could become big.

In the Orthodontic parlance, the little ideas are the published Technique Updates, Clinical Pearls/Innovations, and sometimes even Case Reports. These might be lowest on the evidence hierarchy but have great value in terms of clinical application and being a resource pool for future developments in the specialty. Never worry about the size of an idea, it is more productive to think about the possible leverage an idea has. An idea can have a different amount of leverage depending on where, when, and how carefully it is applied. One old idea from one profession, reused in the right way in another profession unfamiliar with it, might just have transformative effects. The use of NiTiInol in orthodontics is a classic case in point. In Atul Gawande’s book *The Checklist Manifesto*, he explains how the simple idea of a task list, something used by aircraft pilots for decades, has improved patient safety in surgery by 30% or more. Hospitals did not need a breakthrough technology. There was not a new theory or grand vision. A simple act, with a simple, old tool, had incredible, and surprising, leverage.^[2]

There are many dubious stories in the history of innovation, and some, despite their improbability, make valid points about the significance of ideas. Charles Steinmetz (or Edison or Tesla, depending on the version of the legend you hear), holder of over 200 patents, retired from general electric (GE). A complex system had broken, and no one could fix it so they hired him back to consult. Steinmetz found the malfunctioning part and marked it with a piece of chalk. He submitted a bill for \$10,000. The GE managers were stunned and asked for an itemized invoice. He sent back the following: Making the chalk mark \$1, knowing where to place the chalk mark \$9,999.

Ideas are like chalk marks: As simple as they seem, knowing where, when, and why to use even the smallest ones, can change the world.

A surprising number of the conveniences of modern life were invented when someone stumbled upon a discovery or capitalized on accident: Microwave oven, safety glass, smoke detectors, artificial sweeteners, X-ray imaging.^[3]

Let us know some of these ideas:

- **Microwave Oven:** In 1945, Percy Spencer, an engineer at Raytheon, discovered a candy bar that melted in his pocket near radar equipment. He chose to do a series of experiments to isolate why this happened and discovered microwaves. It would take ~20 years before the technology developed sufficiently to reach consumers
- **Safety Glass:** In 1903, Scientist Edouard Benedictus, while in his laboratory, did drop a flask by accident and to his surprise, it did not break. He discovered the flask held residual cellulose nitrate, creating a protective coating. It would be more than a decade before it was used commercially in gas masks
- **Artificial Sweeteners:** Constantine Fahlberg, a German scientist, discovered Saccharin, the first artificial sweetener, in 1879. After working in his laboratory, he did not wash his hands and at dinner discovered an exceptionally sweet taste. He returned to his laboratory, tasting his various experiments, until rediscovering the right one (literally risking his life in an attempt to understand his accident)
- **Smoke Detector:** Walter Jaeger was trying to build a sensor to detect poison gas. It did not work, and as the story goes, he lit a cigarette and the sensor went off. It could detect smoke particles but not gas. It took the work of other inventors to build on his discovery to make commercial smoke detectors
- **X-rays:** Wilhelm Roentgen was already working on the effects of cathode rays during 1895 before he actually discovered X-rays. He was a scientist working on cathode rays. On November 8, 1895, during an experiment, he noticed crystals glowing unexpectedly. On investigation, he isolated a new type of light ray.

To be more helpful, work is the essential element in all finished creative projects and inventions. No matter how brilliant an idea, or miraculous discovery, work will be required to develop it to the point of consumption by the rest of the world. And its effort, even if in pursuit of pleasure, provides the opportunity for serendipity to happen. The unknown cannot be predictable and if creativity is an act of discovery, then uncertainty must come with the territory. Curiosity is a far simpler concept than

serendipity and far more useful. People who are curious are more likely to expend effort to answer a question on their mind.

The Myths of Innovation will always be popular, which means for any inspiring story of a breakthrough, we must ask some pertinent questions:

1. How much work did the creator do before the accident/breakthrough happened?
2. How much work did they do after the accident/breakthrough to understand it?
3. What did they sacrifice (time/money/reputation) to convince others of the value of the discovery?

It is answering these three questions about any creativity story, however accidental or deliberate, that reveals habits to emulate if we want to follow in their footsteps.^[3]

The last editorial discussed “trends in orthodontic literature.”^[4] Trends are a culmination of innovation, creativity, and a regimented search for evidence. These trends educate and inspire orthodontists to yearn for the next “big” wave in our specialty. To the “select geniuses” who have made these waves, we doff our hats! To the zillion hard working colleagues, who take the trouble to document the smallest of their ideas, and contribute to orthodontic literature, our gratitude and deepest appreciation too! For an orthodontic clinician busy in rendering patient care, an idea emanating from the clinical trenches has infinite potential to inspire if not transform into that “Big Orthodontic Idea.” I attended a Medical Editors Conclave last week that emphasized on citable literature be given priority in publishing, to stay relevant in the impact factor game. The general consensus was that Pearls/Innovations/Techniques or Case Reports rarely get cited; hence, original research is what Editors should focus on. If editors 20 or 30 years ago thought that way, a lot of brilliant orthodontic ideas would have probably never seen the light of the day!

The APOS Trends since its inception has encouraged “Clinical Pearls and Innovations.” For recognizing the best articles in this section, we have even introduced the “Loh Soo Ann APOS Trends award for Best Clinical Pearl/Innovation article.” This jury for APOS Trends awards did not award this category for the year 2013–2014. I sincerely hope there will be worthy claimants for it in the years 2015–2016. While the creative orthodontic minds aspire for that “next BIG idea,” it is equally important to pen down every small one that comes by. We appreciate our contributors for taking the trouble to pen down these little ideas and innovations for the journal in particular, and the profession at large. For often, it is these small ideas that complete the “BIG” picture, it in life or orthodontics!

Vaid: Waiting for that BIG IDEA!



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