

Draft Editorial

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September 24, 2012

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Editorial

On Right Brain Activity to Stimulate Creativity in Academic R&D

Key words: Left brain; right brain; innovation; intuition; quality; patents

It is now well proven that whole brain activity promotes creativity and hence innovation in scientific and technological effort. Left brain activities are known to stimulate academic, business, intellectual and/or business activities while artistic, creative and intuitive activities are the realm of our left brain. Buzan (1) has shown via examples to show that great geniuses used their whole brain to excel. Left-brained Einstein and right-brained Beethoven indeed used their whole brains to become true geniuses.

Another important point Buzan makes is somewhat counter-intuitive. It is related to an important issue regarding creativity. He defines "fluency" in creative thinking as the number of ideas one can generate and the rate at which one creates them. He postulates that fluency is one of the key objectives of truly creative thinkers and all great geniuses. A valid question arises naturally: What happens to the quality of ideas as one speeds up one's thinking and generates a greater number of ideas? Our intuition will lead us to surmise that the quality will suffer as the quantity goes up. Buzan's research seems to show that indeed as the quantity rises the quality does not suffer but may actually rise. If we look at the output of ideas from truly great thinkers we can only marvel at the massive output of original ideas they have generated. Here are some examples cited by Buzan. Marie Curie received Nobel Prizes in two different disciplines viz. Chemistry and Physics. Leonardo da Vinci, Charles Darwin, Einstein, Freud, Mozart, Tagore et al are well known for the sheer volume of their exceptional contributions to different fields. Published empirical studies show that Nobel Laureates in science are five times as likely to be proficient in some artistic talent (e.g. music, painting, poetry, writing etc) as the cohort of general scientists in the field.

To give more examples from Buzan showing a correlation between quality and quantity amongst truly creative thinkers we may note the following. Edison held 1100 patents (although many were apparently acquired according to some reports). Pablo Picasso created over 20,000 creative artistic works- paintings and sculptures. Shakespeare wrote over 150 sonnets and 37 masterpieces in just two decades. Mozart

wrote some 600 pieces of music. There are many more examples which show the positive correlation between quantity and quality. Of course, for the average a scientist or engineer the correlation may not be so strong but it is unlikely to be negative. It is noteworthy that the output and quality of contributions from creative thinkers actually rises as they age- again a counter-intuitive result. The current trend to reduce reliance on experience may, in the long run, result in a loss of creative output of societal benefit. Development of wisdom cannot be accelerated and yet it is invaluable in determining what research needs to be carried out and why.

It is interesting to look into the patent activity of Thomas Edison. Starting at the age of 21 when he was awarded the first patent, he received a total of 1093 US patents and 1240 non-US patents in 34 countries. As is usual some 600 of these patents were unsuccessful or abandoned. The sheer diversity of areas which his patents spanned is truly bewildering: he covered batteries (147 patents), electric light and power (424), cement (49), mining (53), telephony (186) and miscellaneous ( food preservation) and indeed one patent on drying as well. It is also noteworthy that Edison's work and patents helped several industrialists of the stature of Henry Ford ( cars), Harvey Firestone( tyres) and George Eastman ( film strips).

One can extrapolate this observation from individuals to institutions and industrial R&D organizations as well. If we assume- and by some this may be considered a stretch- that the number of patents awarded as an indicator of innovative capability, then it is well known that some of the well known high technology companies tend to have the vast majority of viable patents. Thus, innovation breeds greater innovation. From my personal experience I find that as I carry out more R&D, a larger number of new ideas emerge naturally. It is perhaps a corollary of the Mathew Effect! Thus the quantity of useful output increases along with- or due to- quality of the effort involved. Thus, while the sheer number of publications does not necessarily reflect high impact, a very small number also does not reflect potential for impact since a combination of high quality and significant quantity is a prerequisite for impactful outcome of R&D in engineering.

From this brief account of the accomplishments of truly creative thinkers I believe that we can recognize the importance of whole brain thinking and the positive relationship between quality of ideas and their quantity. It is also important to note that the great scientists and engineers have made significant contributions to more than just one field. No wonder that we now encourage interdisciplinary R&D to promote innovation. Research-intensive universities and major R&D centres around the world have already recognized and institutionalized interdisciplinary approach to research, development as well as business development.

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## Reference

1. Tony Buzan, The Power of Creative Intelligence, Thorsons,Harper-Collins, London, 2001.