



Editorial: Effective Research Done by Teams or Individuals?

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An article by Susan Cain entitled “The Creative Power of One” recently caught my attention when it appeared in The New York Times. It is the gist of a book by the same author entitled *Quiet: The Power of Introverts in a World That Cannot Stop Talking* (available on Amazon). Conventional wisdom and all the management books extol the virtues of working in teams. Indeed, for many engineering or technology projects requiring multidisciplinary insight a team effort is indispensable. Working effectively in teams for design or for R&D requires team members to be extroverts and good team players. Introverts find it difficult to work within large teams and their creative abilities are often overlooked in practice.

According to Cain’s research, however, truly creative tasks can often only be done in isolation. Contrary to popular belief, she asserts that “brainstorming sessions are one of the worst possible ways to stimulate creativity.” She also claims that individuals perform better than groups and the creative performance drops with the size of a group. Most of us already know that the effectiveness of meetings also drops with the size of a committee. No wonder there is the old adage that says “A committee is a group of people who collectively decide that nothing can be done.”

According to Cain, people are more creative when they are in isolation and are not interrupted. Solitude seems to catalyze creativity and ability to innovate. GroupThink does not promote creativity. In fact some of the “spectacularly creative” people are known to have been introverts. Sir Issac Newton is reported to be one of the world’s best known introverts. Steve Wozniak, the co-founder of Apple, worked alone on the invention of the personal computer. In his memoir, Mr. Wozniak says “Most inventors[. . .] are almost like artists. And artists work best alone, not in a team.”

To sum, there are conflicting reports on effectiveness of brainstorming in groups versus working alone. Personally I believe that innovators are like artists whose work by definition is original. Artists cannot work in teams. Truly innovative ideas emerge from individual brains working in solitude. However, to implement major innovations, multiple skill sets and expertise are needed and team effort is clearly essential.

Susan Cain offers an excellent remedy to the diminution of creativity in groups. Electronic brainstorming, which is now readily feasible, thanks to the Internet, combines the advantages of solitude with those of group brainstorming.

Maybe this is the best way to go in R&D as well where creativity and ability to innovate are critical to success. Truly effective R&D perhaps is not possible as committee projects. With the increasing focus on collaborative team work and most major granting agencies reserving their awards to increasingly large teams, maybe there will be a drop in innovative outcomes. Teams are good in implementing project objectives but it is not clear if they are equally effective in coming up with significantly original innovative ideas. Larger teams consume larger budgets, resulting in bigger successes but there is also the danger of bigger failures. In a team environment, there is a risk that one or more members may dominate the thinking process. It is also possible that an introverted member of the team may not “disclose” his/her innovative ideas, fearing either that it may be shot down or that the credit for it may be snatched by a more extroverted member of the team or by the team leader. Creativity appears to be a solitary activity, but converting it into a product or a complex process requires a team, since in today’s economy, multidisciplinary expertise is required to accomplish any major technological project. The success story of Apple’s iPhone 4S is a testament to this line of argument. The idea was hatched in solitude by a brilliant creative genius but its implementation required teams of tens of thousands of engineers in many parts of the globe. This product perhaps would not have seen light of the day without true globalization of the entire world.

The jury is still out on the battle between solitude and GroupThink. To me it appears that time must be provided for thinking in solitude to come up with truly creative ideas, while a group effort is clearly needed for effective implementation and to fill in any holes in the creative idea. In academia my experience of nearly four decades of conducting research and mentoring researchers leads me to believe that it is individuals thinking independently in solitude, after extensive familiarization with what is available in the public domain in terms of prior research, who come up with creative ideas, leading to original contributions. Advisors therefore should not enforce their premature thinking and thus stifle creativity. Creativity can be mentored and nurtured but not dictated.

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