

# Using Technology to Help Solve the Idea Selection Problem

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## **The Problem**

Decision-making may be conceptualized as consisting of two phases: idea generation (data collection, brainstorming, news-gathering) and idea selection (deciding on the best course of action from the available information). Idea generation techniques have been widely researched and methods developed that are empirically effective. However, once a pool of ideas has been generated, the probability of selecting the best ideas from the pool has repeatedly been shown to be *no better than chance* (Rietzschel 2005a, 2005b) and does not improve with experience or with deep exploration (Simonton 2003, Rietzschel 2005b).

As a result, the burden of proof of effectiveness now lies with effective idea selection. Without a demonstrably effective idea selection phase, the quality and breadth of the information available to decision-makers and researchers alike has literally no impact on the quality of the decision that results. Therefore, effective idea selection has become the locus where increases in efficiency have the greatest impact.

Education has a large stake in the question due to its traditional emphasis on factual learning, since it now appears that an abundance of high quality facts (idea generation) says nothing about the ability to apply those facts to real-world issues (idea selection).



[Image: innovationtools.com](http://innovationtools.com)

## **Background**

Most current approaches attack the problem by increasing the amount of cognitive reasoning applied. It would seem intuitively obvious that assembling smart people, experts in a given subject, and asking them to apply their experience to a problem would tend to result in smart answers. Surprisingly, this is not typically the case. On the contrary, innovation tends to occur on the edges between clusters of expertise, e.g. in the hallways of a conference rather than in the plenary session (perhaps related to the potential for divergent thought, see Paulus 2006).

Intellectual Ventures, a think tank founded by Nathan Myhrvold, is a case in point. Myhrvold started Intellectual Ventures after leaving Microsoft, where he founded the research division. Intellectual Ventures does things a little differently than a typical company. It brings together high achievers in the same room with little structure other than to follow the train of thought where it leads, though there is self-policing regarding the wise use of time. The groups are widely interdisciplinary; there might be a physician, a physicist, a biologist, and a paleontologist together. The results are staggering. At the first invention session it was thought that half a dozen ideas would be considered a success. They came up with between fifty and a hundred. They're filing five hundred patents a year, with a backlog of three thousand ideas. (Gladwell 2008)

However, all this success is on one side of the equation: idea generation. As for idea selection: "Myhrvold admits that many of the ideas that come out of the invention sessions come to naught... [He] isn't even willing to guess what his company's most promising inventions are. 'That's a fool's game,' he says." (Gladwell 2008)

What appears to be true is that idea generation can in fact be effected by throwing intelligent, and diverse, minds together and removing obstacles. Though messy, it's relatively linear. Idea selection, on the other hand, seems almost mystical by comparison.

What can we say about idea generation, then, that might also be applied to idea selection? Two suggestions:

- 1) High-performing brainstorming groups tend to have certain qualities. Three examples of these (Paulus 2006):
  - Autonomy and independence of the players
  - Low blocking. Participants do not need to strive to be heard.
  - High diversity. Meetings between individuals of differing expertise

These and other desirable characteristics do not have to be left to chance in a given environment. They have been the subject of numerous studies and can be enhanced through methods such as “brainwriting”, described below.

- 2) Innovation has a tendency to occur in the presence of a *suspension of agenda*, a unifying principle of the group qualities listed above. Suspension of agenda often occurs after removal of psychological inhibitors such as competition or goal-oriented thinking and may be accompanied by a feeling of relaxation, of “giving up” or of serendipity and accidental discovery. Shaw has documented suspension of agenda historically (Shaw 1988).

Suspension of agenda, unconscious thought, and divergent thought appear to have overlapping characteristics. Divergent thinking is an important measure of creativity in groups and is often enhanced in cross-disciplinary settings (Paulus 2006). It is also characteristic of unconscious processes which are highly associative, as opposed to the more focused and convergent conscious thought (Dijksterhuis 2006a). It is hypothesized that suspension of agenda works because it enables unconscious processing.

Unconscious thought is indicated as an effective decision-making tool (Gladwell 2005). In contrast to common practice, it has been shown that while simple decisions are better solved by conscious thought, complex decisions respond better to unconscious thought (Dijksterhuis 2006b). Simple decisions may also be made quickly (“thin-slicing”), but more complex ones are best made with a combination of unconscious thought and time (Dijksterhuis 2006b). Measurable results of suspension of agenda and group diversity are given in (Surowiecki 2004).

### ***Candidate Solutions***

**Brainwriting** – Ideas are written rather than spoken, then passed among group members. Previous ideas are read and understood before appending your own. Contributions are anonymous. Brainwriting can be implemented electronically (Newman 2006), and this can make anonymity, diversity, and low blocking easier to achieve.

**Suspension of Agenda** – Anonymity is combined with both individual and group work to suspend conscious agenda and give unconscious associative processes a chance to work. Face-to-face

meetings are crucial. However, these should be reserved for decision-making and maintenance of important social bonds rather than for presenting ideas, i.e. “what do we create” as opposed to “this is what I know”.

### **Conclusion**

Idea *generation* can be improved through tested methods. Two methods have been suggested, brainwriting and suspension of agenda. In comparison, idea *selection* is non-linear and no methods more reliable than trial-and-error are currently known. A high percentage of failure is expected from even the most innovative brainstorming groups, and consequently research and development departments are trained to expect such failure as a cost of success. Even a small improvement in the accuracy of idea selection would pay large dividends.

To that end it is hypothesized that methods that remove agenda on an individual level in meetings while maintaining a specific group goal may be effective for decision-making. It is proposed that given the effectiveness of brainwriting in idea generation, it be applied in reverse to idea selection by

- assembling ideas, supporting information, and anonymous comment and subsequently
- selecting the best idea by voting among a large, highly diverse, anonymous, and autonomous group of users.

The idea selection group should differ from the idea generation group (Paulus 2006) and should consist of members with a wide diversity of expertise, experience, and ability (Surowiecki 2004). Anonymity should be preserved to prevent premature consensus and encourage suspension of agenda (Paulus 2006). Small groups may be preferred for idea generation (Allen 2004) and large groups for idea selection (Surowiecki 2004).

In addition, experiments in idea generation may be conducted by constructing an associative map of the brainwriting submissions, then applying alterations in various ways. For example, to spur innovation the map may be redrawn to emphasize less-popular paths through the idea space (Miller 2004). To experiment with “thin-slicing”, supporting hypertext information may be limited.

***Can you deal with the most vital matters by letting events take their course?  
Can you step back from your own mind and thus understand all things?  
- Lao Tzu***

## References

- Allen, Christopher (2004), *The Dunbar Number as a Limit to Group Sizes*, blog: [http://www.lifewithalacrity.com/2004/03/the\\_dunbar\\_numb.html](http://www.lifewithalacrity.com/2004/03/the_dunbar_numb.html)
- Dijksterhuis A, Meurs T. (2006a), *Where creativity resides: the generative power of unconscious thought*, *Conscious Cogn.* Mar;15(1):135-46. Epub 2005 Jul 12.
- Dijksterhuis, Ap & Nordgren, Loran F. (2006b), *A Theory of Unconscious Thought*. *Perspectives on Psychological Science* 1 (2), 95-109. doi: 10.1111/j.1745-6916.2006.00007.x
- Gladwell, Malcom (2005), *Blink: The Power of Thinking Without Thinking*, Little, Brown & Company.
- Gladwell, Malcom (2008), *In The Air: Who Says Big Ideas Are Rare?*, *The New Yorker*, May 12, 2008, p. 50.
- Miller, John, Ph.D. (2004), Director, The Center for Computational Biology, Montana State University, personal interview.
- Newman, Ron (2006), *IdeaTree*, online software, <http://www.ideatree.us/>.
- Paulus, Paul, Ph.D. (2006), talk given to U.S. Central Intelligence Agency.
- Rietzschel, Eric F., Nijstad, Bernard A., Stroebe, Wolfgang (2005a), *Productivity is not enough: A comparison of interactive and nominal brainstorming groups on idea generation and selection*, *Journal of Experimental Social Psychology*, January 2005.
- Rietzschel, Eric Fulco (2005b), *From quantity to quality : cognitive, motivational and social aspects of creative idea generation and selection*, Tekst. - Proefschrift Universiteit Utrecht, <http://igitur-archive.library.uu.nl/dissertations/2005-1208-200002/UUindex.html>
- Shaw, Marvin C., Ph.D. (1988), *The Paradox of Intention: Reaching the Goal by Giving Up the Attempt to Reach It*, Oxford University Press.
- Simonton, D. K. (2003). *Scientific creativity as constrained stochastic behavior: The integration of product, person, and process perspectives*. *Psychological Bulletin*, 129, 475–494.
- Surowiecki, James (2004), *The Wisdom of Crowds, why the many are smarter than the few and how collective wisdom shapes business, economies, societies and nations*, Random House.