Business Horizons (2007) **50**, 365–372

Available online at www.sciencedirect.com

ScienceDirect

ELSEVIER

KELLEY SCHOOL OF BUSINESS
INDIANA UNIVERSITY

www.elsevier.com/locate/bushor

Creativity: A key link to entrepreneurial behavior

Stephen Ko[a,*], **John E. Butler**[b]

[a] *Department of Management and Marketing, The Hong Kong Polytechnic University, Hung Hom, Hong Kong SAR, China*
[b] *Shidler College of Business, University of Hawaii at Manoa, Honolulu, HI 96822, USA*

KEYWORDS
Creativity;
Entrepreneurial behavior;
Alertness to opportunities;
Bisociative thinking

Abstract While entrepreneurial creativity is a desired behavior in most firms, it is difficult to understand both how this complex phenomenon occurs and how to increase its rate of occurrence. Understanding and increasing managerial creativity is important not only in developed economies, but also in developing economies, where the research discussed herein was conducted. This article argues that a solid knowledge base, a well-developed social network, and a strong focus on identifying opportunities are all necessary inputs toward entrepreneurial behavior. High-technology entrepreneurs that we interviewed in Hong Kong, however, indicated that creativity also plays a critical and important role in the entrepreneurial process. Attesting to this, they credited the competence with their being able to make the associations and bisociations needed to develop new products, which led to their entrepreneurial success.

1. Why is creativity important?

Creativity is what separates humans from other species, a fact which probably accounts for a great deal of our interest in the subject at a general level. Additionally, Mihaly Csikszentmihalyi (1996), former chair of the psychology department at the University of Chicago, points out that "when we are involved in [a creative activity], we feel that we are living more fully than during the rest of life" (p. 2). More than simply enjoying feeling good when putting the principle into practice, however, business managers have a much more specific interest in creativity because they see it as a link to innovation, which in turn leads to new businesses, better products, and a stronger competitive position for existing businesses. Many firms have been lauded in the business press for designing company policies to foster employee creativity. One such firm, 3M, has employed this tactic and has enjoyed a steady flow of new products as a result.

In addition to being associated with new product development, creativity is also seen as important to entrepreneurial behavior because it is linked with identification of opportunities that lead to new firms (and, in some cases, even new industries). US job growth in recent years has been tied to entrepreneurial activity (Baumol, 2002). Moreover, many other countries are beginning to encourage innovation and entrepreneurial behavior, rather than just be content to serve as component manufacturers or assemblers for firms in industrialized countries, as has historically been the case to date.

* Corresponding author.
E-mail addresses: stephen.ko@polyu.edu.hk (S. Ko), jebutler@hawaii.edu (J.E. Butler).

0007-6813/$ - see front matter © 2007 Kelley School of Business, Indiana University. All rights reserved.
doi:10.1016/j.bushor.2007.03.002

While many scholars (e.g., Ward, 2004) acknowledge that creativity is an essential aspect of entrepreneurship and most managers encourage creativity, very little is known about how the process works, especially with respect to recognizing entrepreneurial opportunities. As firms in less developed and newly developing economies attempt to move from product imitation toward product development and innovation, creativity is likely to become an increasingly important maintenance key to those who already hold a competitive advantage. Such developmental momentum is being displayed by China and Hong Kong, both of which are investing increasingly in invention and product development, and from where we draw many of our conclusions about the role of creativity. Tony Yu (2004) characterized Hong Kong's managers as "guerilla entrepreneurs" because they "are largely involved in ordinary discoveries, attempting to fill the gaps brought about by the extraordinary discoveries from industrialized economies" (p. 171). Our research in the region indicates that this is changing, in part because both managers and entrepreneurs are being more creative regarding the products they develop and the businesses they start. As entrepreneurs in developing economies transition from being engaged exclusively in "ordinary discoveries" to higher involvement in "extraordinary discoveries," firms in countries with developed economies will have to become more creative if they want to maintain their competitive edge.

There are also side benefits associated with countries developing their high-technology sectors because these types of firms have spillover effects which often increase the productivity of other companies that purchase their products, technologies, or services. Because governments see high-technology firms as a buffer to economic downturns, as well as critical to future economic growth, they have uniformly been very supportive of this sector. High-technology firms are faced with the difficult task of continuously identifying entrepreneurial opportunities, and must do so to remain competitive (Zaheer & Zaheer, 1997). To complicate matters, they must perform this feat in a highly uncertain environment, in which they are never likely to have all the information they desire (West & Meyer, 1997).

Sternberg (2004) suggests the amount of relevant knowledge individuals have at their disposal is one of the most important links to creativity. Interestingly, our research revealed that the way in which managers link apparently unrelated bits of information is also extremely important to creativity. Specifically, we found that Chinese managers obtained information from individuals in their social networks, built on knowledge gained through past work experiences, read published information sources, and were creative to the degree that they could link disconnected pieces of information from these different sources in ways that led to new products or businesses (Ko & Butler, 2006). If, indeed, part of the creative process involves linking formally unassociated bits of information into new combinations, this knowledge can serve as a potentially useful avenue for training entrepreneurs and students to be more creative in ways that make entrepreneurial behavior more likely.

2. How entrepreneurial creativity works

Finding that owners of high-technology firms often described their new ideas as coming from disconnected pieces of information, we were eager to investigate whether the creativity literature contained references regarding this process. Upon doing so, we discovered that Arthur Koestler (1964), a controversial 20th century writer, journalist, and social commentator, presented a theory that accurately described what we were seeing in our research. For his part, Koestler used the term *bisociation* to characterize this creative capability. Interested in proving that individuals' behaviors were not driven in the same way as the learned responses of animals (such as the Russian scientist Pavlov made popular by training his dog to salivate at the sound of a bell), Koestler viewed explaining creativity as a means of making the counter argument. He believed bisociation occurred as the result of people taking two unrelated frames of reference and connecting them in a new way. Koestler made clear a "distinction between the routine skills of thinking on a single plane, as it were, and the creative act, which…always operates on more than one plane" (Koestler, 1964, pp. 35–36). An example of this from his own personal life was uncovered by David Cesarani (1998), Koestler's most objective biographer. Suffering from a widespread soap shortage in Hungary during World War I, Koestler's father discovered a way to manufacture soap from local clay, which happened to have a mild radioactive content. Scientific views of radioactivity were obviously very different in those days, as Koestler's father advertised his soap as offering related "positive" side benefits of radioactivity; in turn, this actually acted to spur sales.

Koestler expended considerable effort on the speaker circuit and in his books trying to popularize his view of how creativity occurs. Nonetheless, he made little headway with the scientific community. Although interested in creativity in general,

Koestler's examples had nothing to do with business. Entrepreneurial creativity, however, has been defined in a similar fashion. For instance, Teresa Amabile (1997), a Harvard Business School professor known for her research on the subject, described creativity as the generation of novel and appropriate solutions to open-ended problems in any domain of human activity. In a business context, this can occur along the dimensions of new businesses, new products, new processes, new markets, and new ways of acquiring resources. Csikszentmihalyi (1996) pointed out that it also occurs at different stages, which he identified as preparation, incubation, illumination, evaluation, and elaboration. Of these, preparation, incubation, and illumination are more important to entrepreneurial activity: preparation involves elements conducive to creativity, while the incubation and illumination stages really "make it happen," resulting in novel idea generation.

3. Preparation for creativity

Inventions and innovations do not just spontaneously happen. In his book *How Invention Occurs*, John Lienhard (2006) points out that major inventions such as the airplane, steam engine, and printing press came into existence because the Wright brothers, Watt, and Guttenberg were prepared and positioned for the final necessary act of creativity in the long invention process. These revolutionary thinkers achieved this by becoming informed on a wide range of relevant topics and building on the related and unrelated contributions of others. In like fashion, managers and potential entrepreneurs also need to prepare themselves to be creative. Our research indicates that this is done in three ways. The entrepreneurs we interviewed (1) built on their work experience and education, (2) used family, friends, and acquaintances to get information about technological trends and changes, and (3) remained alert and actively searched for new opportunities.

3.1. Work experience and learning

Our first attempt to investigate the link between creativity and entrepreneurial behavior involved a survey of entrepreneurs, which found that both the variety of information and the size of one's knowledge base were important in identifying ideas (Ko, 2004). To gather descriptions of how the process actually occurs, however, we interviewed a number of local Hong Kong entrepreneurs who were working on products or technologies that had been deemed worthy of funding by the government of Hong Kong. Table 1 provides a brief description of these firms.

In many cases, the managers we interviewed indicated that they actually prepared themselves for discovery. During their period of preparation, they became immersed in and obsessed with the issues and problems surrounding their field of interest. One way this occurred was through knowledge gained from work experiences. For instance, the managing director at Alpha Storage noted: "I have been in the engineering field for more than 25 years…Since my graduation, I have been working for different technology-based firms." This, he contended, provided him with the experience he needed to solve difficult technical problems, and eventually led him to wonder, "Why not play a VCD on a television with a bigger screen size?" In response, he developed the world's first-ever VCA card for television.

Knowledge can also be gained through a more direct path such as that used by the president of Gamma Chips, who noted that he consistently reads the *Electronic Times* and the *Electric Engineering Times* so that he can "keep up on the trends in engineering." Respondent managers indicated that they read a lot, especially material they see as relevant to their field, and use the Web to search for new information. One of the directors of Delta Video noted that he "browse[s] more than 100 websites and observes everything around [him] every day." Those who were successful in developing new products and new technologies are active readers and learners. Each of the managers we interviewed

Table 1 Firms developing new products or technologies

Firm (pseudonym)	Interviewee	Product/Technology
Alpha Storage	Managing Director	Pocket-sized mobile storage device for memory cards
Beta Advanced Coding	CEO	Mobile personal and data communications using advanced coding
Gamma Chips	President	128M ROM using single-end, current-sensing design
Delta Video on Demand	Director	Video on Demand system for a metropolitan network
Epsilon Stock Information	CEO	Real-time stock search for mobile device users
Zeta Fiber Optics	Director	Optical switch and wavelength monitoring modules for datacom/telecom fiber-optics applications
Eta Message	Director	Commercial grade phone message delivery system
Theta Translation	CEO	English-to-Chinese machine translation system

expressed the view that this type of preparation positioned them for discovery; they were creative because they did the background work.

Formal education was also important. One manager noted: "My existing product is similar to what I did in my honors project, but with modifications." Another related the idea to his academic experience: "This technology is similar to what I had been doing as a research assistant in a research project before... but my existing technology is superior to the previous one because it solves many inherent technical problems." Different managers emphasized different sources as more or less important, but all were actively engaged in building their base of knowledge and saw this as an important factor in their ability to make discoveries.

3.2. Gaining information from social networks

Past work experiences, active information searching, and formal education are excellent sources of information. However, research tends to indicate that we also acquire a large amount of relevant and valuable information from other people. Stanford University professor Mark Granovetter (1973) discovered that the majority of job seekers find new positions through personal contacts and that the most productive contacts are not family members or close friends, but rather people we know but only see occasionally. Granovetter labeled these types of relationships *weak ties*, and used them to help characterize individuals' social networks. There has been a considerable amount of research on the social networks of entrepreneurs, which tends to find that most entrepreneurs have extensive and well-developed social networks, and that they find them to be a useful source of business ideas (Brown & Butler, 1995). Weak ties have been found to be especially important, as they are more likely to provide business managers with new and disconfirming information. In simple terms, it is helpful to receive this "outside" point of view; people with whom we have regular contact too often see the same things we see.

The Chinese managers interviewed in our study used their social networks extensively. It should also be noted that managers in most East and Southeast Asian countries put more effort into building and maintaining large networks of acquaintances than is common among US managers. When interviewed, managers enrolled in MBA programs in both Thailand and Hong Kong indicated that developing additional relationships is one of the major benefits they associate with pursuing an MBA. We also found this true with the technology entrepreneurs we polled. The CEO of Beta Advanced Coding noted that two of the professors he knew helped him identify and develop the technology. In fact, most respondents indicated their entrepreneurial ideas came from social contacts and that they tended to spring from casual acquaintances, which is consistent with previous research on weak ties. Comments such as "we talk to customers to get a feel for market needs" and "this business idea emerged from my interaction with professors, and people I met at exhibitions and conferences" were typical of the managers we interviewed. Aldrich and Zimmer (1986) were among the first to suggest that social networks might be a distinguishing factor that explains entrepreneurial behavior, and our findings suggest that these are also quite important in the opportunity identification stage.

3.3. Alertness and opportunity identification

Despite previous efforts at explaining entrepreneurial creativity, one major issue remains unanswered: how an individual processes the informational elements obtained from social networks, alertness, and prior knowledge. These antecedents are important to entrepreneurial creativity provided that the information obtained from these sources is processed effectively, resulting in novel idea generation.

In order to be alert, one must have sufficient information to know for what to be on the lookout. This helps heighten sensitivity to perceive more of the details of an opportunity stimulus or situation, and makes it more likely that we will link it to what is already in our memory (Gabora, 2002). Shaver and Scott (1991) suggested that people identified opportunities because of their superior information processing ability, search techniques, and scanning behavior. The entrepreneurs and managers we interviewed indicated that they tended to receive a wide array of information from different sources, but still remain able to stay focused on and become more immersed in a given situation or issue at hand.

Throughout the course of our study, we were repeatedly told that staying alert and scanning the environment is extremely important. One entrepreneur attributed personal generation of numerous ideas to the fact that he spends a great deal of time examining available information: "If you are very interested in reading information, you'll figure out the linkages among information...That's why I am able to have at least one business idea per day." "During the process of searching, I find many unrelated ideas, and this gives me novel ideas subconsciously" noted the Eta Message director. Although the process may be subconscious, it obviously requires that there be some important information in one's conscious mind

to make the necessary connections. This manager's experience is in line with Ronstadt's (1988) Corridor Principle, which depicts alert managers and entrepreneurs walking down a long corridor, noticing around them new business and product ideas that are not noticed by those lacking entrepreneurial capabilities.

4. "Connecting the dots" and noticing opportunity

While social networks, a solid knowledge base, and a firm commitment to remaining alert to opportunities are all necessary components of noticing an opportunity, they do not ensure or guarantee that it will happen. Many of us see the same set of facts under the same set of conditions, yet do not link them in a way that leads to a new product or business. In one episode of the popular US television series *Law and Order: Criminal Intent*, the character Detective Robert Goren tells a suspect, "We are pretty good at connecting the dots." Creativity also involves connecting the dots, and in many cases this entails connecting the dots where the links are not obvious. Our model of entrepreneurial creativity, depicted in Fig. 1, shows social networks, alertness, and knowledge leading to "connecting the dots" through association of related information or bisociation of unrelated information. This will occur for only a few of the managers who see the information, however, and it will not occur all the time. This is a case in which some of the individuals will make the connections, some of the time.

A rock sampling tool which was carried by a European Space Agency (ESA) spacecraft helps illustrate the concepts of associative and bisociative thinking. Developed by a Hong Kong dentist and a local university engineer, the sampling tool utilized Holinser Forceps, which were modeled after a pair of dental forceps and integrated characteristics of Chinese chopsticks, to effectively retrieve samples from inside rocks (H-K made space tool sets for Mars, 2003).

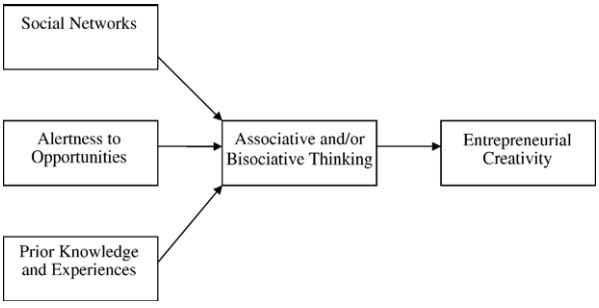

Figure 1 Framework for entrepreneurial creativity.

All the entrepreneurs we interviewed held strong views regarding the novelty of their technologies, products, and/or services. Although most respondents believed their firms were very competitive, the more interesting issue lay in identifying the processes that led to the ideas that made their firms competitive. How did they make the final connection? While the entrepreneurs did not describe the processes as associative or bisociative thinking, the processes they described did indicate that they were making new connections in ways that others with similar information missed. One respondent felt his idea generation was partly conscious and partly subconscious, which suggests some form of association and bisociation respectively. "During the process of searching, I find much unrelated, but sometimes related, stuff, which gives me novel ideas," he said. Comments such as "You can think of A and end up with B" and "I learn to think anytime and everywhere" indicate that these entrepreneurs are "connecting the dots." They were being creative.

5. Implications for firms and practicing managers

Practicing managers need to go on the offensive with respect to enhancing their own creativity, as well as the creativity of their subordinates. While most managers have little free time in their busy schedules, they nevertheless need to ensure that they make time to engage in activities that both build their creative capacity and enlarge their creative range by accessing relevant information and focusing more on noticing new opportunities.

5.1. Enhancing social networks

The results of our study provide strong support for the notion that social ties increase the likelihood of entrepreneurial creativity. This is consistent with the existing research in developed economies. For instance, Koller (1988) found that successful entrepreneurs used business associates, relatives, and other social contacts to generate ideas. The notion that less proximate social contacts may be better sources of information was also confirmed in a study by Kaish and Gilad (1991). In the affirmative, our research confirms that these practices are now spreading and being used by managers in developing economies. Thus, it seems likely that more product innovations and cutting-edge new firms should also begin to appear in those countries.

Telling practicing managers that they need to expand their social networks is easier said than done. According to Robert Putman's (1999) book *Bowling Alone*, by joining fewer associations and

socializing less often with friends and neighbors, most Americans are acting in ways that reduce their social capital. If, indeed, the social networks of managers and potential entrepreneurs are getting smaller, ways must be found to make them more effective if they are to remain a viable source of information that leads to entrepreneurial behavior and new product innovations.

In order to facilitate this, firms could take steps to encourage managers to join professional associations and attend their meetings and conventions, hold meetings that include managers from different functional departments and provide opportunities for interaction, and pay more attention to the outside activities and preferences of job candidates. Through these actions, managers will benefit by gaining information that otherwise might not have come their way. In turn, organizations will benefit because this information base may lead to new products, technologies, and businesses. Simply reminding people that social contacts are one of the best sources of information might be enough to encourage some to expand their own networks in a purposeful way.

5.2. Building one's knowledge base

All the respondents in our study indicated that prior knowledge serves as a powerful base they use to enhance their entrepreneurial creativity. This, in part, helps explain why research has found that many entrepreneurs end up developing products similar to those manufactured by their former employers (Hills, Lumpkin, & Singh, 1997). In many cases, these technical entrepreneurs are also reluctant entrepreneurs, and would have preferred their former employers to have manufactured their products. For example, upon design of the revolutionary product, Steve Wozniak proposed to his then-current employer, Hewlett-Packard, that it manufacture his personal computer; reluctance on the part of the firm led Wozniak and friend Steve Jobs to create their own firm, Apple. Our research indicates that prior knowledge was not only helpful in identifying opportunities, but also played a strong force in developing technical knowledge. Both of these elements served as prerequisites for entrepreneurial opportunity discovery.

Although it is impossible to manufacture work experience, it *is* possible to make that experience more meaningful. Some firms attempt this by rotating new managers through a number of different departments, so that they broaden their knowledge of the firm and the different issues that need to be addressed. Another means of enhancing experience involves giving managers more responsibility, which forces them to continuously collect relevant information so that they are positioned and prepared to make good decisions. The selection process should also reflect these concerns. Ask job applicants the name of the last book they read and the answer will often be some textbook from a course they took. While using formal education as an evaluation criterion is fine, it is wise and prudent (and ultimately profitable) to hire people who are curious and sufficiently self-motivated to take the steps needed to satisfy their curiosity.

5.3. Alertness

The entrepreneurs we met were all alert to noticing opportunities, a difficult task in and of itself. One reason for this is that most people are comfortable with the status quo; "If it isn't broken, don't fix it" is a managerial prescription that is often offered as a reason for not doing something. In *Weird Ideas That Work*, Sutton (2002) suggests that it is a good idea for firms to hire some people who make them a little uncomfortable, and who are likely to challenge conventional wisdom about the way in which things are done in the organization. Edward De Bono (1999), who has spent decades studying creativity, recommends managers wear one of his six thinking hats, each designed to generate or evaluate ideas in a different fashion. Wearing each of the hats helps ensure that more ideas are surfaced and that they are more fairly evaluated. While the Chinese entrepreneurs we interviewed did not use either approach, they did indicate that they were looking for opportunities and new ways to use technologies with which they had some expertise.

Oftentimes, a manager who raises a new idea finds him- or herself ridiculed when someone discovers a fatal flaw with the concept. To ensure strength of product, it is important to uncover such weaknesses; however, ridicule increases the probability that the next good idea will not be brought to light. As such, organizations need to find non-threatening ways to get ideas surfaced and, once surfaced, focus on ways to make them better rather than dismiss them. It is also helpful if the organization clearly signals, directly and through its organizational culture, that noticing opportunities is an important job function.

5.4. Association and bisociation

The study results indicate that an associative and/or bisociative mode of thinking characterizes the thinking of entrepreneurs in our sample. Our findings are consistent with the views of Gaglio and Katz (2001), who argued that some people were better than others at seeing relationships and patterns in

information, which facilitated entrepreneurial creativity. This is the reason why many entrepreneurs describe their discoveries and business ideas as the result of linking things or making new connections.

If the creative process involves forming associative and/or bisociative elements into new combinations, this serves as a potentially useful avenue for training entrepreneurs, managers, and even students to become more proficient at entrepreneurial creativity. For example, helping them to establish such connections among information stored in memory can be a useful strategy. This is a task that entrepreneurs and students can be encouraged to perform, and which may lead to increased capability of entrepreneurial creativity. In the arena of management and executive training, using cases that focus on links real entrepreneurs have made or examples of how new technologies have been built by linking pre-existing technologies in different ways would help foster associative and bisociative thinking. Managers can, and should, be encouraged to constantly consider how disconnected elements could be linked in a productive fashion.

6. Encouraging entrepreneurial behavior

A recent search engine query of the term *great product ideas* generated a staggering 84.5 million hits. Obviously, a plethora of information is available on the topic, and sorting that information may soon prove to be a larger problem than accessing it. This large volume of content may also begin to obstruct our vision, making it more difficult to see what is truly relevant.

Our research suggests that creativity is still important, but that its relevance also flows from knowledge, alertness, and information from friends and acquaintances. The increase in global competitiveness suggests that creativity, through its link to entrepreneurial behavior, will become ever more vital. In this environment, however, information overload, weakened social networks, and difficulty in remaining alert to opportunities will make maintaining the link between creativity and entrepreneurial behavior extremely difficult.

Facing these conditions and challenges, senior managers need to become more proactive regarding the maintenance of creativity in their firms. In addition, all managers need to become more selective about the information they access, work against the prevailing trend to go "bowling alone," and attempt to enhance their ability to engage in associative and bisociative thinking. Now more than ever, it is critical that they remain focused on "connecting the dots."

References

Aldrich, H., & Zimmer, C. (1986). Entrepreneurship through social networks. In D. L. Sexton & R.W. Smilor (Eds.), *The art and science of entrepreneurship* (pp. 3–23). Cambridge, MA: Ballinger.

Amabile, T. M. (1997). Entrepreneurial creativity through motivational synergy. *Journal of Creative Behavior, 31*(1), 18–26.

Baumol, W. (2002). *The free market innovation machine: Analyzing the growth miracle of capitalism*. Princeton, NJ: Princeton University Press.

Brown, B., & Butler, J. E. (1995). Competitors as allies: A study of entrepreneurial networks in the U.S. wine industry. *Journal of Small Business Management*, *33*(3), 57–66.

Cesarani, D. (1998). *Arthur Koestler: The homeless mind*. New York: The Free Press.

Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York: Harper Collins.

De Bono, E. (1999). *Six thinking hats*. Boston: Back Bay Books.

Gabora, L. (2002). Cognitive mechanisms underlying the creative process. *Proceedings of the fourth conference on creativity and cognition* (pp. 126–133). Leicestershire, UK: Loughborough University.

Gaglio, C. M., & Katz, J. A. (2001). The psychological basis of opportunity identification: Entrepreneurial alertness. *Small Business Economics*, *16*(2), 95–111.

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6), 1360–1380.

Hills, G. E., Lumpkin, G. T., & Singh, R. (1997). Opportunity recognition: Perceptions and behaviors of entrepreneurs. In P. Reynolds, W. Bygrave, N. Carter, N. P. Davidsson, W. Gartner, C. Mason, & P. McDougall (Eds.), *Frontiers of entrepreneurship research* (pp. 168–182). Wellesley, MA: Center for Entrepreneurial Studies, Babson College.

H-K made space tool sets for Mars. (2003, June 4). *People's Daily*. Retrieved from http://english.people.com.cn/200306/04/eng20030604_117663.shtml

Kaish, S., & Gilad, B. (1991). Characteristics of opportunities search of entrepreneurs versus executives: Sources, interests, general alertness. *Journal of Business Venturing*, *6*(1), 45–61.

Ko, S. (2004). *Entrepreneurial opportunity identification through bisociative mode of thinking*. Unpublished doctoral dissertation, Hong Kong Polytechnic University.

Ko, S., & Butler, J. E. (2006). Prior knowledge, bisociative mode of thinking and entrepreneurial opportunity identification. *International Journal of Entrepreneurship and Small Business*, *3*(1), 3–16.

Koestler, A. (1964). *The act of creation*. New York: Macmillan.

Koller, R. (1988). On the source of entrepreneurial ideas. In B. Kirchhoff, W. Long, W. McMullan, K. Vesper, & W. Wetzel (Eds.), *Frontiers of entrepreneurship research* (pp. 194–207). Wellesley, MA: Center for Entrepreneurial Studies, Babson College.

Lienhard, J. H. (2006). *How invention begins: Echoes of old voices in the rise of new machines*. New York: Oxford University Press.

Putman, R. D. (1999). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.

Ronstadt, R. (1988). The corridor principle. *Journal of Business Venturing*, *3*(1), 31–40.

Shaver, K. G., & Scott, L. R. (1991). Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, *16*(2), 23–45.

Sternberg, R. J. (2004). Successful intelligence as a basis for entrepreneurship. *Journal of Business Venturing*, *19*(2), 189–202.

Sutton, R. I. (2002). *Weird ideas that work*. New York: The Free Press.

Ward, T. B. (2004). Cognition, creativity, and entrepreneurship. *Journal of Business Venturing*, *19*(2), 173–188.

West, P. G., & Meyer, G. D. (1997). Temporal dimensions of opportunistic change in technology-based ventures. *Entrepreneurship Theory and Practice*, *22*(2), 31–52.

Yu, T. F. L. (2004). Extraordinary versus ordinary discoveries: The case of American and Chinese entrepreneurship. In J. E. Butler (Ed.), *Opportunity identification and entrepreneurial behavior* (pp. 163–189). Greenwich, CT: Information Age Press.

Zaheer, A., & Zaheer, S. (1997). Catching the wave: Alertness, responsiveness, and market influence in global electronic networks. *Management Science*, *43*(11), 1493–1507.