Evolutionary Change and Organizational Innovation:

Implications for Coaches and Their Leader Clients

William Bergquist, Ph.D.

In the field of biology there is a classic (sometimes controversial) mathematical model called the Hardy-Weinberg Equilibrium which provides some rich insight for not only those interested in evolutionary change, but also those who are coaching leaders facing the challenge of introducing innovation and change in their organization. The Hardy-Weinberg Equilibrium model works backwards with regard to evolutionary change—it is about the five key assumptions that lead to NON-change in terms of biological evolution.

The first assumption is that there are no mutations in a population. This would mean that all of the genes that form the basis of all life forms are the same for all members of one species. There is no room, in other words, for variations or mistakes. The second assumption is that any specific population is isolated. Individual members of a specific population (community) can't migrate into or emigrate out of that specific community. The members of any species within a specific community can only breed with individuals from the same community.

The third assumption that would block biological evolution concerns the size of the population. The population has to be very large for the blocking of evolution to occur—leading to the averaging out of differences among members of any one species. If the community is small then any differences will make a big difference (big frog in a small pond), whereas in a large community, differences will be absorbed and not have much of an impact. The fourth Hardy-Weinberg assumption leading to equilibrium is about mating preferences. There will be little evolution if mating is random—anyone from the other gender will do and there is not much discrimination. If members of a species show preferences for those of the opposite sex who are bigger, stronger, prettier, faster, smarter or hairier, then evolution is more likely to occur. The final assumption to be made is closely related to the fourth. It concerns survival and reproduction in a specific population. Evolution is unlikely to occur if everyone in the community has an equal chance of survival and an equal opportunity, as a surviving adult, to mate and produce offspring.

So, what if anything does this rather theoretical model of evolution have to do with the very real world of organizational innovation and the challenges of fostering change within a complex system (such as exists in 21st Century organizations). I would suggest that all five assumptions can be applied to organizational life. If all or most of the five Hardy-Weinberg assumptions are descriptive of an organization, then it is likely to remain in equilibrium and innovation is unlikely to occur. The key, therefore, for the organizational coach and leader client is to ensure that these assumptions aren't being met. Let's focus briefly on each assumption and see what it says about organizational innovation

and change. Furthermore, what applications can be made to the work being done by an organizational coach?

Mutations and Organizational Diversity

If there are no mutations in a population then evolution will not take place. There is no room for variations or mistakes in a system in equilibrium.

Implications

Innovation requires that things are not always going right in an organization. There must be variations if the organization is to generate innovations. As noted by Stephen Greenblatt in his Pulitzer Prize-winning book, *The Swerve*, the critical role played by mutations and mistakes goes back many centuries to the writing of Lucretius in *The Nature of Things*. As interpreted by Greenblatt (2011, p. 188), Lucretius is proposing that:

> Everything comes into being as a result of a swerve. If all the individual particles, in their infinite numbers, fell through the void in straight lines, pulled down by their own weight like raindrops, nothing would ever exist. But the particles do not move lockstep in a preordained single direction. Instead, 'at absolutely unpredictable times and places they deflect slightly from their straight course, to a degree that could be described as no more than a shift of movement.'

In contemporary times, Scott Page (2011) writes about the generation of multiple ideas (mutations) and the power of diversity within any system in his very challenging book, *Diversity and Complexity.* Page suggests that a world filled with many perspectives is one in which good ideas, clear thinking and accurate information is likely to emerge: "if we have lots of diverse paths . . . , we are not likely to make mistakes. If we only have a few paths, mistakes are likely. " (Page, 2011, p. 240) Page makes the strong case for the important interplay between complexity and diversity. Systems that are complex and diverse will be more resilient and amenable to change:

> Systems that produce complexity consist of diverse rule-following entities whose behaviors are interdependent. . . . I find it helpful to think of complex systems as "large" in Walt Whitman's sense of containing contradictions. They tend to be robust and at the same time capable of producing large events. They can attain equilibria, both fixed points and simple patterns, as well as produce long random sequences. (Page, 2011, pg. 17)

There is one thing we have learned in recent years with regard to the viability of organizations that has almost become an axiom: if there is extensive variability (disturbance) within the environment in which an organization operates, then there must also be extensive variability (diversity) inside the organization. Page identifies this axiom as the *Law of Requisite Variety*:

> . . . the greater the diversity of possible responses, the more disturbances a system can absorb. For each type of disturbance, the system must contain some counteracting response. . . . The law of requisite variety provides an insight into well-functioning complex systems. The diversity of potential responses must be sufficient to handle the diversity of disturbances. If disturbances become more diverse, then so must the possible responses. If not the system won't hold together. (Page, 2011, p. 204, 211)

Applications

In order to promote organizational innovation, a coach must encourage her leader client to value diversity within the organization. However, the coach should also help her client to recognize that diversity requires the client (and other members of the organization) to tolerate increased ambiguity, effectively manage conflict, and provide safe settings in which alternative ideas can be explored. Therefore, the coach should help her client identify strategies (training, setting of norms, creating supportive settings) that enable her client and other members of the organization live with ambiguity, work with conflict and provide safe places for idea exploration.

Migration and Open Boundaries

Evolution will not take place if a specific population is isolated. If individual members can't migrate into or emigrate out of that specific community then evolution is likely to be stymied.

Implications

Organizational theorists and change agents have often emphasized the difference between open and closed systems. Organizations are systems that can be differentiated in this manner: some have relatively open boundaries and others have relatively closed boundaries. Closed systems and organizations with impermeable boundaries are likely to be stable and secure over the short term, but are also likely to soon die because of a lack of replenishing resources from outside the system and because of an inability to respond effectively to the impingement of outside (environmental) forces.

Cross-pollination of ideas in a cross-cultural context occurs in open-boundary organizations and is critical to innovation, sustained success and even organizational survival. At the individual level, we are talking about those men and women who are cosmopolitan in their perspectives as compared to those who are parochial in their perspectives on life and the world. The cosmopolitans create and live in a world of open boundaries. These are the early adopters in the diffusion of innovations. (Rogers , 2003)

We see the increasing viability of open boundary systems in the flat world made famous by Thomas Friedman (2007). Clearly with the Internet and globalization of many markets, there is the need for more open boundaries. However, as I mentioned in *The Postmodern Organization* (Bergquist, 1993), the challenge of open boundaries is the need for some "glue" that holds the organization together. This glue can be found in the clear and compelling mission, vision, values and social purposes of the organization, in the strong and enduring culture of the organization, or (sadly) in the absolute control exerted by a central leader or C-Suite coalition of leaders.

The flat world of Thomas Friedman is filled with many additional challenges--including the emergence of *Power Law* dynamics in the Internet-based markets of our 21st Century world. In many instances, the market for specific products or services has expanded at an exponential rate (the Power Law in operation)—or collapsed at an exponential rate (also exemplifying the Power Law). As Taleb (2010) has noted in *The Black Swan*, a few products (books, technologies, etc.) and a few websites tend to account for most of the sales and traffic on the Internet. Furthermore, the tides created by these sales and Internet traffic tend to ebb and flow quickly and in unanticipated ways.

Thus we find that temporary dominance and centralization will distort the open boundaries described by Friedman. The Power Law calls for new perspectives regarding the migration of ideas, people, products and services in our 21st Century world. We find the promise of diffusion and equity via the Flat World tempered by the challenge of temporary (or long-term) dominance and centralization in the global marketplace.

Applications

In order to promote organizational innovation, the coach should encourage her leader client to focus on the creation, identification, clarification and/or institutional-embedding of mission, vision, values and social purposes. A coach should also encourage and guide her client in the appreciation, honoring, strengthening and use of the existing culture within their organization, recognizing its value as a source of stability and coherence in their organization. Furthermore, the coach should encourage her client to gain a cosmopolitan perspective (learning about and visiting other organizations and geographic regions), as well as encouraging her client to find ways for other members of their organization (especially mid-managers) to gain this cosmopolitan perspective. The coach should also help her client recognize the need for contingency planning in their organization in response to the rapid, complex, and unpredictable Power Law changes that can occur in the marketplace and environment in which their organization operates.

Size and Deviant Impact

If the population of a specific species is very large then evolution is unlikely to occur, for in a large population there is an averaging out of differences among members of any one species. If the community is small then, according to Hardy-Weinberg, any differences will make a big difference.

Implications

Very big organizations tend to swallow innovations. Rosabeth Kanter (1990) wrote about this many years ago when she described the challenge of teaching giants (big organizations) to dance. She noted that there is a pervasive tendency for large organizations to be preservation-seeking bureaucracies. Unfortunately, this tendency is counterproductive in our volatile 21st Century world. As Kanter prophetically noted, large organizations must become more entrepreneurial and less bureaucratic if they are to survive. They must become focused, fast, friendly and flexible. These organizations, in other words, need to be able to dance—and this seems to be ironically appropriate, given that they must

survive in what Scott Page (Miller and Page, 2007; Page, 2011) describes as the *Dancing Landscapes* in which many of these organizations now operate.

The preservation-seeking bureaucracies described by Kanter seem to evolve from several fundamental principles regarding the size of systems. We have known for many years that an increasingly large proportion of a system's resources (people, money, energy, conversation) goes into the maintenance functions of this system, as it grows larger (and as it grows older). As I noted in *The Postmodern Organization* (Bergquist, 1993), this general principle regarding systems can be specifically applied to organizations. A small organization will tend to devote a large percentage of its resources to the generation of specific products or services—whether it is producing chairs or offering hospitality services.

A large organization, by contrast, will often devote as much as 90% of its resources not to production or provision of services, but to the overall maintenance of the organization (management, communications, coordination, etc.). As an organization grows larger (and older) it takes much more time, attention and people to hold the organization together—especially if the organization operates within a hierarchical structure rather than allowing self-organizing dynamics to prevail (an idea first promoted by Ilya Prigogine and later described in greater detail by many chaos and complexity theorists and researchers, such as Scott Page and Steven Strogatz, and made accessible by Margaret Wheatley in *Leadership and the New Science*) (Prigogine, 1984; Strogatz, 2003; Wheatley, 2006; Page, 2011)

Applications

In order to promote organizational innovation, a coach should encourage and guide her leader client in the management of growth and size within their organization (recognizing that most organizational problems can't be solved simply by growing larger). She should also encourage her client to consider growth not in the size of their organization, but in the number and diversity of cooperative and strategically collaborative agreements they have with other organizations. (Bergquist, Betwee and Meuel, 1995; Kanter, 1997, Chapter 20)

Preferences and Distinctive Contributions

There will be little evolution if mating within a specific species is random. If members of a species show preferences for specific characteristics in those of the opposite sex, then evolution is more likely to occur.

Implications

Life in an innovative organization isn't fair. Some people seem to be doing a better job and are coming up with more ideas than other people. In his assessment of diversity and complexity, Scott Page proposes that: "systems need competition to flourish and diversity increases competition." (Page, 2011, p. 217) "Absent competition" concludes Page, "entities—be they firms, species, political parties, or ideas –may lack pressure to improve or respond to changes on the landscape. . . .[D]iversity provides the seeds for innovation and thus . . . pulls toward more pressure." (Page, 2011, p. 216) This emphasis on

competition and preference for the fittest certainly doesn't appeal to our sense of fair play and may even contradict the societal values of democracy. However, it might be critical to the promotion of innovation and organizational change.

What is the distinctive contribution to be made by each member of the organization and by each functioning unit of the organization? How do we take full advantage of the distinctive strengths of each member and unit – while also recognizing that these distinctive strengths can get the member, unit (and overall organization) in trouble if overused or used inappropriately. The answer to these questions in part resides in the analysis of the fifth assumption in the Hardy-Weinberg Model—with specific emphasis being placed on an organizational culture of appreciation (Srivasta, Cooperrider and Associates, 1990; Bergquist, 2003; Cooperrider and Whitney, 2005; Bushe, 2010).

Applications

In order to promote organizational innovation, a coach should guide her leader client in the identification of leverage points (internal strengths) within their organization and strategic advantages (external opportunities) they hold with regard to other organizations in their same market. The coach should also help her client identify the individual strengths they hold in the organization, as well as ways in which these strengths may be over-used or used in an inappropriate manner by themselves.

Survival and Appreciation

Evolution is unlikely to occur if everyone within a species has an equal chance of survival and an equal opportunity, as a surviving adult, to mate and produce offspring.

Implications

Organizations foster innovation when they are truly being challenged to do it right in order to survive. There is a critical decision-point in the life of any organization and any leader of an organization. When faced with a major life-threatening challenge, the choice is to either freeze and hope the challenge will go away, or seek out new solutions—and perhaps even more importantly seek out actions that have already been engaged in the organization when faced with a similar challenge in the past. This doesn't mean returning to old solutions. As Scharmer (2009, p. 7) has proposed in *Theory U*, we must be able to "learn from the future as it emerges".

Scharmer notes that: "leaders cannot meet their existing challenges by operating only on the basis of past experiences . . . . Sometimes you work with teams in which the experiences of the past are actually the biggest problem with and obstacle to coming up with a creative response to the challenge at hand." (Scharmer, 2009, p. 8) How do we learn, as Sharmer writes, "to better sense and connect with a future possibility that is seeking to emerge?" I would apply to organizational life the biological theorists' proposition that evolutionary change requires selective survival: the surviving organization in the 21st Century is likely to be one that can learn into the future.

How do we learn into the future? It doesn't mean we abandon the past, but it does mean that we are selective about what we take from the past and are required to always test this acquisition from the past against emerging challenges and realities. We need to catch people when they are doing it right in response to the new realities and need to reinforce this successful behavior. Members of an organization will often do it wrong in a world that is changing rapidly and in unpredictable ways. However we can learn not just from our mistakes but also from our successes. We create a learning organization when we can appreciate (and learn from) the times when our organization gets it right.

This is the key point to be made by Hardy-Weinberg: not every idea is equally good, so we must reinforce the good ideas. We must not just celebrate our successes, we must also spend time reflecting on the lessons to be learned from these successes, knowing full well that these lessons will not fully match with future challenges (learning forward). This appreciation provides courage and persistence, as well as partial answers to the new challenges.

Applications

In order to promote organizational innovation, a coach should encourage her leader client to create and maintain a learning organization that is geared not only to learning from its mistakes but also to learning from its successes. The coach should encourage and guide her leader as he learns into the future through embracing successes rather than just seeking to avoid failures.

Concluding Comments

There are many applications that can be extracted from the Hardy-Weinberg Model. I have hopefully identified a few of those which are of greatest relevance to the reader of this essay. Innovation and organizational change are not easy to implement and guide in the complex, unpredictable and turbulent environment in which contemporary leaders must operate. We need to look to many sources of wisdom and insight when helping our leader clients formulate strategies to respond to the challenges of this dancing environment. I believe that the Hardy-Weinberg Model is one of these sources.

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