



icasso and
Braque collabo-

THE RULES OF COLLABORATION

by Michael Schrage

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4. CREATION AND MANIPULATION OF SHARED SPACES

rated quite differently from the way Apple Computer cofounders Jobs and Wozniak collaborated on their computer. The Wright brothers approached heavier-than-air machine flight in ways quite alien to Gilbert and Sullivan's approach to comic opera.

And yet, though the characters, personalities, eras and fields are all different, certain aspects and themes of collaboration constantly recur. Designers and users of groupware products will do well to keep these in mind.

1. COMPETENCE

A collaboration of incompetents, no matter how diligent or well-meaning, cannot be successful. History confirms this. The Wright brothers may have run a bicycle shop, but they were superb model builders burning with ambition and had the intelligence to understand aerodynamic phenomena. Individual collaborators don't have to be brilliant, but, at the very least, they must be competent to deal with the problem they face. A collaboration can compensate for an individual technical or conceptual gap, but it can't paper over a fundamental deficiency.

2. A SHARED, UNDERSTOOD GOAL

The Impressionists were all intrigued by the ways light could be represented. The quantum physicists pushed to explain the paradoxes of subatomic symmetries. Pound and Eliot wanted to create great poetry. A collaboration is not described in terms of the relationship, but in terms of the objective to be achieved.

3. MUTUAL RESPECT, TOLERANCE AND TRUST

Lennon and McCartney did not get along; Watson and Crick took their time deciding how they really felt about each other. (The first line of Watson's *Double Helix* is, "I have never seen Francis Crick in a modest mood.") Successful collaborations don't require friendship or even that the collaborators like one another very much. Like competence, however, there must be a minimum threshold of mutual respect, tolerance and trust for a collaboration to succeed. Successful collaborators tend to ignore the more irritating quirks and idiosyncrasies of their colleagues. They focus on managing one another's strengths rather than one another's lesser qualities.

Collaborations rely on a shared space. It may be a blackboard, a napkin, a piano keyboard, a rehearsal room, a prototype or a model. These shared spaces usually permit real-time access by all the collaborators. They serve as both a model and a map for what the collaborators are trying to accomplish. A blackboard with equations; a rehearsal room where actors, director and crew gather; and a rough prototype of an invention all serve as shared spaces for collaborative interaction. Shared space serves as a touchstone for the act of collaboration. Shared space is essential as a technique to manage conversational ambiguity. In effect, these shared spaces are the collaborative tools that people wield to make sure that the whole of the relationship is greater than the sum of the individual's expertise.

5. MULTIPLE FORMS OF REPRESENTATION

The quantum physicists spent an extraordinary amount of time devising both a verbal and a visual language to describe quantum phenomena to go along with the mathematical language. Frequently, if there is confusion over language, collaborators look to other representations to triangulate their perceptions and impressions. Each level of representation—mathematical, linguistic, structural, conversational, visual—represents a different lens through which to view the collaborative task. Some views put others in context; some are deceptive and create illusions; still others reveal precisely what needs to be seen. However, it is the availability of these multiple representations that enables the multiple collaborators to collectively grasp the key elements of risk.

6. PLAY WITH THE REPRESENTATIONS

The Impressionists enjoyed playing with light; the Cubists enjoyed playing with geometry and multiple media. Watson and Crick enjoyed tinkering with their metal models of the DNA molecule. Successful collaborators take play seriously. Even doctors struggling to diagnose a troublesome set of symptoms "play" with the diagnostic possibilities by picturing what the ailment might be if a certain fluid level were higher or how a patient might respond if a new drug were introduced into the treatment program. The playground perspective puts them in a position to make a commitment when they feel ready.

7. CONTINUOUS, BUT NOT CONTINUAL, COMMUNICATIONS

Unless it is mandated by circumstance—an emergency in an airline cockpit or a hospital operating theater—collaborators do not maintain constant communication. Instead, they focus on trying to create a rhythm, a tempo and a flow of communication that prevents them from interfering with one another while assuring that events are proceeding apace. Particularly in the arts and sciences, there are no formal reporting schedules in a collaboration. In an organization of a project with a deadline, meetings are usually held less for the purpose of collaborating than for disseminating relevant information about where the collaborators stand vis-à-vis their deadline. The urge to meet comes from the collaborators themselves, not from any externally imposed arbiter. This maximizes both flexibility and spontaneity—two qualities of communication that successful collaborators stress are essential.

8. FORMAL AND INFORMAL ENVIRONMENTS

The staff of Nobel laureate Walter Gilbert's molecular biology lab at Harvard was famous for repairing to the local pub to continue research debates that began back at the lab benches. Watson and Crick didn't limit their discussions of DNA to their offices in Cambridge's Cavendish Lab. The quantum physicists traveled all over Europe together and were particularly fond of boat rides, mountain climbing and long walks in the country. One could make the case that because these people are all working intently on the same problems, it's inevitable that they work together in different settings. However, a more powerful argument could be made that it is precisely because people collaborate in both formal and informal environments that they expand their ability to solve problems.

9. CLEAR LINES OF RESPONSIBILITY, BUT NO RESTRICTIVE BOUNDARIES

There is no division of labor in successful collaborations comparable to the way most organizations define the phrase. Individuals are explicitly responsible for certain tasks, but are also free to consult, assist and solicit ideas from their collaborators. In other words, the individual has both a defined functional role and a charter to go where the task takes him. Collaborators are expected to ask one another the tough questions.

10. DECISIONS DO NOT HAVE TO BE MADE BY CONSENSUS

One of the most persistent myths about collaboration is that it requires consensus. This is emphatically not so. Collaborators constantly bicker and argue. For the most part, these arguments are depersonalized and focus on genuine areas of disagreement. Braque and Picasso had their serious disagreements, as did Watson

and Crick. That didn't preclude them from pushing ahead. But if collaborators consistently diverge, the collaboration ultimately dissolves. To that extent, collaborators enjoy a tacit consensus about where they're going—or they're not collaborators.

11. PHYSICAL PRESENCE IS NOT NECESSARY

Even before computer networks and fax machines redefined presence, there have been successful long-distance collaborations. Thomas Wolfe and his editor Maxwell Perkins enjoyed a tremendously productive correspondence by both letter and manuscript. One molecular biologist at MIT's prestigious Whitehead Institute says that researchers all over the world fax one another sketches of protein and enzyme structures all the time—and the recipients turn around and fax them right back with comments, criticisms and alternate perspectives. Today, they use the Internet instead of faxes. "We do things in an afternoon that used to take a week of Federal Express and phone calls," he says.

12. SELECTIVE USE OF OUTSIDERS

In 1900, Octave Chanute, a past president of the American Society of Civil Engineers and author of *Progress in Flying Machines*, entered into what would become a decade-long correspondence with the Wright brothers. Chanute's worldliness, experience and patronage were fundamental to the brothers' pioneering flight at Kitty Hawk in 1903. Successful collaborators solicit this outside assistance. It is not imposed upon them. Successful collaborators are constantly on the lookout for people and information that will help them achieve their mission.

13. COLLABORATIONS END

Successful collaborations are more like trysts than great romances. That's one of the reasons why Watson and Crick ended their splendid collaboration. After discovering the double helix, what do you do as an encore?

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