The Relationship between Process and Performance on Teams

John W. Bing, Ed.D.

The purpose of this paper is to provide evidence for the link between process and performance on teams so that team leaders and management, in making decisions to support the measurement and improvement of human process on teams, will have confidence that they will receive a favorable return on that investment. Although the use of appropriate metrics across teams also provides upper management with information that can be used strategically across a division or company, that issue is not examined here but will be in a later paper.

The relationship between process and performance in individuals has been well researched. Employees require knowledge, skill, information, competencies, resources, motivation and incentives to perform tasks and will fail to perform tasks to the extent that these elements are missing or less than optimal.

This same relationship (between process and performance) exists on teams. At the most basic level, it is almost a tautology to observe that dissatisfied team members will contribute little to team productivity, and that therefore team productivity is related to the level of satisfaction of team members. It is of course obvious that satisfaction is not the only metric that relates to team productivity, and even if it were, there are many components which make up "satisfaction."

In considering the use of the Global Team Process Questionnaire™ (GTPQ), team leaders and management need to have a measure of confidence that the results of the questionnaire, combined with consequent and focused interventions, will yield improvements in output or productivity. Survey research can identify the most important components of team process and measure them in order to determine the relative health of the team and the likely productivity of that team. Below are some examples of research that supports this perspective:

1. Hendriks, Boone, De Brabander, and Witteloostuijn, in "Team Composition and Organizational Performance: An empirical research

of IT firms in Belgium and The Netherlands"[1] have identified factors which correlate significantly with insufficient adaptability of project planning. Among those factors which correlate at the <.05 level are:

a) Agreements in meetings are not implemented
b) Not sufficiently informed about each others' activities
c) There is not enough visibility of the management team in the firm
d) Decisions have to be revised repeatedly

2. Rhona H. Flin in "Crew Resource Management for teams in the Offshore Oil Industry"[2] cites an adaptation of team intervention called crew resource management (CRM), initially provided to airline and NASA crews, for offshore oil crews. This training involves "enhancing team members' understanding of human performance, in particular the social and cognitive aspects of effective teamwork and good decision making."[3] One of the most important reasons for providing team assessment and intervention is that a team "which shares the same understanding of the nature of a problem is more likely to generate a workable solution. . . . [T]he basis for shared problem models is effective communication among team members, and . . . active crews which communicate more efficiently make fewer operational errors."[4] And assessments such as the GTPQ, when provided periodically, is in itself an evaluation of training and team effectiveness: "In fact measuring attitudes before and after CRM training is one of the techniques used for evaluating its effectiveness."[5]

3. A recent McKinsey survey, which examined differences between high and low performing top management teams, noted: "The most effective teams, focusing initially on working together, get early results in their efforts to deal with important business issues and then reflect together on the manner in which they did so, thus discovering how to function as a team."[6] The pattern of action, reflection, change, action (sometimes called experiential learning) is enhanced when the reflective phase is based upon recent metrics which indicate exactly what problems and successes the team has undergone and what needs to be changed to improve team

performance. "Structured self-discovery and reflection must be combined with decision making and action in the real world; the constant interplay among these elements over time is what creates lasting change."7

4. The following quote from Atul Gawande, "Annals of Medicine: The Learning Curve"8 indicates how important human process is to performance on technical teams, even more important than the technical competence of the leader:

Recently, a group of Harvard Business School researchers who have made a specialty of studying learning curves in industry decided to examine curves among surgeons instead of in semiconductor manufacture or airplane construction, or any of the usual fields their colleagues examine. They followed eighteen cardiac surgeons and their teams as they took on the new technique of minimally invasive cardiac surgery. This study, I was surprised to discover, is the first of its kind. Learning is ubiquitous in medicine, and yet no one had ever compared how well different teams do it.

The new heart operation-in which new technologies allow a surgeon to operate through a small incision between ribs instead of splitting the chest down the middle-proved substantially more difficult than the conventional one. Because the incision is too small to admit the usual tubes and clamps for rerouting blood to the heart-bypass machine, surgeons had to learn a trickier method, which involved balloons and catheters placed through groin vessels. And the nurses, anesthesiologists, and perfusionists all had new roles to master. As you'd expect, everyone experienced a substantial learning curve. Whereas a fully proficient team takes three to six hours for such an operation, these teams took on average three times as long for their early cases. The researchers could not rack complication rates in detail, but it would not be foolish to imagine that they were not affected.

What's more, the researchers found striking disparities in the speed with which different teams learned. All teams came from highly respected institutions with experience in adopting innovations and received the same three-day training session. Yet, in the course of fifty cases, some teams managed to halve their operating time while others improved hardly at all. Practice, it turned out, did not necessarily make perfect. The crucial variable was how the surgeons and their teams practiced.

Richard Bohmer, the only physician among the Harvard researchers, made several visits to observe one of the

quickest-learning teams and one of the slowest, and he was startled by the contrast. The surgeon on the fast-learning team was actually quite inexperienced compared with the one on the slow-learning team. But he made sure to pick team members with whom he had worked well before and to keep them together through the first fifteen cases before allowing any new members. He had the team go through a dry run before the first case, then deliberately scheduled six operations in the first week, so little would be forgotten in between. He convened the team before each case to discuss it in detail and afterward to debrief. He made sure results were tracked carefully. And Bohmer noticed that the surgeon was not the stereotypical Napoleon with a knife. Unbidden, he told Bohmer, "The surgeon needs to become a partner [with the rest of the team] so he can accept input." At the other hospital, by contrast, the surgeon chose his operating team almost randomly and did not keep it together. In the first seven cases, the team had different members every time, which is to say that it was no team at all. And the surgeon had no pre-briefings, no debriefings, no tracking of ongoing results.

The Harvard Business School study offered some hopeful news. We can do things that have a dramatic effect on our rate of improvement-like being more deliberate about how we train, and about tracking progress, whether with students and residents or with senior surgeons and nurses. But the study's other implications are less reassuring. No matter how accomplished, surgeons trying something new got worse before the got better, and the learning curve proved longer, and was affected by a far more complicated range of factors, than anyone had realized.

This study suggests that process on teams can make the critical difference between an effective and a flawed approach to complex learning and productivity.

The following two examples relate directly to the GTPQ.

5. A study of the GTPQ showed that the questionnaire, when simultaneously administered to two Global Product Teams in the pharma industry, was able to distinguish between the higher and lower performing teams. Almost all of the questions on the lower performing team were answered more negatively than those answered by members of the higher performing team.9

6. Professor Robert L. Dilworth utilized the questionnaire in his graduate classes at Virginia Commonwealth University and noted that "qualitative comparison of GTPQ results with other evaluative reference points. . . suggest strong congruence. . . . " He used

multiple evaluative methods and these dovetailed with the results of the GTPQ. He noted: "The GTPQ provides a basis for the team to target on specific areas that can interrupt or impede team effectiveness. That allows the team itself to deal with such problems. Since problems have been made evident by the team members, themselves, through anonymous completion of the GTPQ, the issues are made authentic and legitimate. It is worth noting that when results are excellent, good performance can end up being further bolstered (reciprocal causation). If an external facilitator, on the other hand, were to identify problems to the group based on observations of group activity, that would not tend to carry as much weight. It would be group process as seen through the eyes of someone not a continuous part of that process, rather than the inner conscience of the group."10

Process metrics is important to improving team performance. When impediments in team performance, whether intrinsic or extrinsic to the group, can be identified, appropriate interventions made, and follow-up measurements taken again to review progress, team productivity is likely to improve, all other things being equal. The "all other things" usually refer to those influences likely to impact all teams similarly, such as:

- Communications from top management
- Restructuring, mergers, and acquisitions
- Change in senior leadership
- External environmental triggers, such as regulatory, market, or competitive changes

For top management, an important benefit of utilizing metrics across teams is that the monitored results of these assessments can be used to test new or modified policies to determine if they are leading to improvements in process and productivity. For example, should management change the relative influence of the team leaders against functional heads, specific marker questions administered before and after the change can be used to determine the positive or negative impact of this change on teams across the board. This is very important to clarify whether the change is having the desired effect or, perhaps, the opposite effect. Without such monitoring, the consequences can only be inferred.

References

1 Team Composition and Organizational Performance: An empirical research of IT firms in Belgium and The Netherlands
2 Flin, Rhona H., "Crew Resource Management for teams in the Offshore Oil Industry," Team Performance Management (1997), Vol 3, No. 2, pp. 121-129.
3 Flin, p. 121.
4 Flin, p. 128.
5 Flin, page 125.
6 Herb, Erika et al. "Teamwork at the Top." The McKinsey Quarterly 2 (2001), p. 34.
7 Herb, pp. 41-2.
8 Atul Gawande, "Annals of Medicine: The Learning Curve" The New Yorker, January 28, 2002, pp. 59-60.
9 Bing, John W., "Developing a Consulting Tool to Measure Process Change on Global Teams: The Global Team Process Questionnaire™")presented at the February 2001 national conference of the Academy of Human Resource Development).
10 Dilworth, Robert L. "Mapping Group Dynamics in an Action Learning Experience: The Global Team Process Questionnaire™ (GTPQ)" (presented at the February 2001 national conference of the Academy of Human Resource Development).