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RESEARCH

Improving Group Productivity

Whole Brain® Teams Set New Benchmarks

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better results through better thinking

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".. it is possible to improve the output of groups of people in a setting that requires learning, problem-solving, and collaboration skills. The technique for improving group efficiency is this: be sure that the group is balanced in their thinking preferences".

Introduction

The problem: how to get off your present plateau and move to a higher level of production efficiency. You have re-engineered the organization, tweaked all the equipment, trained the people, created teams. Now, how do you increase the efficiency of a group of people? How do you get more output from your existing human resources?

It is common practice to try to increase efficiency by adding people to a task. That was appropriate when the task required more muscle; it is not appropriate when the task needs more mind. If a truck needs unloading, a field needs harvesting, a widget needs assembling, add more people and/or machinery to the process. That's appropriate, to a point, but when the optimum number of people and machinery have been added, something new is needed. Now, a product or process needs to be redesigned, cycle time reduced, new methods and fresh thinking tried. So, do you expand the design team by adding members of the production team and marketing team? That might help, but it might not.

If a truck needs unloading, a field needs harvesting, a widget needs assembling, add more people and/or machinery to the process.

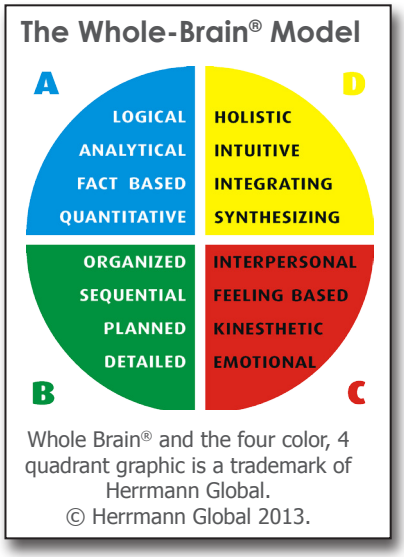
The issue is, "When you have added the extra people, but you still aren't getting the results you expected, or needed, **what do you do to increase the productivity/efficiency of a group?"**

First, let us define two key terms we will be using in this paper. Then we will present a model for understanding the mentality of tasks and people. Finally, we will discuss an application and demonstrate how the productivity of groups of people can be improved... dramatically!

Efficiency: the ratio of output to input. Doing what you do as right as it can be done.

Effectiveness: meeting all needs, satisfying all requirements. Doing the right things versus doing things right.

Next, a model, the basis for creating teams that reach new plateaus. When the task requires an expanded mind, it is diversity of thinking that's needed. The Whole Brain® Model is the foundation for explaining how people think, and how to form groups that learn faster, think more comprehensively, and create a new intellectual asset. Result, a higher return for your human-capital investment.



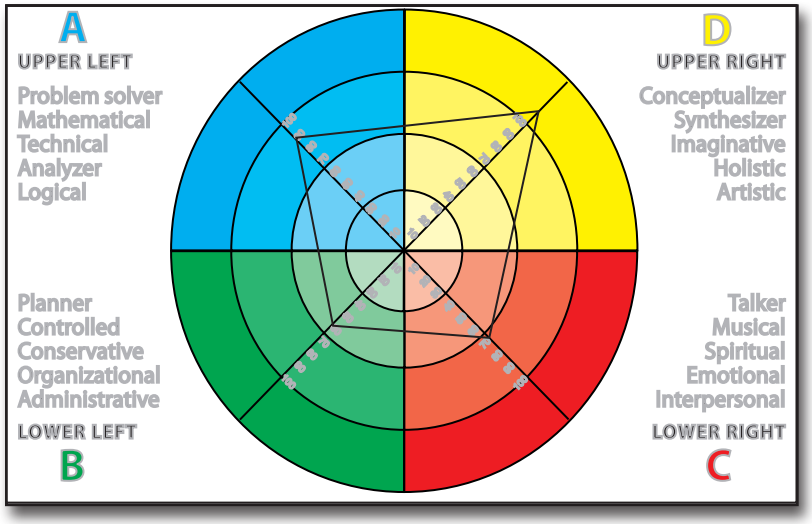
The Whole-Brain® Model

In the early 1980's Ned Herrmann proposed a model to explain how the brain works: how it thinks, learns, creates, solves problems, communicates, etc. Others, notably Roger Sperry and Paul Maclean, had previously proposed models. Sperry won a Nobel Prize in 1981 for his work which showed that the left and right hemispheres of the brain do different thinking tasks, and even when they do the same task they go about it differently. Maclean's research showed that the cerebral system, the limbic system, and the brain stem do different kinds of thinking--reason, emotions, autonomic functions.

Herrmann combined the Sperry left-right and the Maclean cerebral-limbic models into the Whole Brain® Model. Herrmann's model shows the left and right of reason (cerebral system), and the left and right of emotion (limbic system). These four are the "thinking" areas of the brain because they have neural cortices (areas shown to be involved in thinking).

The "A" and "D" quadrants of the model represent cerebral thinking; "B" and "C" represent emotional or visceral thinking. Descriptors used by Sperry, and others, to describe left and right-brain thinking are respectively "A" - "B", and "C" - "D". Thus, if a person were to complete an assessment of thinking preferences (such as the HBDI®) the amount of preference for each quadrant could be shown in a graph (Chart 2). The example profile shows a preference in the "A" quadrant of 90 points, "B" quadrant 60 points, "C" quadrant 70 points, and "D" quadrant 110 points. If such a person were participating in a Grid seminar (or in any other activity improved by balanced--Whole Brain®--thinking) they would be grouped with people whose thinking preferences complemented this person. The potential for synergy is greatly enhanced by forming groups/teams so that each quadrant is accessed relatively equally (thus the term whole-brain® groups/teams).

With an understanding of the model, and the method we used to assess thinking preferences, we will explain the setting for our six-year experiment, and the amazing results in improved productivity.



The brain dominance profile provides a kite-shaped picture of thinking preferences. You can instantly see where your strengths are and where you could benefit by drawing on the strengths of someone else.

What We Did

Before we tell you about the results we obtained, some history will be helpful. The question, "What do you do to increase the productivity/efficiency of a group?" is the precise question that had been addressed by the USDA Forest Service for more than 30 years. They had achieved some success through a team-building program, the Managerial Grid seminar. Managerial Grid(i) participants (working in teams) learned how to increase their efficiency. They learned that their decision-making skills improve when they combine their best thinking with others. They learned about their management style and how that style impacts others, and how to modify their style so that they enhance the efficiency of the group.

During the entire 30 years the Managerial Grid seminar was being conducted, improvements in Grid-team efficiency were sought. The seminar included measurements to evaluate the productivity of each individual, the potential of the team, and the degree to which the team achieved its potential. Improvements in team efficiency --the ratio of production to potential-- was attempted by varying the makeup of the teams. Gender, age, ethnicity, salary, education level, type of educational degree, job classification, and numerous other strategies were used to select members of a team. None of these appeared to effect the production efficiency of teams.

Individuals volunteered (and still do) for the Grid seminar. About 60 days prior to commencement they were sent a package of pre-work materials. The training department assigned participants to teams, and when the seminar leaders received their materials they saw names assigned to the "blue" or "red" or "green" etc. team. The seminar leaders had no idea how the teams were formed. The team participants had no idea how the teams were formed.

This history of frequent tweaking in order to improve group productivity provides a backdrop for the six-year study we conducted shows the data for the eleven control-group seminars.

A Six-Year Study

A task that usually took 90 minutes was finished in about 50 (60% of the usual time).

Since seminar 93, a new tactic was used. The pre-work package now includes the HBDI® (Herrmann Brain Dominance Instrument®). The HBDI® is used to assess the mental or "thinking" preferences of participants and teams are formed based on this information. Now, instead of the training department assembling teams, the Brain Connection does it; not randomly, but based on thinking styles. Neither leaders or participants know the composition of the teams until after all the scored exercises are complete.

The first seminar where the HBDI® was utilized (number 94, not shown in tables) used teams that consisted of members who thought as similarly as

possible. Homogeneous teams. The efficiency score for that seminar was 31.0, a 40.8 % increase in production efficiency. That is, the teams in this seminar realized more of their potential than almost any seminar preceding it.

Here's what happened in the first seminar using the HBDI®. Participants were assembled in homogeneous teams, as like-minded as possible. The first exercise, assigned Sunday evening, was supposed to take an hour and a half. However, because the participants thought so similarly, when one member suggested an answer the others quickly agreed. A task that usually took 90 minutes was finished in about 50 (60% of the usual time). The leaders, accustomed to having the evening to prepare for Monday's activities, were caught unprepared and panicked. Still, they went ahead, scoring the activities of the first exercise, but then came a second surprise. The scores were higher than the leaders had ever seen. They recalculated: same results! They called the training department to report the unusually high team scores. The training department acknowledged the anomaly and encouraged the leaders to check the scoring again. Then, the training department called Scientific Methods, Inc. and SMI told them they must have made a mistake because in over 3,000 seminars they had never had scores as high as were now being reported by the Forest Service. But, a check confirmed those scores; they had indeed exceeded the norm by 290%.

Control Group

Seminar No.	Efficiency Score
81	20.4
82	27.3
84*	17.6
85	22.1
86	19.0
87	9.7
89*	34.5
90	21.3
91	28.0
92	21.9
93	20.4
Average	**22.02**

Table 1 * Data from sessions 83 and 88 are missing

The next team assignment in seminar 94 rewarded differences in perception, not similarities. Scores plummeted. The participants didn't have differences in their thinking preferences. They worked at perceiving differently, but couldn't do it and concluded that there must be something wrong with the seminar design. Because their scores were amazingly low, leaders were befuddled. The next, and last-scored activity of the seminar was reported; scores were again high, 40% above the norm. Leaders were astounded: this seminar was extraordinary. Then, the reason for this exceptional performance was revealed, teams had been formed based on thinking preferences. When the team makeup was disclosed, everyone realized that team composition based on thinking makes a difference. However, because the team members were so similar in their thinking, other goals of the seminar were not met. This realization led to the design used in subsequent seminars, and to much higher productivity.

The next seminars in our study (see Table 2) followed the same pattern of pre-work, however, participants were assigned in heterogeneous teams, not homogeneous. And, instead of an exceptionally high score for the first activity, there was a consistently high score for all activities. The average efficiency score is 36.68, --66.6% higher than the average for the previous eleven seminars (see Table 1).

As participants discussed their insights and what they were learning about themselves, about teaming, and about the people with whom they were

Study Group

Seminar No.	Efficiency Score
95	38.3
96	41.2
97	29.1
98	43.6
99	31.1
101*	36.8
Average	**36.68**

*Table 2** Data from session 100 was invalidated(ii)

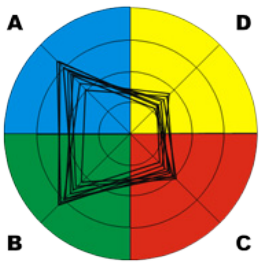
working, the leaders were amazed at the general increase in understanding. In addition to the personal growth, the leaders were also noticing that nearly all the teams were doing very well. That, too, was an improvement. Later, the leaders reported that it is usual for one or two of the half-dozen teams to do quite well, and for the other four teams to do "OK" to poorly.(iii) They couldn't explain why only about a third of the teams did really well, and had concluded that it was just the norm.

Conclusion

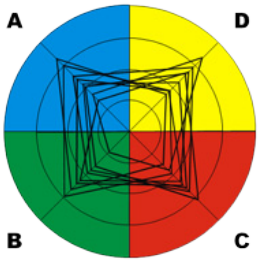
The conclusion of this experiment in improving the efficiency of groups/teams demonstrates that it is possible to improve the output of groups of people in a setting that requires learning, problem-solving, and collaboration skills. The technique for improving group efficiency is this: be sure that the group is balanced in their thinking preferences. The only variable in the Forest Service study was the way the teams were formed. The only new element to the seminar was that teams were mentally balanced--whole brained. Therefore, the only conclusion to be reached is that whole-brain groups/teams make a difference in productivity; a very positive difference!

Lessons Gleaned

Following are some of the lessons gleaned that help groups/teams be more effective. These are things we have been using in the whole-brain teams --and 75-83% of these teams exceed expectations.



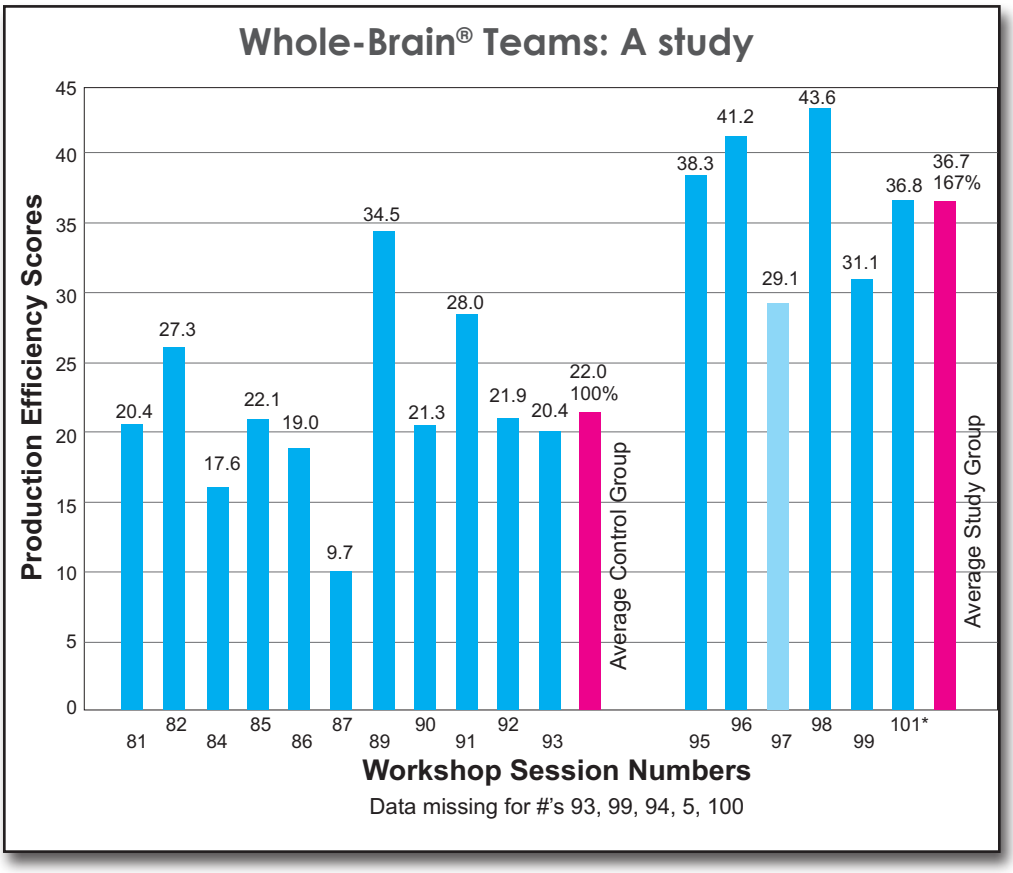
Homogeneous team



Heterogeneous team

Team size. In the Wisdom of Teams (iv), Katzenbach and Smith define a team as "a small group of people...." Seven members have proven to be the optimum number of people for a team. A team of eight will almost always break into two groups; it might be four and four but it is just as likely to be seven and one or three and five. The point is, seven seems to be the maximum number for an effective team. In the Managerial Grid seminar the team configuration which seems to work best has two or perhaps three (of the seven) participants with strong and complementary profiles, one or two with relatively equal scores in all four quadrants, and the remaining with profiles that balance the team. Those who have strong profiles offer distinct alternatives for group-consideration. Those who have relatively equal scores in all four quadrants function as a communication bridge, helping those with strong preferences understand the ideas forwarded by complementary thinkers. The diversity in the group encourages creativity and breadth, as well as depth, of thinking.

Team composition. Since implementing the new team design we have experimented with some other formations. Three teams were formed with people who had very strong profiles, profiles in which at least one quadrant had a score of 100 points or more. One person had a high "A" and was in the same team with a high "B", a high "C" and a high "D". No one in the team



had relatively equal scores in each quadrant. These teams took longer to complete their assignments, experienced more conflict, and had generally normal (pre-HBDI®) or lower scores. Two teams were formed of participants who had triple-prominent profiles, scores of more than 66 (but less than 91) in at least three or four quadrants; these individuals had quite balanced profiles. Their teams had difficulty in making decisions as they lacked clear alternatives and wanted to consider all ideas equally. Their scores were either the lowest or next to the lowest in the seminar.

A second insight is this: **Form Follows Function**. The form of the team is determined by its function. If muscle is the key function/task of the team then numbers-of-people and skill-training are the key elements of efficiency. If mental work is the function/task, a team that is organized to maximize the mind will be much more efficient, and more effective too. Mind training, to help participants think more comprehensively and work more effectively, will complement the mental balance of the team.

Team effectiveness. Effectiveness means: meeting all needs, satisfying all requirements.

1. Mentally balanced teams are more effective. They consider more options and make better decisions.
2. Teams that are balanced are 66% more efficient.
3. The lowest scoring seminar (#97) exceeded 90% of the seminars preceding whole-brain teams (see accompanying chart).
4. A greater number of teams are successful when organized by thinking preferences: 70% or more versus 33% or less.

In answer to the original question, “How do you get off your present plateau and move to the next higher level of production efficiency?” The answer is clear: organize mentally-balanced teams that match the task. The answer is the same to the supplemental question, “What do you do to increase the productivity/efficiency of a group?” Organize mentally-balanced teams.

End Notes

(i) Managerial Grid is a 5-day seminar developed by Robert Blake and Jane Mouton, and is a product of their company, Scientific Methods, Inc.. It is a “residential” experience involving participants in 45 to 50 hours of activities and instruction in teamwork.

(ii) Scoring the exercises requires participants to have clear and accurate instructions from the seminar leaders. Leaders for this session were new and did not appropriately instruct the participants. Therefore, this data has been omitted from the study.

(iii) Based on personal experience, reports from a few companies, and statements from some college professors, 24-33% of teams meet expectations. While companies, government agencies, and business schools are touting and forming teams, the vast majority of those teams fall short of the objectives set for them. Many teams disintegrate either because they aren’t accomplishing meaningful work or because they are interpersonally dysfunctional, exhibiting bickering, grandstanding, arguing, group-think decisions, etc..

(iv) The Wisdom of Teams: creating the high performance organization, Katzenbach, Jon R. and Smith, Douglas K., McKinsey & Company, Inc. Harvard Business School Press, 1993.

(v) Data for Seminar # 94 is omitted because this team make-up will not be used again in the Grid Seminar.

Over this 30 year period the Forest Service conducted 93 seminars comprising more than 500 teams. In a continuing effort to improve the productivity of groups the seminar structure was refined and changed by both the vendor (Scientific Methods, Inc.) and the Forest Service. The final and presently-used version was the basis of data for this study. This study includes eleven seminars made up of approximately 64 teams of 5 to 7 people each. Although data was not kept for each team’s results; aggregate seminar scores were retained.

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