CHAPTER 9

Structured and Creative Problem Solving in Groups

CHAPTER OUTLINE

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GROUP DECISION MAKING

Many group decisions are predictable and fairly easy to make—when to meet again, what to include in a monthly report, whom to assign to a routine task. Other group decisions are much more complex and difficult—whom to hire or fire, where to hold a convention, how to solve a serious problem. As difficult as making a personal decision can be, the challenges of decision making are multiplied in groups. On the other hand, while the road may be filled with obstacles, a goal reached through effective group decision making can be more satisfying and worthwhile than a decision made by an individual working alone.

Decision Making and Problem Solving

Although the terms *decision making* and *problem solving* are often used interchangeably, it is important to clarify the meaning of each term (see Figure 9.1). **Decision making** refers to the "passing of judgment on an issue under consideration" and "the act of reaching a conclusion or making up one's mind."[1] In a group setting, decision making results in a position, opinion, judgment, or action. Most groups make decisions, but not all groups are asked to solve problems. For example, hiring committees, juries, and families make decisions. Which applicant is best? Is the accused guilty? Whom should we invite to the wedding? Management expert Peter Drucker explains, "A decision is a judgment. It is a choice between alternatives."[2]

Problem solving is a more complex *process* in which groups analyze a problem and develop a plan of action for solving the problem or reducing the problem's harmful effects. For example, if student enrollment has declined significantly, a college faces a serious problem that must be analyzed and dealt with if the institution hopes to survive. Problem solving requires a group to make many decisions. Fortunately, there are decision-making and problem-solving procedures that can help a group "make up its mind."

Most groups engage in some form of decision making and problem solving. How they go about these tasks can determine whether the group achieves its goals or falls short. Rodney Napier and Matti Gershenfeld maintain that "unless well designed, a group effort at problem solving can be a colossal waste of time, money, and effort."[3] Instead of building team spirit and group morale, ineffective decision making can overwhelm and destroy a group. Even in the best of circumstances, group decisions take longer to make and run the risk of causing conflict and hard feelings among group members.

Despite these disadvantages, there are many reasons to trust group decision making and problem solving. Sheer numbers enable a group to generate more ideas than a single person working alone could. Even more important is the fact that, given a complex problem, a group is better equipped to find rational and workable solutions. As a rule, decision making in groups can generate more

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FIGURE 9.1 **Decision Making and Problem Solving**

Decision Making	Problem Solving
A JUDGMENT: THE GROUP CHOOSES AN ALTERNATIVE	A PROCESS: THE GROUP DEVELOPS A PLAN
• Guilty or Not Guilty • Hire or Fire • Spend or Save	• Analyze the Problem • Develop Options • Debate Pros and Cons • Select and Implement Solution
ASKS WHO, WHAT, WHERE, AND WHEN	ASKS WHY AND HOW
• Whom should we invite? • What should we discuss? • Where should we meet? • When should we meet?	• Why doesn't our promotional campaign attract students? • How should we publicize the college's new programs?

ideas and information, test and validate more arguments, and produce better solutions to complex problems.[4]

Decision-Making Methods

There are many ways for groups to make decisions. A group can let the majority have its way, try to find a decision or solution that everyone can live with, or leave the final decision to someone else. These decision-making methods translate into voting, consensus seeking, and letting a leader or outside authority make the decision. Each approach has strengths, and the approach used should match the needs and purpose of a group and its task.

Voting. Voting is the most obvious and easiest way to make a group decision. When a quick decision is needed, there is no method that is more efficient and decisive. Sometimes, though, voting may not be the best way to make important decisions. When a vote is taken, some members win, but others lose. A **majority vote** requires that more than half the members vote in favor of a proposal.

If a group is making a major decision, there may not be enough support to implement the decision if only 51 percent of the members agree on it. The 49 percent who lose may resent working on a project that they dislike. In order to avoid such problems, some groups use a two-thirds vote rather than majority rule. In a **two-thirds vote,** at least twice as many group members must vote for a

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proposal as vote against it. A two-thirds vote ensures that a significant number of group members support the decision.

Voting works best when

- A group is pressed for time.
- The issue is not highly controversial.
- A group is too large to use any other decision-making method.
- There is no other way to break a deadlock.
- A group's constitution or rules require voting on certain issues and proposals.

Consensus Seeking. Because voting has built-in disadvantages, many groups rely on consensus to make decisions. **Consensus** is reached when *all* group members agree to support a group decision or action. Julia Wood describes a consensus decision as one "that all members have a part in shaping and that all find at least minimally acceptable as a means of accomplishing some mutual goal."[5] When reached, consensus can unite and energize a group. Not only does consensus provide a way of avoiding a disruptive win/lose vote, but it also can present a united front to outsiders. The guidelines shown in Figure 9.2 should be used in seeking consensus.

TOOLBOX 9.1

The Hazards of Consensus

Many groups fall short of achieving their common goal because the leader or members believe that the group *must* reach consensus on all decisions. The problem of superficial or false consensus haunts every decision-making group. **False consensus** occurs when members give in to group pressures or an external authority without really accepting the decision. Rather than achieving consensus, the group has agreed to a decision masquerading as consensus.[1]

In addition to the hazard of false consensus, the all-or-nothing approach to consensus "gives each member veto power over the progress of the whole group." In order to avoid this impasse, members may "give up and give in" or seek a flawed compromise decision. When this happens, the group will fall short of success as "it mindlessly pursues 100% agreement."[2]

In *The Discipline of Teams*, John Katzenbach and Douglas Smith observe that members who pursue complete consensus often act as though disagreement and conflict are bad for the group. Nothing, they claim, could be further from the reality of effective group performance. "Without disagreement, teams rarely generate the best, most creative solutions to the challenges at hand. They compromise . . . rather than developing a solution that incorporates the best of two or more opposing views. . . . The challenge for teams is to learn from disagreement and find energy in constructive conflict; not get ruined by it."[3]

[1] Donald G. Ellis and B. Aubrey Fisher, *Small Group Decision Making* (New York: McGraw-Hill, 1994), p. 142.
[2] John R. Katzenbach and Douglas K. Smith, *The Discipline of Teams* (New York: Wiley, 2001), p. 112.
[3] Katzenbach and Smith, p. 113.

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Consensus, however, does not work for all groups. Imagine how difficult it would be to achieve genuine consensus if a leader had so much power that group members were unwilling to express their honest opinions. Consensus seeking works best in groups where members have equal status or groups that have created a climate in which everyone feels comfortable expressing their views.

Authority Rule. Sometimes a single person within or outside the group makes the final decision. When **authority rule** is used, groups may be asked to gather information for and recommend decisions to another person or a larger group.

FIGURE 9.2 **Consensus Guidelines**

Consensus Guidelines
LISTEN CAREFULLY TO OTHER MEMBERS AND CONSIDER THEIR INFORMATION AND POINTS OF VIEW.
• Try to be logical rather than emotional. • Don't be stubborn and argue only for your own position.
DON'T CHANGE YOUR MIND IN ORDER TO AVOID CONFLICT OR REACH A QUICK DECISION.
• Don't give in, especially if you have a crucial piece of information to share. • Don't agree to a decision or solution you can't possibly support.
AVOID "EASY" WAYS OF REACHING A DECISION.
• Avoid techniques such as flipping a coin, letting the majority rule, or trading one decision for another.
IF THERE IS A DEADLOCK, WORK HARD TO FIND THE NEXT BEST ALTERNATIVE THAT IS ACCEPTABLE TO EVERYONE.
• Make sure that members not only agree but also will be commited to the final decision.
GET EVERYONE INVOLVED IN THE DISCUSSION.
• The quietest member may have a key piece of information or a brilliant suggestion that can help the group make a better decision.
WELCOME DIFFERENCES OF OPINION.
• Disagreement is natural and can expose a group to a wide range of information and opinions.

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For example, an association's nominating committee considers potential candidates and recommends a slate of officers to the association. A hiring committee may screen dozens of job applications and submit a top-three list to the person or persons making the hiring decision.

Unfortunately, authority rule can have detrimental effects on a group. If a leader or an outside authority ignores or reverses the recommendations of the group, its members may become demoralized, resentful, and nonproductive on future assignments. Even within a group, a strong leader or authority figure may use the group and its members to give the appearance of collaborative decision making. The group thus becomes a "rubber stamp" and surrenders its will to authority rule.

Decision-Making Goals

Regardless of which decision-making method a group chooses, there is an immediate judgment that must be made: What is our decision-making goal? In some group settings, the decision-making goal is dictated by an outside group or authority. Yet even when a group does not choose the goal, it has an obligation to clarify that goal and determine whether the group is capable of achieving it. To assist in this process, we recommend that groups word their goal as a question that must be answered. It is useful to look at four different kinds of questions to clarify what a group must know and do in order to succeed: questions of fact, conjecture, value, and policy.

Questions of Fact. A **question of fact** asks whether something is true or false, whether an event did or did not happen, or whether something was caused by this or that. Did product sales decrease last year? The answer to these questions is either *yes* or *no.* However, a question such as "What was the decrease in sales?" can require a more detailed answer, with possible subquestions about the sales of particular products or product sales in different regions. When a group confronts a question of fact, it must consider the best information it can find and subject that information to close scrutiny.

Questions of Conjecture. A **question of conjecture** asks whether something will or will not happen. Unlike a question of fact, only the future holds the answer to this type of question. Instead of focusing on reality, the group must consider possibilities. If the group waits until the future happens, it can be too late to make a good decision or solve a problem. In asking a question of conjecture, the group does its best to predict what the future will bring. Will sales increase next quarter? Will there be layoffs? Who will be the next CEO? Although the answer to a question of conjecture is speculative, it should be based as much as possible on reputable facts, expert opinion, and valid data that can help decision makers establish probabilities.[6] Questions of conjecture are not answered with wild guesses; answers are developed by group members who have gathered and analyzed the best information available.

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TOOLBOX 9.2

Use All Four Types of Questions

Questions of fact, conjecture, value, and policy are not isolated inquiries. Within a group discussion, all four types of questions may require consideration. For example, if your family were trying to decide how to plan a summer vacation while saving money for a new car, you might start with questions of fact and conjecture: "How much do we usually spend on a summer vacation?" "How much money will we need for a new car?" Then the discussion would move to questions of value: "How much do we value the time and place where our family vacations?" "How important is it that we buy a new car this year?" Finally, you would conclude with a question of policy: "How can we both take a summer vacation and save money for a new car?" Thus, when trying to determine the most suitable course of action, a group usually deals with all four types of questions. A group that does not consider the facts of the situation or the attitudes, beliefs, and values of its members may be headed for a poor decision.

Questions of Value. A **question of value** asks whether something is worthwhile—is it good or bad; right or wrong; moral or immoral; best, average, or worst? Questions of value can be difficult to discuss because the answers depend on the attitudes, beliefs, and values of group members. In many cases, the answer to a question of value may be, "It depends." Is a community college a better place to begin higher education than a prestigious university? The answer to this question depends on a student's financial situation, professional goals, academic achievement record, work and family situation, and beliefs about the quality of an education at each type of institution.

Questions of Policy. A **question of policy** asks whether a particular course of action should be taken to solve a problem. Many groups focus on questions of policy. How can we improve customer service? Which candidate should we support as president of the student government association? What plan, if any, should be enacted to ensure that our school system maintains a culturally diverse teaching staff? Policy questions often require answers to subquestions of fact, conjecture, and value.

THE NEED FOR PROCEDURES

In Chapter 1, we introduce the group dialectic of "structure and spontaneity" by noting that structured procedures help groups balance participation, resolve conflicts, organize discussions, and empower members. They also help groups solve problems. However, if a group becomes obsessed with rigid procedures, it misses out on the benefits of spontaneity and creativity. Whether it's just "thinking

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outside the box" or organizing a creative problem-solving session, groups can reap enormous benefits by encouraging innovation and "what if" thinking. Effective groups balance the need for structured problem solving with time for creative thinking.

The Need for Structured Procedures

Even if everyone understands why group decision making is valuable and appreciates the different ways in which a group makes up its mind, there is no guarantee that the group will make good decisions. Groups also need clear procedures that specify how a group should organize problem-solving tasks. Group communication scholar Marshall Scott Poole identifies structured procedures as "the heart of group work [and] the most powerful tools we have to improve the conduct of meetings."[7] Even a simple procedure such as constructing and following a short agenda enhances meeting productivity. Time and effort spent on using a well-planned, structured procedure can reap the following benefits:

- *Balanced participation.* Procedures can minimize the impact of a powerful leader or member by making it difficult for a few talkative or high-status members to dominate a group's discussion.
- *Conflict resolution.* Procedures often incorporate guidelines for managing conflict, resolving disagreements, and building genuine consensus.
- *Organization.* Procedures require members to follow a clear organizational pattern and focus on the same thing at the same time. Procedures also ensure that major discussion items are not missed or ignored.
- *Group empowerment.* Procedures provide a group with a sense of control. "This happens when members know they have followed a procedure well, managed conflict successfully, given all members an equal opportunity to participate, and as a result have made a good decision."[8]

The Need for Creative Procedures

Curiosity and creativity fuel all *great* groups. These qualities allow groups to "identify significant problems and find creative, boundary-bursting solutions rather than simplistic ones."[9] Effective group leaders understand the near-magical quality that creativity can inject into the group process. When, for example, Walt Disney "asked his artists to push the envelope of animation, he told them 'If you can dream it, you can do it.' He believed that, and, as a result, they did too."[10]

Creativity is difficult to define because it is both a process and an outcome. In Lee Towe's book on **creativity** in the workplace, he describes these two components:[11]

- *Creative thinking.* The process of searching for, separating, and connecting thoughts from many categories while limiting judgment.
- *Creative output.* The valuable combination of previously unrelated elements.

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Thus, creative thinking is a process that groups can develop, and creative output is the measurable goal of creative groupwork.

Encouraging and rewarding creativity can be as important to problem solving as following any of the structured procedures described in this chapter. It is creativity and "thinking outside the box" that facilitate breakthrough decisions and solutions. For example, one of us once chaired a meeting in which the injection of creativity broke through a problem-solving logjam:

> I was chairing a meeting of graphic artists, copywriters, and public relations staff members at the college. Our assignment was to write and design a commemorative booklet for the college's fortieth anniversary. On the conference table sat a dozen such booklets from other colleges. The group had reviewed all the samples and come up with a list of common features. The problem was this: We had limited funds to print the booklet, so we had to confine ourselves to twenty-four pages. Very quickly, the group became bogged down. An uncomfortable silence settled over the group. At this point, I interjected a question: "If you hadn't seen any of these model booklets, what would you write and design to commemorate our anniversary?" The response was immediate and energizing: "You mean we can come up with something new and different?" The answer was yes. The result: A new sense of excitement and eagerness permeated the group. The "model" booklets were swept off the table. Highly creative, out-of-the-box alternatives materialized.

When groups think creatively, members share new connections and unusual possibilities. Although it is impossible to describe the creative process in precise

What procedure could help this group make decisions about the next edition of the school newspaper? *(© Elizabeth Crews/The Image Works)*

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terms (it wouldn't be all that creative if we could), we can outline the basic stages of the process in groups. Generally, there are four stages:

- *Investigation.* Group members gather information and attempt to understand the nature and causes of a problem.
- *Imagination.* Free thinking is encouraged. Mental roadblocks are removed or temporarily suppressed. Many ideas, some of them quite unusual, are generated and discussed.
- *Incubation.* A period of time occurs during which imaginative ideas are allowed to percolate and recombine in new ways. The group may take a break or focus its attention on another topic or issue during the incubation stage.
- *Insight.* The "Aha!" moment occurs and a new approach or solution emerges. Group members recognize the breakthrough moment and may build upon or improve the idea. Many group members enjoy the fun that comes with this stage of the creative process.

Because the incubation stage is usually a prerequisite for the "Aha!" moment of insight, it may look as though the group has abandoned its task. As a result, creative problem solving is often squelched or sacrificed in the interest of following a detailed agenda or rigid procedure. For group members with strong control needs, creative problem solving may seem to divert energy from dealing with the problem to having a good time. Despite these concerns, creative thinking in groups is well worth the time and the laughter. Group members who are trained in creative problem solving participate more, criticize one another less, support new ideas more, exhibit humor, and produce more worthwhile ideas.[12]

STRUCTURED PROBLEM SOLVING

There are many structured problem-solving procedures available to groups. There are complex, theory-based models designed to tackle the overall problem facing a group. There are also decision-making methods and tools designed for subgoals of the problem-solving process. As a way of understanding the similarities and differences among these procedures, we provide a hypothetical example to illustrate how their various steps can be applied to solving a problem. Although this example does not offer many details, it can demonstrate the ways in which a group may use several of the most common structured procedures to solve problems (see Figure 9.3).

Fallingstar State College

For three consecutive years, Fallingstar State College has experienced declining enrollment and no increase in funding from the state. In order to balance the budget, the board of trustees has had to raise tuition every year. There are no

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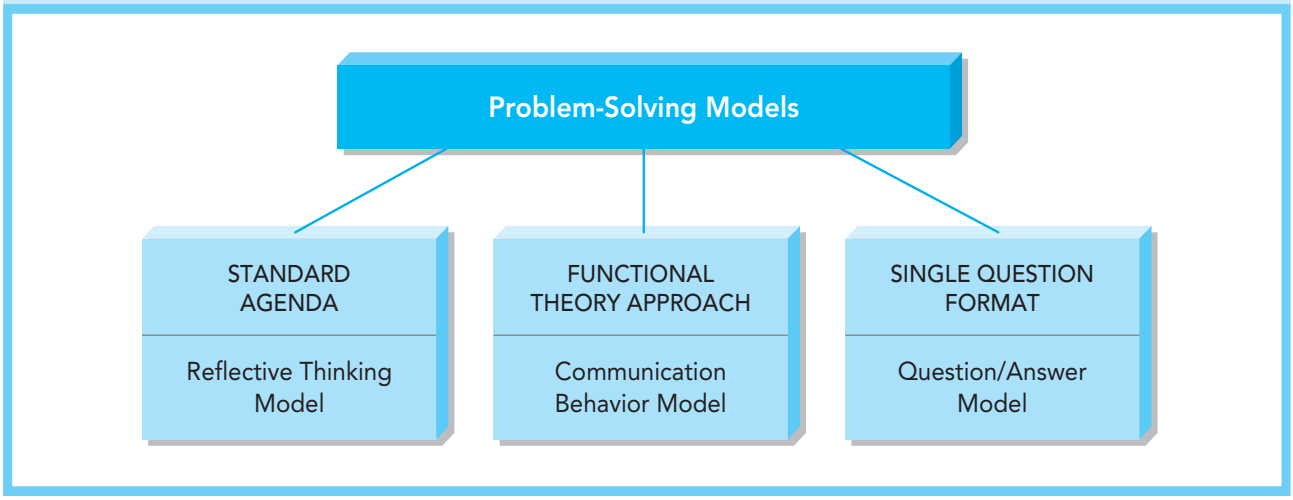
FIGURE 9.3 **Structured Problem-Solving Models**



prospects for more state funding in the near future. Even with significant tuition increases, there has been a drop in overall college revenue. The college's planning council, composed of representative vice presidents, deans, faculty members, staff employees, and students, has been charged with answering the following question: Given the severe budget constraints, what should the college do to preserve high-quality instruction and student services?

There is no "best" model or magic formula that ensures effective problem solving in groups. As a group gains experience and successfully solves problems, its members learn that some procedures work better than others and some need modification to suit the group's needs. In short, there are no hard-and-fast rules for problem solving. There are, however, well-accepted methods to help groups through this complex process.

The Standard Agenda

The founding father of problem-solving procedures is a U.S. philosopher and educator named John Dewey. In 1910, Dewey wrote a book entitled *How We Think,* in which he described a set of practical steps that a rational person should follow when solving a problem.[13] These guidelines have come to be known as Dewey's **Reflective Thinking Process**.

Dewey's ideas have been adapted to the process of solving problems in groups. The Reflective Thinking Process begins with a focus on the problem itself and then moves on to a systematic consideration of possible solutions. We offer one approach to this process—the **Standard Agenda.**[14] The basic steps in The Standard Agenda are summarized in Figure 9.4.

Task Clarification. The goal of this initial phase is to make sure that everyone understands the group's assignment. For example, Fallingstar State College's planning council could dedicate the beginning of its first meeting to making

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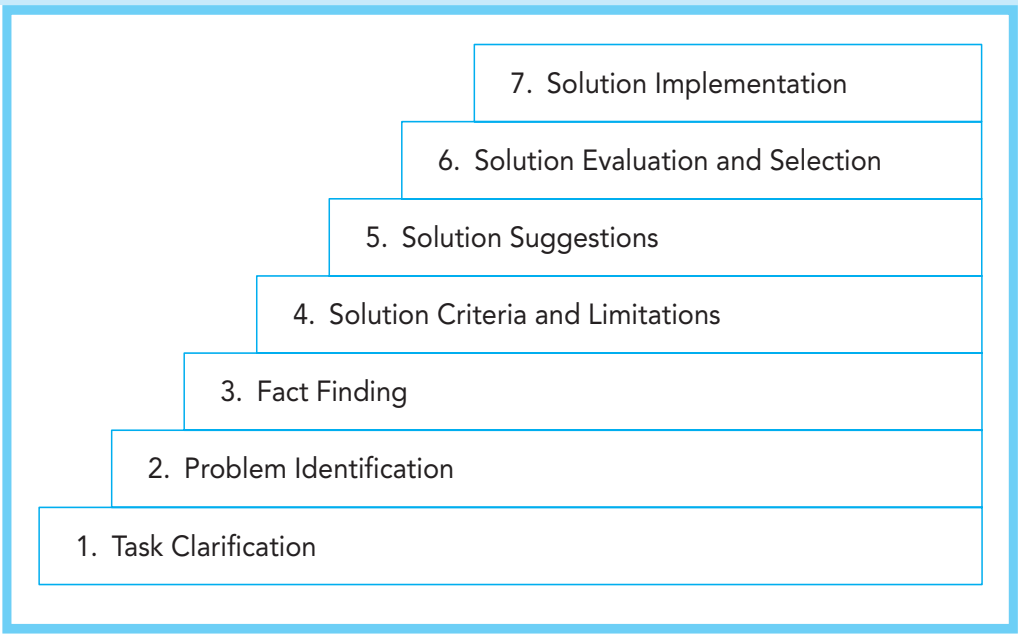
FIGURE 9.4 **The Standard Agenda**



sure that everyone is aware of the time frame in which the council is working and the need to produce a written set of recommendations. During this phase, group members can ask questions about their roles and responsibilities in the problem-solving process.

Problem Identification. Overlooking this second step can send a group in the wrong direction. In the case of Fallingstar State College, there may be several different ways to define the college's problem. Is the problem declining enrollment? Some group members may consider this to be an advantage rather than a disadvantage because having fewer students can result in smaller classes, more individualized instruction, less chaos at registration, and easier parking. Is the problem a lack of money? Although lack of money seems to be a universal problem, an inefficiently run college could find that it in fact has enough money if it enhances productivity and becomes more businesslike.

The group's problem should be worded as an agreed-upon question. Whether this is a question of fact, conjecture, value, or policy determines the focus and direction of the discussion. The question "What should the college do to continue providing high-quality instruction and student services?" is a question of policy that can be answered only by also considering questions of fact, value, and conjecture.

Fact Finding. During the third step, fact finding, group members have several obligations that are reflected in the following questions of fact and value: What are the facts of the situation? What additional information or expert opinions do we need? How serious or widespread is the problem? What are the causes of the

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TOOLBOX 9.3

The Role of Agendas and Parliamentary Procedure

Two important decision-making tools—meeting agendas and parliamentary procedure—can help groups make effective decisions as they solve problems. A meeting agenda is an outline of the items to be discussed and the tasks to be accomplished at a meeting. In Chapter 12, "Planning and Conducting Meetings," we provide guidelines and examples of meeting agendas.

Parliamentary procedure is a term that describes a set of formal rules used to determine the will of the majority through fair and orderly discussion and debate. For group members who are new to parliamentary procedure, it can be confusing and intimidating. Not only are there hundreds of rules, but the language of parliamentary procedure has a unique vocabulary: "Mr. Chairman, I call the previous question" or "Madam President, I rise to a point of order."

Many organizations and associations specify in their constitution or bylaws (rules governing how an organization operates) that parliamentary procedure must be used to conduct meetings. *Robert's Rules of Order*—considered the "parliamentary bible" by many organizations—provides rules that ensure reasonable and civil debate as well as timely group decisions that are accepted by supporters and opponents alike.[1]

[1] Henry M. Robert, with Henry M. Robert, III, William J. Evans, and James W. Cleary, *Robert's Rules of Order, Newly Revised,* 9th ed. (New York: Scott, Foresman, 1990). *Note*: The Houghton Mifflin web site that accompanies this textbook provides an introduction to parliamentary procedure that focuses on its basic principles as well as guidelines for making motions and requesting privileges.

Online Study Center
General Resources
Read the online chapter "Parliamentary Procedures" for more information.

problem? What prevents us from solving the problem? These questions require investigations of facts, conclusions about causes and effects, and value judgments about the seriousness of the problem.

Fallingstar State College's planning council could look at the rate of enrollment decline and future enrollment projections, the anticipated budgets for future years, the efficiency of existing services, the projected impact of inflation, estimated salary increases, predictable maintenance costs, and the likely causes of declining enrollment. It could take months to investigate these questions, and even then, there may not be clear answers to all of them. Failure to search for such answers, however, is much more hazardous than attempting to find them.

We offer a word of caution about this phase of The Standard Agenda. "Although analyzing the problem is important and should be undertaken before exploring potential solutions, bogging down by analyzing the problem too much can also thwart effective decision making. **Analysis paralysis** prevents a group from ever getting on with business and making a decision."[15] In other words, a college planning council could collect dozens of reports and identify ten possible causes of declining enrollment but still be unable to verify or settle on the most important reasons. Rather than spending months arguing about the

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issue or giving up on finding the correct answer, a group may have to move on and begin its search for solutions.

Solution Criteria and Limitations. **Solution criteria** are standards that an ideal resolution of a problem should meet. The development of realistic criteria should also include an understanding of solution limitations, which can be financial, institutional, practical, political, or legal in scope. For a college planning council, criteria could include the cost of potential solutions, the goal of ensuring that all subgroups—administrators, faculty, staff, and students—accept the solution, a commitment to using fair and open procedures to assess existing programs, and considerations of the political and legal consequences of proposed actions.

Solution Suggestions. At this point in a group's deliberations, some solutions may be obvious. Even so, the group should concentrate on suggesting as many solutions as possible. Having spent time understanding the task, identifying the problem, analyzing its consequences and causes, and establishing solution criteria, members should be able to offer numerous solutions. Later in this chapter, we describe a technique called *brainstorming* that can help a group generate creative options.

Suggestions from the college's planning council could include a wide range of options: raising tuition, embarking on a new promotional campaign, seeking additional grants and corporate donations, forgoing raises, freezing promotions, requiring additional teaching by faculty, increasing class size, reducing the number of administrators and staff, eliminating expensive programs and services, lobbying the state for more funds, and charging students fees for special services. This list could double or triple, depending on the creativity and resourcefulness of the group.

Solution Evaluation and Selection. This stage of The Standard Agenda may be the most difficult and controversial. Here, group members discuss the pros and cons of each suggestion in light of their agreed-upon criteria for a solution. Questions of conjecture arise as the group considers the possible consequences of each option. Discussion may become heated, and disagreements may grow fierce. In some groups, members may be so tired or frustrated by the time they get to this phase that there is a tendency to jump to conclusions. If the group has been conscientious in analyzing the problem and establishing criteria for solutions, however, some solutions will be rejected quickly, while others will swiftly rise to the top of the list.

The college's planning council may hear students arguing against increased tuition and fees, whereas faculty are predicting a decline in instructional quality if they are required to teach more courses or larger classes. Administrators and staff may cringe at freezing salaries, whereas faculty may support reductions in administrative staff. In this phase, a group should remember its solution criteria and use them to evaluate the strengths and weaknesses of each suggested solution. At the end of this stage, a group should identify the solutions it wishes to endorse and implement.

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Solution Implementation. Having now made a difficult decision, a group faces one more challenge: How should the decision be implemented? Should our group assume this responsibility, or will implementation be delegated to others? How will the group explain the wisdom or practicality of its decision to others? For all the time a group spends trying to solve a problem, it may take even more time to organize the task of implementing the solution. If the planning council wants a new promotional campaign to attract students, the campaign must be well planned and affordable in order to achieve its goal. If the college wants to enhance its fund-raising efforts, a group or office must be given the authority and resources to seek such funds. Brilliant solutions can fail if no one takes responsibility or has the authority to implement a group's decision.

The Functional Theory Approach

During the 1980s and 1990s, Randy Hirokawa and Dennis Gouran theorized that a set of "critical functions" can explain and predict how well a group will make decisions and solve problems. Unlike The Standard Agenda model, **functional theory** claims that "communication is the instrument by which members or groups, with varying degrees of success, reach decisions and generate solutions to problems."[16] According to this theory, effective performance of communication functions is more important than the order in which these functions are performed. If, however, groups stray too far from an agenda, the quality of the group decision may suffer.

Gouran and Hirokawa's ongoing research reveals that certain conditions explain the likelihood of a group's making good decisions and selecting appropriate solutions to a problem. We have grouped these conditions into three categories: (1) appropriate preparation, (2) appropriate procedures, and (3) appropriate precautions.

Preparation. Before a group engages in specific problem-solving tasks, the group must be well prepared for the process. There are four preparation requirements for effective decision making and problem solving. Group members must

- Make clear their interest in arriving at the best possible decision.
- Identify the resources necessary for making such a decision.
- Recognize possible obstacles to be confronted.
- Specify the procedures and ground rules to be followed.[17]

These prerequisites ensure that the group is ready, willing, and able to tackle the issue. The first task—participant interest and energy—is not sufficient to ensure success. Group members also must make sure that they have identified the sources of information they will need, the limits or constraints on their ability to make a decision, and the appropriate decision-making or problem-solving procedure.

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Procedures. Once a group is ready, willing, and able to tackle an issue, an additional set of functional tasks is needed. In order for groups to satisfy fundamental task requirements, they must (1) understand the issues, (2) determine solution criteria, (3) identify possible solutions, (4) review the pros and cons of each suggested solution, and (5) select the best option.[18] These procedural tasks are the heart of functional theory. Addressing each one is critical if a group hopes to make an effective decision or solve a problem.

1. *Understand the issues.* This function combines the second and third steps in The Standard Agenda—problem identification and fact finding. Two related errors can occur in this phase. First, the group may fail to recognize or accurately define the problem. Second, it may fail to identify the causes of the problem. If, in the case of Fallingstar State College, the planning council mistakenly decides that the decrease in enrollment is caused by higher tuition, it may have ignored other factors, such as competition from other colleges, the state of the economy and its effect on students' ability to find jobs, or even a public perception that the college does not offer high-quality instruction. If, as a result, the college decides to hold the line on tuition but eliminate popular programs, the problem could be made worse.

2. *Determine solution criteria.* Once a group believes that it understands the nature and causes of a problem, it needs to establish criteria or standards for a solution. In many groups, this process is governed by specific goals or unspoken objectives. For example, a college's planning council may want to develop a plan that saves money for the college without affecting or jeopardizing anyone's job. Given such a goal, options such as reducing the number of administrators, increasing the number of teaching hours, or freezing salaries and promotions could be out of the question. In the end, such limitations could hamper the planning council's ability to solve its budgetary problem. On the other hand, when underlying goals and values match potential solutions, the final decision will be better. For example, if everyone on the planning council agrees that employee sacrifices are inevitable, the road has been cleared for a wider range of possible actions.

3. *Identify possible solutions.* With an understanding of the problem and a set of goals or standards against which to measure suggested actions, a group will identify possible solutions. This third function is similar to the solution suggestions step in The Standard Agenda.

4. *Review the pros and cons of each suggested solution.* The fourth function is the group's ability to analyze and discuss the positive and negative aspects of suggested solutions. Breakdowns at this stage of the discussion process can have serious consequences. Hirokawa points out that because it is impossible to examine *all* the positive and negative aspects of every proposed solution, a group "tends to focus on the more important or obvious positive

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and negative attributes of certain attractive choices."[19] As a result, the group may overestimate a solution's strengths and fail to recognize its weaknesses.

5. *Select the best option.* At this point in the process, the group should be prepared to make a decision or choose an appropriate action to solve a problem. If a group has completed the prerequisite preparation tasks and followed the appropriate procedures, selection can and should occur. Although there may be more than one good decision or solution, the group should feel confident that its choice will be appropriate and effective.

Precautions. Although it may seem as though all of the important decision-making tasks have been completed, groups need to engage in two more functions that help ensure the quality of a decision or solution. First, the group must become aware of and overcome any constraints that prevent effective decision making and problem solving. Second, members should review the entire process that the group used to come to a decision and, if necessary, reconsider the judgments reached (even to the point of starting over).

At the very end of the decision-making process, group members may experience some uneasiness or be reluctant to finalize their decision. Reviewing the functional tasks from the very beginning and taking time to think about the potential constraints that could have influenced the group can be time well spent. It takes a brave participant to suggest that something is not right with the final product. Perhaps there has been a trace of groupthink, perhaps an early assumption was based on erroneous information, perhaps the decision failed to take into account the criteria established by the group, or perhaps a strong group member had too much influence. Once a group implements its decision, it can be difficult to undo the consequences.

Functional theory has several qualities that distinguish it from The Standard Agenda model. The first is that the competent performance of each of the functions is more important than performing the functions in a specific order. A second difference is that the functional approach recognizes that group goals and unspoken assumptions can affect the choice of solutions. Finally, this approach emphasizes the group's ability to recognize and realistically understand both the pros and the cons when considering a solution, and also understand the constraints that can undermine decision making. It is not enough for a group to follow a list of steps; it must also be well informed, realistic, and highly motivated if it hopes to solve a problem.

The Single Question Format

The **Single Question Format** is a seemingly simple problem-solving procedure that approximates the way successful problem solvers and decision makers naturally think.[20] The five basic steps in the Single Question Format provide a sharp focus on an agreed-upon question that, if thoroughly analyzed and responsibly

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answered, should provide the solution to a problem. The Single Question Format includes the following steps: (1) identify the problem, (2) create a collaborative setting, (3) analyze the issues, (4) identify possible solutions, and (5) answer the single question.[21]

Identify the Problem. What is the *single* question, the answer to which is all that the group needs to know in order to accomplish its agreed-upon goal? Although reaching agreement on the single question may take many hours, the investment is essential if additional time and effort are to be well spent.[22] For example, Fallingstar State College's planning council decides to address this question: Given the severe budget constraints, what should the college do to preserve high-quality instruction and student services? In business settings, a single question might be: How should we eliminate $4 million of annual expenses without damaging the company or its customer relationships? At home you could ask: Given limited funds, how can we both take a vacation in Maine and afford to purchase another car?

Create a Collaborative Setting. This second step is often overlooked in other problem-solving procedures. Here you ask your group to agree on a set of norms by generating a list of "we will" statements designed to foster open discussion and participation:

- We will listen to *all* points of view.
- We will ask for facts as well as opinions.
- We will be tough on issues but not on one another.
- We will put aside personal agendas.

In addition to the "we will" list, identify assumptions and biases that may influence the discussion. Ask the group: Have past approaches worked, or do we need a new approach? Do we *really* understand the problem, or do we need to take a fresh look at the situation? Are we ignoring some approaches because of personal or political biases?

Analyze the Issues. The third step requires a group to identify and analyze relevant subquestions such as these:

- What issues must be addressed in order to answer our single question?
- Do we have accurate and relevant facts about each issue?
- Given what we know, what is the best or most reasonable response to each issue?

Completing this step helps a group "avoid arriving at a solution too early, before understanding the critical components of the problem."[23]

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Identify Possible Solutions. This step asks a group to suggest two or three reasonable solutions to the overall single question *and* to discuss the advantages and disadvantages of each solution. This is a crucial step in which strong opinions and disagreements may arise. By listing advantages and disadvantages, however, a group may be able to *see* that the advantages for one solution far outweigh the disadvantages. A simple table can be used to generate the pros and cons for each option.

Possible Solution	Advantages	Disadvantages
	1.	1.
	2.	2.
	3.	3.

Answer the Single Question. After analyzing the pros and cons of each potential solution, the group selects "the best solution to the problem based on a clear, shared understanding of all the relevant issues. This clarity, in turn allows a group to proceed with sufficient confidence to their final decision and commit to it."[24]

Although the Single Question Format shares many characteristics with The Standard Agenda approach, two features make it both different and effective. First, it sharply focuses on goal clarity (a prerequisite for any work group) and issue analysis. Second, it cultivates a supportive group climate that helps members identify, raise, and resolve many interpersonal and process problems that can affect group success.

At Fallingstar State College, a single question—Given the severe budget constraints, what should the college do to preserve high-quality instruction and student services?—helps the planning council understand what it needs to know in order to avert a financial crisis caused by declining enrollment. After asking this single question, the group members spend time establishing a set of norms to determine the way in which they will discuss the problem. They may decide that the names of specific administrators will not be used when describing failed programs. Rather than assuming that the college recruitment office "ain't broke, so why fix it?" they may decide that there is room for improvement in all offices. After establishing a collaborative setting, the council can devote its attention to analyzing and responding to several critical issues, after which members can offer a limited number of reasonable solutions. A vice president might suggest efficiency moves such as increasing class size as well as a more aggressive marketing plan. A dean might propose developing new academic programs to attract more students. A student might recommend an organized protest at the state capitol in support of more funding. In the Single Question Format, the group would

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consider the advantages and disadvantages of every reasonable solution and determine the extent to which each suggestion could or should be incorporated into an ideal solution that answers its single question.

Figure 9.5 summarizes the main features of the three structured problem-solving procedures discussed in this chapter.

CREATIVE PROBLEM SOLVING

As is the case with structured problem solving, there are many creative problem-solving methods (see Figure 9.6). Again, there is no "best" technique. There are, however, recommended procedures for making decision making and problem solving effective by harnessing group ingenuity and creativity.

Brainstorming

In 1953, Alex Osborn introduced the concept of brainstorming in his book *Applied Imagination.*[25] **Brainstorming** is a technique for generating as many ideas as possible in a short period of time. When a group is asked to suggest the causes of or solutions to a problem, brainstorming can be used to increase the number and creativity of the suggestions. Brainstorming is a fairly simple and widely used

FIGURE 9.5 **Summary of Structured Problem-Solving Procedures**

Problem Solving Procedures		
STANDARD AGENDA	FUNCTIONAL THEORY APPROACH	SINGLE QUESTION FORMAT
1. Task Clarification 2. Problem Identification 3. Fact Finding 4. Solution Criteria and Limitations 5. Solution Suggestions 6. Solution Evaluation and Selection 7. Solution Implementation	*Preparation* • Aim for Best Decision • Identify Necessary Resources • Recognize Possible Obstacles • Specify the Procedures *Procedures* • Understand the Issues • Determine Criteria • Identify Possible Solutions • Review Pros and Cons of Solutions • Select the Best Solution	1. Identify the Problem As a Single Question 2. Create a Collaborative Setting a. Agree on Discussion Norms b. Identify Assumptions and Biases 3. Identify and Analyze the Issues 4. Identify Possible Solutions 5. Resolve the Single Question

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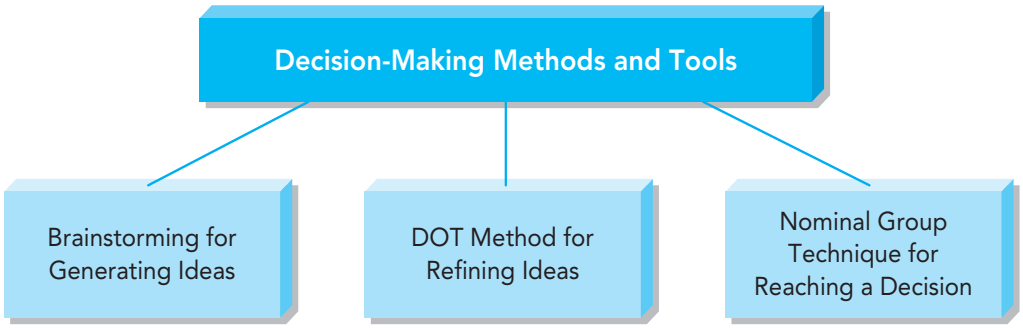
FIGURE 9.6 **Creative Methods**



method. In fact, more than 70 percent of businesspeople claim that brainstorming is used in their organizations.[26] Unfortunately, many groups fail to use brainstorming effectively. The guidelines shown in Figure 9.7 explain the rules and nature of brainstorming.

Brainstorming is governed by two key principles: (1) Deferring judgment improves the quality of participants' input, and (2) quantity of ideas breeds quality. The idea that quantity breeds quality is based on the notion that the first ideas we come up with are usually the most obvious, and that truly creative ideas will come only after we have gotten the obvious suggestions out.[27]

There are, however, circumstances in which brainstorming can be counterproductive.[28] If, for example, a highly influential member or "the boss" is allowed to speak first, he or she can potentially influence and limit the direction of ideas. In an effort to be more democratic, some groups have members speak in turn. This approach, however, prevents the group from building momentum and results in fewer ideas. Finally, some members may try to write down all of the group's ideas. Those members end up being so focused on note taking that they rarely contribute ideas. Instead, have one person record all the ideas contributed by the group members.

Although brainstorming is often used by groups, its effectiveness depends on the nature of the group and the character of its members. If a group is self-conscious and sensitive to implied criticism, brainstorming can fail. However, if a group is comfortable with such a freewheeling process, brainstorming can enhance creativity and produce numerous worthwhile ideas.

Nominal Group Technique (NGT)

Nominal Group Technique, also known as NGT, was developed by Andre L. Delbecq and Andrew H. Van de Ven as a way of maximizing participation in problem-solving and program-planning groups while minimizing some of the interpersonal problems associated with group interaction.[29] The term *nominal* means "existing in name only." Thus, a nominal group is a collection of people

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FIGURE 9.7 **Brainstorming Guidelines**[30]

BRAINSTORMING GUIDELINES

1. Sharpen the Focus
   - Start with a clear statement of the problem.
   - Give members a few minutes to think about possible ideas before brainstorming begins.
2. For All to See
   - Assign someone to write down the group's ideas.
   - Post the ideas where everyone can see them.
3. Number the Ideas
   - Numbering can motivate a group, e.g., "Let's try to get 100 ideas."
   - Numbering makes it easier to jump back and forth among ideas.
4. Encourage Creativity
   - Wild and crazy ideas are welcome.
   - Quantity is more important than quality.
5. All Input, No Putdown
   - Don't analyze, oppose, or praise another member's ideas.
   - Don't discuss, defend, clarify, or comment on your own suggestions.
   - Keep the ideas coming.
   - Ideas are evaluated only after brainstorming is over.
6. Build and Jump
   - Build on or modify ideas offered by others.
   - Combine two or more ideas into a new idea.
   - It's okay to jump back to an earlier idea or forward to a completely different line of thinking.

who, at first, work individually rather than collectively. NGT combines aspects of silent voting with limited discussion to help a group build consensus and arrive at a decision.[31]

There are two separate phases in a Nominal Group Technique session: an idea generation phase and an evaluation phase. During the idea generation phase, seven to ten individuals sit around a table in full view of one another. This first phase includes these four steps:

1. Each member writes his or her ideas on a separate piece of paper.
2. At the end of five to ten minutes, a structured sharing of ideas takes place. Each member, in turn, presents one idea from his or her private list.
3. A recorder writes each idea on a flip chart in full view of other members. There is no discussion at this point—only the recording of members' ideas.
4. Round-robin listing continues until all members indicate that they have no further ideas to share.[32]

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Returning to the case of the college planning council, members could use the Nominal Group Technique to generate a list of possible causes of declining enrollment or a list of possible solutions to the budgetary shortfall. The listing of ideas in an NGT session is different from brainstorming because the ideas are generated by individuals working alone rather than emerging from group interaction.

During the second, evaluative phase of a Nominal Group Technique session, the group discusses each recorded idea and then votes to create a rank order of items as follows:

1. Discussion is structured so that each idea receives attention before independent voting.
2. Members are asked to clarify or state their support or nonsupport of each idea listed on the flip chart.
3. Independent voting then takes place. Each member privately, in writing, selects priorities by rank-ordering (or rating) the ideas.
4. The group decision is the mathematically pooled outcome of the individual votes.[33]

Nominal Group Technique can be used in a variety of group settings, particularly when individual judgments and expertise are valued. NGT can be used to rank job applicants, to select a campaign slogan, to determine which of many possible solutions receives the most support, to establish budget priorities, to reach agreement on the causes of a problem, and to make a final decision. The highly structured NGT process guarantees equal participation during the idea generation phase and also provides opportunities for discussion and critical evaluation in the second phase. NGT can also be useful when dealing with a sensitive or controversial topic on which contrary opinions and a myriad of details could paralyze the discussion.[34]

An NGT session requires a great deal of time and a skilled moderator to make it work efficiently and effectively. Given NGT's highly structured format, it is difficult to adjust or modify suggested items, and this may frustrate group members who prefer more spontaneous interaction. At the same time, NGT can curb members who dominate or block the ideas and comments of others. Because the technique begins with individual ideas, all members are able to see their suggestions discussed by the entire group.

Decreasing Options Technique (DOT)

DOT, which stands for **Decreasing Options Technique,** is a decision-making tool that helps groups reduce and refine a large number of suggestions into a manageable number of ideas. In our work as professional facilitators, we have used this technique to assist small and large groups facing a variety of decision-making tasks. We have enlisted the DOT strategy to write an identity statement for an academic discipline, to create an ethics credo for a professional association, to draft a vision statement for a college, and to create an academic curriculum for

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TOOLBOX 9.4

Which Is Better: Brainstorming or Nominal Group Technique?

Several researchers have investigated the relative usefulness of brainstorming and Nominal Group Technique. It is difficult to draw absolute conclusions regarding the superiority of one method over the other because group members, group goals, and group relationships differ. Yet, there seems to be good evidence that Nominal Group Technique works better than brainstorming for generating ideas that are both numerous and creative. There are several possible reasons for this conclusion.[1]

- Waiting for a turn to speak in a brainstorming group may disrupt the thinking of group members and slow the production of ideas.
- Group members who fear negative evaluation from others may withhold ideas even though the group has been told to defer judgment.
- Some members may loaf or "free ride" and let others do all the thinking and talking.
- Some members may not believe that their contributions are important.
- Members who participate more frequently often earn higher status, which may discourage others from speaking.

Nominal Group Technique avoids most of these problems because members have time to think, write, and respond to suggestions after the idea-generating process ends. The development of electronic brainstorming may also help avoid many of these problems. In these settings, group members use networked computers programmed with groupware to generate a master list of ideas simultaneously *and* anonymously.[2]

[1] Craig E. Johnson and Michael Z. Hackman, *Creative Communication: Principles and Applications* (Prospect Heights, IL: Waveland, 1995), pp. 129–130.
[2] Johnson and Hackman, p. 131.

an emerging profession. The DOT method works best when a group must sort through a multitude of ideas and options. There are five basic steps to follow when using DOT: (1) generate ideas, (2) post the ideas, (3) sort the ideas, (4) prioritize the ideas, and (5) "dot" the ideas.

At the beginning of the DOT process, group members are asked to generate ideas or suggestions related to the topic being discussed. Ideas can be single words or full-sentence suggestions. For example, when creating an ethics credo at a National Communication Association conference, participants contributed words such as *honesty, respect,* and *truth* for inclusion in such a credo.[35] You can ask group members to generate and submit ideas *before* the group meets or ask them to contribute their ideas at the beginning of a meeting. Conference participants working on the ethics credo mailed and emailed key words to the conference chairperson several weeks in advance. These words were then sorted to avoid duplication and prepared for posting at the upcoming meeting.

Each idea should be written on a separate sheet of paper in large, easy-to-read letters—only one idea per page. Then, post the pages on the walls of the group's meeting room. When members submit their ideas in advance, the postings can be done before the meeting begins. When members generate ideas during a meeting,

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postings should be displayed after all members have finished writing their ideas on separate sheets of paper.

Not surprisingly, many group members will contribute similar or overlapping ideas. When this happens, sort the ideas and post similar ideas close to one another. For example, when facilitating the development of a college's vision statement, phrases like *academic excellence, quality education,* and *high-quality instruction* were posted near one another. Once everyone is comfortable with the manner in which postings have been sorted, give a title to each grouping of ideas. For example, in the vision statement session, the term *quality education* was used as an umbrella phrase for nearly a dozen similar concepts.

At this point, members must prioritize the ideas by choosing the ones they believe are most important: Which words *best* reflect the vision we have for our college? Which concepts *must* be included in our association's ethics credo? Which units are *essential* in the new curriculum? The final step requires all participants to "dot" their preferred ideas. Give every member a limited number of colored sticker dots. For example, after giving ten dots to each member of the vision statement group, we instructed them to choose the most important concepts from among the twenty-five phrases posted on the walls. After everyone has finished walking around the room and posting dots, the most important ideas are usually very apparent. Some ideas will be covered with dots; others will be speckled with only three or four; some will remain blank. After a brief review of the outcome, the group can eliminate some ideas, decide whether marginal ideas should be included, and end up with a limited and manageable number of options to consider and discuss.

When a group generates dozens of ideas, valuable meeting time can be consumed by discussing each idea, regardless of its merit or relevance. The DOT method reduces the quantity of ideas to a manageable number. Often DOT is a preface to an extended discussion of key ideas and suggestions. When the DOT approach is not employed, the number of topics to be reviewed can overwhelm a group and discourage members from participating.

Consider using DOT when

- The group is so large that open discussion of individual ideas is unworkable.
- The group has generated a significant number of competing ideas.
- The group wants to ensure equal opportunities for input by all members.
- The group wants to restrain dominant members from exerting too much influence.
- The group does not have enough time to discuss multiple or controversial ideas.

Although the examples we have used to describe the DOT process focus on face-to-face interaction, DOT also works very well in virtual settings. Instead of writing ideas on sheets of paper, posting them on walls, and dotting preferences, a virtual group can follow the same steps by using email or networked software designed for interactive groupwork. Ideas can be generated online, grouped by a moderator or

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GROUPTECH

Decision Making and Problem Solving in Virtual Groups

The decision-making and problem-solving methods presented in this chapter originally were created on the assumption that group members would be meeting face to face. However, these methods also work well in virtual groups. Additionally, specialized computer software, or groupware, can facilitate group collaboration, decision making, and problem solving.

Successful virtual groups match their problem-solving or decision-making tasks to the appropriate technology. According to Deborah Duarte and Nancy Snyder, authors of *Mastering Virtual Teams*, virtual groups engage in four types of interaction: information sharing, discussion, decision making, and product producing.[1] An information-sharing meeting could include a virtual presentation or an online exchange of information among members. A discussion meeting often involves the generation of ideas or examination of issues or problems via email or bulletin boards. In a decision-making meeting, virtual groups review the important issues and make actual decisions. During product-producing meetings, virtual group members work on a project, such as developing a design or drafting a new policy.

Duarte and Snyder further suggest that different types of technology are not equally well suited to all types of group interaction.[2] For example, if your group is engaged in brainstorming, using groupware that incorporates audio, video, and text will be more effective than using email. When your virtual group has to make a decision, a videoconference will be much more useful than an electronic bulletin board. John Katzenbach and Douglas Smith remind us that "whenever teams gather through groupware to advance, they need to recognize and adjust to key differences between face-to-face and groupware interactions."[3] They also caution against approaching every virtual meeting in the same way. Group problem-solving and decision-making tasks require more opportunity for interaction than, for instance, information sharing or presentations. A virtual group should select the technology that is best suited to its problem-solving method.

[1] Deborah L. Duarte and Nancy Tennant Snyder, *Mastering Virtual Teams* (San Francisco: Jossey-Bass, 1999), p. 160.
[2] Duarte and Snyder, p. 161.
[3] John R. Katzenbach and Douglas K. Smith, *The Discipline of Teams: A Mindbookworkbook for Delivering Small Group Performance* (New York: Wiley, 2001), p. 167.

committee, and then "dotted" electronically. Sophisticated software can tally members' preferences and rank ideas based on the number of dots given to each idea.

Enhancing Group Creativity

Given the benefits of creative problem solving, we recommend four methods for enhancing group creativity: (1) control judgment, (2) encourage innovation, (3) ask "*what if,*" and (4) use metaphors.

Control Judgment. Almost nothing inhibits group creativity as much as negative responses to new ideas and innovative solutions. "That won't work." "We've tried that." "That's too bizarre." Sometimes a bizarre idea can evolve into a creative solution. "Keeping the process open and avoiding premature closure

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are crucially important. Because creative work is exploratory in nature, it deserves suspension of belief in the early stages."[36]

Encourage Innovation. In his book on creativity in the workplace, Lee Towe maintains that there are four sources of action that guide us through each workday.[37] These same sources of action can apply to the way groups approach problem solving.

Inertia. We've done it before.

Instruction. Someone showed us how to do it.

Imitation. We've seen how it's done.

Innovation. We have developed a new way to do it.

Think of how these sources of action could apply to the members of the group that was trying to design the commemorative booklet for the college's fortieth anniversary. Until their creativity was released, they were bogged down in inertia, instruction, and imitation. Encouraging a group to be innovative, to think outside the box, to be more imaginative may be all that is needed to spark and harness the group's creative power.

Ask "What If." One of the reasons groups are often reluctant to think creatively is that they have preconceived notions about what can and can't be done. Although there are real constraints in almost all problem-solving situations, there is no harm in removing those constraints for a discussion that asks "*what if.*" John Kao, the academic director of the Managing Innovation program at Stanford University, suggests that there are two types of knowledge. The first is raw knowledge, consisting of facts, information, and data. The second type of knowledge is insight, or the "Aha!" It is "a response to the *what ifs* and *if only we coulds.*"[38] Kao points out that it is "creativity that enables the transformation of one form of knowledge to the next."[39]

Here are some questions that the commemorative booklet committee could have asked: What if we had a million dollars to design and print the commemorative booklet; what would we do? What if the "booklet" were a videotape rather than a publication? What if we had one hundred pages to work with? What if we could hire a famous author to write the copy—what would the booklet "say"? Group members could consider one more "what if" scenario: What if we do nothing?[40] In other words, what are the consequences, if any, if we don't produce a commemorative booklet? Our own experience in working with groups is that a million-dollar idea can often be implemented with a few thousand dollars. An award-winning design can be created by an artist inspired by video imagery. Rousing words can be crafted by a talented copywriter.

Use Metaphors. The answers to many problems already exist. It's just that they are hiding in other areas of our lives.[41] These hiding places can be found

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in common metaphors. Metaphors can help group members explain, understand, guide, and direct their creative thinking in ways they would not have thought of otherwise.[42] For example, the metaphor of an emergency room has been used to redesign the registration process at some colleges. Students who don't need any help can register online or over the telephone. Those who need help are met by a kind of "triage nurse," a college advisor who can answer simple questions, direct them to a clerk for processing, or send them to a private room where they can receive "intensive care" from a "specialist" counselor. The beauty of metaphors is that they force group members to look at a problem in new and creative ways.

Despite our enthusiasm for creativity, there is a difference between "pure" creativity and creative problem solving. A highly creative group may not be a highly productive group. Let's face it: A freewheeling creative meeting can be

ETHICAL GROUPS

The Morality of Creative Outcomes

In *Organizing Genius: The Secrets of Creative Collaboration*, Warren Bennis and Patricia Ward Biederman warn that "Creative collaboration is so powerful a phenomenon that it inevitably raises moral issues."[1] They use a chilling example—the Wannsee Question—to make their point. Wannsee, in a suburb of Berlin, is where Hitler's ministers gathered to formulate plans for exterminating the world's Jews. Creative collaboration produced an evil outcome. "The men at Wannsee were no geniuses, but, united by a single, evil vision, using cutting-edge technology and working with missionary zeal, they nearly destroyed an entire people in just three years."[2]

Ethics plays an important role in the creative process. John Rawls, a contemporary ethicist, reminds us to examine the consequences of group creativity. He believes that fairness is an important consideration in creative problem solving.[3] For example, creative groups need to ask if their creative innovations have the potential to help or hurt others. Should political consulting firms help the wealthiest or the worthiest candidates? What are the consequences when corporate executives find creative ways to "cook the books" and collect millions of unearned dollars?

Many of the creative geniuses who collaborated to create and test the atomic bomb have subsequently struggled to deal with the consequences of their work. Dr. Richard Feynman, who was to win a Nobel Prize in Physics, was one of the scientists who created and built the atomic bomb. He recalls that the group became so caught up in the frenzy and excitement of creating the bomb that they didn't stop to think about the consequences. But when a colleague of Feynman's said, "It's a terrible thing that we made," he realized that they had unleashed the greatest terror on earth.[4]

[1] Warren Bennis and Patricia Ward Biederman, *Organizing Genius: The Secrets of Creative Collaboration* (Reading, MA: Addison-Wesley, 1997), p. 216.
[2] Bennis and Biederman, p. 217.
[3] John Rawls, *A Theory of Justice* (Cambridge: Harvard University Press, 1971).
[4] James Gleick, *Genius: The Life and Science of Richard Feynman* (New York: Vintage, 1992), p. 208.

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a lot more fun than routine work. Once a group releases its creative energies, it may be reluctant to return to The Standard Agenda or the Nominal Group Technique to refine a solution. In such a case, a group must work out an internal balance between creative discussions and productive research, analysis, and action.[43] Kao compares balancing creativity and group process to tending the flames of a fire. "The spark needs air, breathing room, and freedom to ignite. But let the air blow too freely, and the spark will go out. Close all the doors and windows, and you will stifle it."[44]

PROBLEM-SOLVING REALITIES

Although procedures may be the most powerful tool available to improve the conduct of meetings, there are other factors that affect the outcome of every decision and problem that a group confronts. We would be remiss if we did not acknowledge that even the best of groups can be led astray when politics, preexisting preferences, and power infiltrate the group process. Group "decision making in the real world is often messy."[45]

Politics

In organizational settings, almost all decisions have a political component. Regardless of the procedures being used, many group members come to meetings with hidden agendas and political interests. Some members may never voice their real reasons for opposing a proposed solution, whereas others may withhold valuable information as a way of influencing the outcome of a discussion.

The motives for such actions often are political. A person who wants to get ahead may be reluctant to oppose an idea supported by the boss. A member who knows why a plan won't work may remain silent in order to make sure that the person responsible for implementing the plan fails. Although most conscientious group members do not engage in such deceptive behavior, it would be naive to proceed as though all members care equally about achieving the group's common goal. Meetings can become a political arena in which individuals and special-interest groups are dedicated to meeting their own private needs. Fortunately, the use of clear procedures can minimize the influence of such members.

Preexisting Preferences

An intelligent group member is rarely a blank slate who walks into a meeting uninformed and unconcerned about the topic or issue to be discussed. When a decision must be made, most of us know how we might decide. We may even have ideas about who should be in charge, how the task should be carried out, and when it should be completed. It would be a mistake to ignore the fact that many group members have preexisting preferences about what a group should do.

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Fortunately, open discussions and the use of procedures ensure that these preferences are dealt with logically and fairly. For example, the functional approach to problem solving acknowledges that groups do not always discuss issues in a predetermined order. In fact, there may be nothing wrong with members coming to a meeting with proposed solutions as long as the group engages such members in a discussion of the pros and cons of their positions and makes sure that all members understand the nature and causes of the problem. As much as we may wish that everyone would follow the order of steps in The Standard Agenda, that rarely happens. The use of procedures can ensure that all of those steps are at least considered before a group makes its final decision.

Power

The power of individual group members can have a significant effect on the outcome of any meeting. It is no secret that powerful people influence group decisions. They affect how and whether other members participate, whose ideas and suggestions are given serious consideration, and which solutions are chosen. Highly influential members can convince a group "to accept invalid facts and assumptions, introduce poor ideas and suggestions, lead the group to misinterpret information presented to them, or lead the group off on tangents and irrelevant discussion."[46] In short, one powerful but misguided member can be responsible for the poor quality of a group's decision.

One of the major advantages of using an established procedure is that it can protect a group from the debilitating effects of politics, preexisting preferences, and powerful members. Procedures make the rules of engagement clear. Anyone violating those rules or failing to carry out assigned responsibilities may justly face isolation and criticism. It is rare for a group to escape the effects of politics, preexisting preferences, and power. Yet every group can benefit when appropriate procedures are used to guide it toward its common goal.

BALANCED PROBLEM SOLVING

When group decision making works efficiently and effectively, it offers both social and task rewards to group members. Balancing independence and groupwork is one of the keys to using meeting procedures effectively, particularly when groups are making important decisions or solving significant problems. Group communication scholar Marshall Scott Poole notes:

> To be effective, a group must maintain a golden mean, a balance between independent, creative thinking and structured, coordinated work. Too much independence may shatter group cohesion and encourage members to sacrifice group goals to their individual needs. . . . Too much structured work . . . is likely to regiment group thinking and stifle novel ideas.[47]

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How, then, can groups balance such extreme requirements? The answer is procedures. Procedures provide explicit instructions that let members know when they can work alone and when they must work together. Procedures also tell a group how much effort must be spent gathering and analyzing information, generating ideas, offering suggestions, and arguing for or against proposals. When procedures are used wisely and well, they maximize creative thinking and, at the same time, encourage coordination of efforts. In such a balanced climate, a group is more likely to be creative, productive, and satisfied.

GroupWork

Game Building[48]

Goal: To demonstrate the value of creative problem solving

Participants: Groups of five to seven members

Procedure

1. Each group receives the following items:
   - One overhead transparency sheet
   - A transparency marker
   - Game components. For example, ten large soft plastic jacks of varying colors, five marbles, one large superball or marble, and so on
2. Groups have thirty minutes to create a game using all the items and to write the rules of the game on a *single* transparency.
3. A spokesperson or spokespersons from each group present the game and its rules to the rest of the class. The written rules must fit on one transparency.
4. Discussion questions:
   - What types of creative thinking were evident in the group?
   - Were some members more skilled at creative thinking, at organizing the group task, at expressing the rules, or at making the presentation?
   - In what group situations or jobs would these skills be needed or useful?

GroupAssessment

Problem-Solving Competencies

Directions. This instrument is designed to evaluate the performance of individual group members who participate in problem-solving discussions. There are five competencies related to accomplishing the group's task and three competencies dealing with conflict, climate, and interaction. Rate individual members and the

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group as a whole on each item in order to assess how well an observed group solves problems and makes important decisions.

Problem-Solving Competencies	Superior	Satis-factory	Unsatis-factory
1. *Defines and analyzes the problem* Appropriately clarifies, defines, and analyzes the problem confronting the group.			
2. *Identifies criteria.* Appropriately participates in identifying criteria for assessing the quality of the group's outcome.			
3. *Generates solutions.* Appropriately identifies potential solutions or options.			
4. *Evaluates solutions.* Appropriately evaluates the potential solutions and options.			
5. *Focuses on the task.* Helps the group stay focused on the task, issue, or agenda item under discussion.			
6. *Manages conflict.* Encourages constructive disagreements and appropriately manages nonproductive conflict.			
7. *Maintains collaborative climate.* Appropriately supports other group members.			
8. *Communicates effectively.* Interacts effectively and encourages other members to participate.			

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48. Special thanks to Dianne Findley, professor of psychology at Prince George's Community College, who uses a similar exercise to demonstrate human development theories to her psychology students.

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