11

Problem Solving

Team problem solving is studied using three different approaches: how teams go about solving their problems, what types of behavior contribute to effective problem solving, and what techniques can be used to improve group problem solving. Teams should base their problem-solving approaches on a rational model of the process that includes six stages: problem definition, evaluation of the problem, generating alternatives, selecting a solution, implementation, and evaluation of the results. In practice, however, this rational approach is rarely followed, and teams often find themselves developing solutions before they understand the problems.

At each stage of the problem-solving process, teams can use a number of techniques to improve their problem-solving abilities. Using these techniques helps teams be more effective problem solvers.

Learning Objectives

1. How do teams typically solve problems?
2. What factors help improve a team's ability to solve problems?
3. What factors disrupt a team's ability to solve problems?
4. What are the main steps in the rational approach to problem solving?
5. How do the characteristics of the problem, team, and environment affect the way a group analyzes a problem?

6. What is the value of using a structured approach to generating and evaluating alternatives?
7. What factors affect the implementation of a solution?
8. Why should problem-solving teams use structured techniques to analyze and solve problems?
9. What are some of the techniques that teams can use to help in their problem-solving efforts?

11.1 Approaches to Problem Solving

A problem is a dilemma with no apparent solution, an undesirable situation without a way out, a question that cannot currently be answered, the difference between the current situation and a desired state, or a situation team members must manage effectively (Pokras, 1995). The problem can come from the environment or arise from the team. Problems often first surface for a team as symptoms that cause undesirable effects.

In a work environment, a problem for many teams is simply how to complete their tasks or assignments. A team's assignment contains two primary problems: (1) determining the nature of the assignments and how to complete them and (2) managing problems and obstacles encountered when performing them. These obstacles may be technical issues, conflicting viewpoints, or interpersonal conflicts.

The perfect way to solve a problem is to define it and then decide how to solve it. This may seem obvious, but the biggest problem teams have is generating solutions without first understanding the problem. Defining and evaluating the problem is the most difficult step for teams to perform.

The first step in problem solving is to discuss and document individual views until everyone agrees on the nature of the problem (Pokras, 1995). Teams are often given ill-defined problems and undeveloped criteria for evaluating them. Teams need to challenge the definitions of the problems, searching for their root causes. They also need to define what successful resolutions would look like in order to evaluate alternative solutions. The result should be agreement on the issues that need resolution and clear statements of the problem.

Teams may rush through the problem definition stage, only to find that they have to return to it during the solution or implementation stage. This is a time-consuming approach to problem solving. Understanding as much as possible about a problem at the beginning can reduce the overall time spent solving the problem.

Another common flaw is ignoring the final stage: evaluating the solution. Often teams are created to solve problems but are not responsible for implementation or evaluation. Evaluation is ignored because no one wants to present negative information to superiors. Rather than learning from mistakes made, the mistakes are hidden from the team and organization. As a result, they are often repeated because of lack of feedback.

There are three approaches to team problem solving: descriptive, which examines how teams solve problems; functional, which identifies the behaviors of effective problem solving; and prescriptive, which recommends techniques and approaches to improve team problem solving (Beebe & Masterson, 1994).

11.2 Descriptive Approach: How Teams Solve Problems

The descriptive approach examines how teams solve problems. Researchers focus on different aspects of the group process in order to understand the problem-solving process. These different perspectives offer alternative ways of understanding the process.

One perspective using the descriptive approach is to identify the stages a team goes through during problem solving (Beebe & Masterson, 1994). This approach is similar to the stages of group development discussed in Chapter 3. The four stages a team uses when solving a problem are forming, storming, norming, and performing.

In the forming stage, the team examines the problem and tries to better understand the issues related to it. The storming stage is a time of conflict, when different definitions of the problem and preliminary solutions are discussed. Often, the team jumps ahead to arguing about solutions before it has reached agreement on the problem, so it must return to the problem definition stage to resolve this conflict. In the norming stage, the team develops methods for analyzing the problem, generating alternatives, and selecting a solution. The establishment of these methods and other norms about how to operate helps the group work together effectively. In the performing stage, these methods are used to solve the problem and develop plans to implement the solution.

Rather than going through problem-solving stages, many teams start the problem-solving process by generating solutions. Teams generate alternatives and select solutions in a variety of ways. Strategies include selecting a solution at random, voting for the best solution, taking turns suggesting each member's favorite solution, trying to demonstrate that a solution is correct, or inventing novel solutions (Laughlin & Hollingshead, 1995). Once a solution becomes the focus, the team analyzes it to determine

whether it is correct or at least better than the proposed alternatives. If the majority of members believe that it is, the solution is accepted. If that majority does not, a new solution is generated by one of the preceding techniques.

11.3 Functional Approach: Advice on Improving Team Problem Solving

The functional approach tries to improve a team's ability to solve problems by understanding the factors related to effective problem solving and the factors that disrupt team problem solving.

Factors That Improve Team Problem Solving

An effective team should include intelligent problem solvers or vigilant critical thinkers. The team should analyze the problem, develop alternatives, and select the best solution. The problem-solving process should be relatively free of social, emotional, and political factors that disrupt a rational analysis. The following are characteristics of effective team problem solvers (Beebe & Masterson, 1994; Janis & Mann, 1977):

- Skilled problem solvers view problems from a variety of viewpoints to better understand the problem.
- Rather than relying on its own opinions, an effective team gathers data and researches a problem before making a decision.
- A successful team considers a variety of options or alternatives before selecting a particular solution.
- An effective team manages both the task and relational aspects of problem solving. It does not let a problem damage the team's ability to function effectively in other areas.
- A successful team's discussion is focused on the problem. Teams that have difficulty staying focused on the issues, especially when there are conflicts, are usually not successful.
- An effective team listens to minority opinions. Often the solution to a problem lies in the knowledge of a team member but is ignored because the team focuses on the opinions of the majority.
- Skilled problem solvers test alternative solutions relative to established criteria. The team defines what criteria a good solution must meet and uses those criteria when examining alternatives.

Factors That Hurt Team Problem Solving

Project teams often jump quickly to the solution stage without adequately defining the problem (Hackman & Morris, 1975). The teams do not discuss

their problem-solving strategies or develop plans to follow. Typically, they try to apply solutions that have worked in the past. When teams rush to solve problems, their decision-making process is often based on intuitive, automatic, emotional thinking rather than on rational, conscious, logical thinking (Milkman, Chugh, & Bazerman, 2009). In many cases, problem solving is improved by slowing down the decision-making process in order to promote rational rather than intuitive thinking. Teams that spend time following a structured approach to problem solving make better decisions and members are more satisfied with the problem-solving process.

A team may not follow a structured approach to problem solving because of constraints on the process, such as limited time, money, and information. Because of these constraints, teams often seek "satisficing" solutions rather than optimal solutions (Simon, 1979). Perfection is expensive and time consuming. Collecting all relevant information needed to solve problems may take longer than the time or resources available to teams. In most cases, teams try to find acceptable solutions (those that meet their basic needs), given the constraints of the situation.

It often is difficult to determine the best solution. There are trade-offs, such as cost versus effectiveness of the solution. Solutions differ according to their probabilities of success, the amount of resources needed for their implementation, and the politics of implementing them. These trade-offs do not have correct answers: They rely on the judgment of the team. This difficulty determining the best solution limits a team's ability to objectively select the best solution.

As discussed in Chapters 6 and 9, communication problems may interfere with a team's ability to analyze and solve problems. During a team discussion, more time is spent on reviewing shared information than on discussing specialized information that might be pertinent to a solution (Stasser, 1992). Although the team's discussion should be focused on the problem, team discussions can get sidetracked and disrupted in many ways (DiSalvo, Nikkel, & Monroe, 1989). Ideally, a team would spend more of its time sharing information, planning, and critically evaluating ideas than on discussing nontask-related issues. Teams often fail to follow these steps (Jehn & Shaw, 1997), although the team's ability to solve problems would be increased.

A team's problem-solving process can be disrupted by a number of nontask-related factors. Team members may support a position because of their desire to reduce uncertainty or avoid social conflict. Politics may encourage members to support alternative solutions out of loyalty to their creators or as payback for past political support. Competition in the team may encourage political advocacy rather than a search for the best alternative (Johnson & Johnson, 1997). Teams are better able to solve problems when power is

relatively equal among team members because this encourages more open communication and critical evaluation of alternatives.

11.4 Prescriptive Approach: Rational Problem-Solving Model

The functional approach illustrates what can go right (and wrong) with the team problem-solving process. The prescriptive approach presents a strategy that encourages teams to solve problems more effectively. This approach is based on the assumptions that (a) team members should use rational problem-solving strategies and (b) using a structured approach will lead to a better solution. The value of formal structured approaches to problem solving varies depending on the type of problem. The more unstructured and complex the problem, the more helpful it is to the team to use a structured approach to solve it (Van Gundy, 1981).

An outline of the prescriptive approach is presented in Figure 11.1, which shows the main steps in a formal, rational, problem-solving model.

Problem Recognition, Definition, and Analysis

Problem recognition, definition, and analysis are key processes in effective problem solving. However, teams often rush through these stages of the

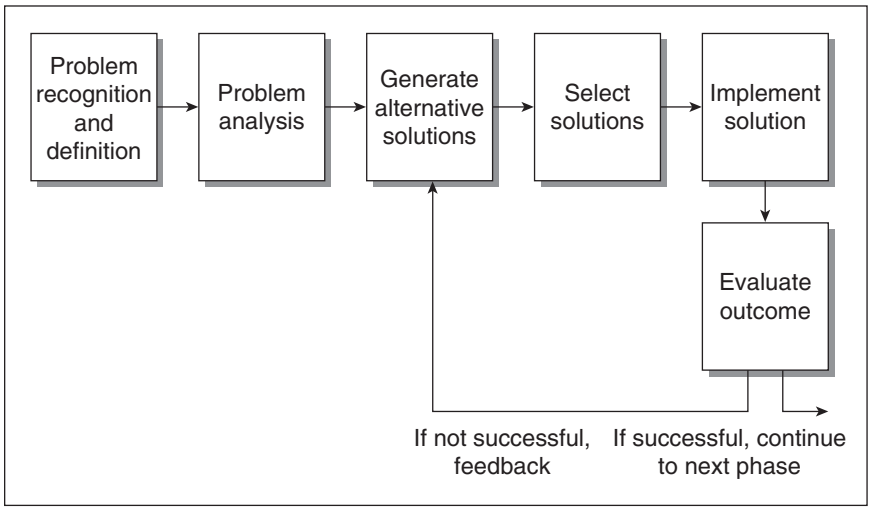

Figure 11.1 Rational Problem-Solving Approach

SOURCE: Adapted from Dewey, J. (1910).

problem-solving process. In their desire to develop solutions quickly, they focus on the symptoms of the problem rather than trying to understand the real causes of the problem (Pokras, 1995).

Unfortunately, even when a team takes the time to identify and analyze a problem, the problem and its causes may be misinterpreted. Many things can go wrong in the problem analysis process. The ability to successfully identify and analyze a problem depends on the characteristics of the problem, the team, and the environment (Moreland & Levine, 1992).

Problems vary in their levels of severity, familiarity, and complexity. The more severe a problem is, the more likely it is to be identified as a problem. Acute problems with identifiable onsets and impacts are often recognized, whereas chronic problems that are less visible are often ignored. Problems that are familiar are more easily recognized. Novel problems are more difficult to interpret, and teams may assume they are unique, one-time events that will go away by themselves. Complex problems are difficult to analyze and interpret. It is common for a team to select only part of a complex problem to analyze and solve, as a way to simplify the situation (although this might not be an effective way in which to resolve the problem).

Teams vary in their levels of desire and ability to identify problems. Group norms have a strong effect on problem identification. Teams with norms supporting communication and positive attitudes toward conflict are more likely to identify and discuss problems. Teams vary in how open they are to the environment. Closed teams that are internally focused are less likely to be aware of problems in the environment. Open teams monitor what is happening in the environment. Also, they are better able to prepare for problems in the future because they have identified the issues beforehand.

Team performance affects the problem identification process. A team that is performing successfully will sometimes ignore problems. From their perspective, the problems cannot be very important, given that the team is currently successful. Unsuccessful teams also have a tendency to ignore problems. These teams must focus on their main performance problems and as a result are less likely to see other problems. The notion of continuous improvement is a teamwork concept designed to help deal with this issue. In continuous improvement, teams assume that part of their function is to improve operations. In essence, all teams—both successful and unsuccessful—are required to identify problems and work to solve them on an ongoing basis.

Characteristics of the environment also affect a team's ability to identify and analyze problems. Many modern environments (e.g., political, business, technological) have substantial levels of change and uncertainty. The rapidity of change creates a need to stay alert and prepare for future problems,

while the level of uncertainty makes it more difficult to do so. Teams vary in their relations to the outside environment. For example, some work teams are required to accept the definitions of problems given by their organizations, while other teams are open to information about potential problems from outside sources (e.g., customers, suppliers, and the public).

Once a team identifies a problem, it may decide not to solve it (Moreland & Levine, 1992). There are other alternatives. The team may decide to deny or distort the problem, thus justifying their choice to ignore it. The team may decide to hide from the problem, given that problems sometimes go away by themselves. If the problem is difficult for the team to understand (because of novelty or complexity), it may decide just to monitor the problem for the time being. Working collaboratively to solve a problem requires identification, belief that the problem is solvable, and motivation to solve it. These are the necessary conditions for the first two stages of the rational problem-solving process.

Generating Alternatives and Selecting a Solution

Finding an effective solution depends on developing high-quality alternatives (Zander, 1994). The ability of a team to accomplish this is related to the knowledge and skills of group members. However, it also depends on the team's climate and processes. The climate of an effective team encourages open discussion of ideas, where minority ideas are heard and taken seriously by the majority.

Teams sometimes use creativity and other structured techniques to generate alternative solutions to problems. Techniques such as brainstorming and the nominal group technique (discussed in Chapter 12) are used to generate alternatives. An important value of these techniques is that participation by all team members is encouraged. However, these participation techniques are useful only if the team is willing to give divergent ideas a fair evaluation. Too often, conformity pressure leads teams to adopt solutions used in the past.

After generating alternatives, teams must consider how to determine the best solution. Teams should consider the positive and negative effects of each alternative. The ability to implement the solutions must be considered. This involves the ability of teams to enact the solutions and an understanding of how outside groups will respond to the solutions.

Any good solution meets three criteria: (1) It is a prudent agreement that balances the needs of various team members, (2) it is an efficient problem-solving approach that does not consume too much time and resources, and (3) it is a process that fosters group harmony (Fisher, Ury, & Patton, 1991). Once a set of alternatives has been developed, the team should not argue

about the merits of each solution. To do so encourages a conflict based on positions. Instead, the team should develop ways of evaluating the benefits and costs of the alternatives. The focus should be on analyzing the alternatives to aid selection, rather than on the politics of getting an individual position adopted. This often leads to a final solution containing elements from multiple alternatives.

Sometimes none of the available alternative solutions is appealing, in which case the team selects the least objectionable proposal. This leads to rationalizing among team members to bolster their belief that the decision is acceptable. Teams may overemphasize the positive attributes of a selected solution and deny its negative aspects in order to justify their choice (Janis & Mann, 1977).

After the team has made its decision, it may want to hold a "second chance" meeting to review the decision. Even when the team decides by consensus, it is useful to have a second-chance meeting to air concerns about the decision. The meeting helps prevent factors such as groupthink and pressure to conform from inappropriately influencing the decision.

Implementation and Evaluation

A solution is not a good one unless it is implemented. This requires commitment from a team to support and enact its solution. As mentioned in Chapters 8 and 9, one of the benefits of team decision making is that participating in the decision process creates a sense of commitment to it.

A problem-solving team is obliged to think about implementation issues when making a decision (Zander, 1994). It is not useful to agree on a solution that cannot be implemented. This means that the group should plan how the solution will be implemented, including consideration of the people, time, and resources needed for implementation. It may be useful to bring the people who will be affected by the planned solution into the decision-making process to encourage their acceptance of the solution.

Evaluation is one of the most overlooked steps of the problem-solving process. Even when teams do a good job of analyzing the problem and developing solutions, there are unforeseen factors that may lead to failure. Lewin's action research model (Lewin, 1951) is a research-based approach to problem solving that emphasizes the importance of the evaluation stage. In this approach, solutions are considered hypotheses that need to be tested. When solutions are implemented, their impacts are evaluated and used to determine their effectiveness and to identify further actions that need to be taken (and later evaluated).

Evaluation requires examining how the solution was implemented and what the effects were. (These two evaluations are sometimes called "process

evaluation" and "outcome evaluation.") These evaluations require that the team provide a definition of a successful outcome, something it should have done during the problem identification stage.

Sometimes, even when the solution resolves the problem, the undesirable situation does not change significantly. This happens when a team solves only part of a larger problem and the rest of the problem comes to the foreground. By taking a larger perspective on the problem, the team may be able to determine the more critical parts of the problem that should be solved. The evaluation stage provides information for future problem identification and solving.

11.5 Problem-Solving Teams

Problem-solving teams are typically established for brief periods to solve specific organizational problems or to encourage organizational improvements (Fiore & Schooler, 2004). These teams work on a variety of issues such as quality, process improvement, reengineering, and organizational development. Problem-solving teams may be composed of people from different organizational levels, from production and service employees to professionals and managers, and from different parts of an organization. Consequently, team members often do not know one another's areas of expertise and may have communication problems because of professional language and background differences. Because of these characteristics, problem-solving teams often rely on facilitators and the use of structured problem-solving techniques.

Teams must have a shared conceptualization of a problem in order to solve it. A team cannot coordinate its problem-solving efforts without this shared mental model. In problem solving, the mental model includes the nature of the problem, roles and skills of team members, and the mutual awareness of team members. A shared understanding of a problem ensures that all team members are solving the same problem.

A problem-solving team may use an engineering problem-solving technique called "process mapping" (Fiore & Schooler, 2004). Process mapping works as a problem-solving tool because it leads to the construction of a shared mental model for the team. The team develops a process map of how the situation currently operates (an "as is" map) that defines the parts of a process and the linkages among the parts. The team then develops a "should be" map that describes how the process should operate. These maps are then used to analyze the organization's operations and develop recommendations for improvement.

The value of process mapping is that it facilitates team communication regarding the problem definition, which improves later problem solving. In jointly developing the process map, the team arrives at a shared understanding of the problem. This overcomes the tendency of teams to skip to the solution stages of a problem. It also creates an environment where diverse team members can share their knowledge about the problem.

As team members engage in process mapping, the unique knowledge of each team member is made explicit. The team becomes aware of both the unique and common knowledge it shares. It is forced to negotiate its understanding of the issues related to the problem. Process mapping creates an external representation of a shared problem that facilitates the team's ability to work together to solve the problem. It forces the team to acknowledge deficiencies (the problems in the "as is" map) before attempting to develop solutions.

Process mapping is one of many problem-solving techniques used by these teams (Katzenbach & Smith, 2001). The value of such techniques is that they provide a structure for communications and focus the team on clearly defining the problem before it develops solutions. This type of structure is especially important for temporary problem-solving teams because of the sometimes-limited English-language skills of production and service workers and the communication jargon of diverse professional teams.

Research demonstrates that structured approaches help teams make better decisions, increase members' satisfaction with solutions, and increase commitment to implementation (Pavit, 1993). These problem-solving approaches are effective because they promote more equitable participation in decisions, reduce the negative impact of unequal status, and increase the likelihood that the ideas of low-status employees will be considered.

11.6 Application: Problem-Solving Techniques for Teams

Teams can choose several useful techniques to help them at each stage of the problem-solving process. These techniques structure the group process and enable the team to better focus on the problem. Four of these problem-solving techniques are discussed here and used in the activity at the end of the chapter. *Problem analysis* is a technique to help in the problem analysis stage. The *criteria matrix* is used to assist in selecting a solution. *Action plans* improve the implementation of a solution. *Force field analysis* can be used in many stages of the problem-solving process. The following sections examine these techniques in more detail.

Problem Analysis

Problem solving begins by recognizing that a problem exists, and that most of the real problem lies hidden. Typically, the first encounter with a problem is only with its symptoms. The team must then find the problem itself and agree on its fundamental sources. It should separate the symptoms (which are effects) from the causes. Before using the tools in this approach, team members investigate the problem by gathering more information about it. With this new information, the team can analyze the cause of the problem.

There are several tools that may be useful at this stage (Pokras, 1995). Symptom identification is a technique that has the team tabulate all aspects or symptoms of a problem. In force field analysis, the team analyzes the driving and restraining forces that affect a problem. In charting unknowns, team members discuss what they do not know about the problem, which generates hidden facts, questions, and new places to look for information. In repetitive "why" analysis, the team leader states the problem and continues, ". . . which was caused by what?" This question is repeated several times to examine underlying causes of a problem.

Criteria Matrix

Techniques to generate alternatives are presented in Chapter 12. Once the team has generated alternative solutions, a selection process is required to review and evaluate them. If the group has done a good job generating alternatives, they should have a number of options from which to choose. If the team has used creativity techniques such as brainstorming, there may be many unworkable ideas. Because some approaches obviously are not going to work, they should be eliminated from further analysis. Then the team should review the options and look for ways of combining solutions. After this, the team can develop a criteria matrix to evaluate the alternatives objectively.

A criteria matrix is a system used to rate alternatives (Pokras, 1995). The first step is to decide what criteria will be used to rate the alternatives. Many criteria can be used to evaluate alternative solutions, including cost, effectiveness, acceptability, and ease of implementation. A team may want to use a rating scale for its analysis (e.g., 0 = not acceptable, 1 = somewhat acceptable, 2 = acceptable). It is important to not merely select the alternative with the highest score, given that not all evaluation criteria are of equal importance. For example, one alternative solution may be less expensive to implement but not as effective. If the team is highly concerned about cost, this may be the preferred alternative. The criteria matrix allows the team to analyze and discuss the relative merits of the alternatives in a structured manner.

Action Plans

The implementation stage focuses on generating action plans, considering contingency plans, and managing the project on the basis of these plans. An action plan is a practical guide to translating the solution into reality—a step-by-step road map, if possible (Pokras, 1995). It emphasizes the timing of various parts and assigning responsibility for actions. The plan also should establish standards to evaluate successful performance.

Events rarely go as planned. The team should establish a monitoring and feedback system to ensure that team members are aware of the progress made. Larger action items should be broken down into stages and monitored. Feedback to the team on progress with individual assignments should be a regular part of team meetings.

Force Field Analysis

Force field analysis is an approach to understanding the factors that affect any change program (Lewin, 1951). It examines the relation between the driving and restraining forces for change. The driving forces are what the team wants to achieve and the factors that minimize the problem. The restraining forces are the obstacles that prevent success and the factors that contribute to the problem. This approach can be used at many stages of the problem-solving process, but it is especially valuable in examining implementation issues.

When implementing a solution to a problem, teams want to increase the driving forces that encourage the change and reduce the restraining forces that prevent the change from occurring. Teams often focus on the driving forces that are promoting the change. However, most unsuccessful change efforts are due to the restraining forces (Levi & Lawn, 1993). Reducing the power of the restraining forces is a necessary precondition for change.

Force field analysis provides a method for teams to study their problem-solving activities. Using Lewin's action research model (1951), teams use group discussions to identify the driving and restraining forces affecting any proposed solution. The team uses this information to decide on strategies for implementation. A cycle of generation, analysis, and application of results may be repeated during the implementation process.

Levi and Lawn (1993) used this approach to analyze the driving and restraining forces that affected project teams developing new products. The project teams were driven by interest in new technology and an organizational culture that encouraged innovation. However, the success of producing and marketing new products was restrained by technical problems in manufacturing and by financial issues. Understanding these forces

encouraged the project teams to include members from manufacturing and marketing in the design teams to address these problems.

Summary

Problem solving requires that a team analyze the nature of the problem, then develop and implement a solution. Unfortunately, many things can go wrong during these two steps. The study of team problem solving uses descriptive, functional, and prescriptive approaches to understand and improve the problem-solving process.

The descriptive approach looks at how a team solves a problem. The problem-solving process goes through developmental stages similar to stages of group development. Solutions are often generated in a rather haphazard fashion that seems more political than logical.

The functional approach provides advice on how to improve the team problem-solving process. An effective team views problems from multiple perspectives, analyzes a variety of alternatives using established criteria, and manages the group process to ensure that all members may participate. The team's ability to solve problems may be hurt by rushing to the solution stage, constraints limiting the amount of analysis, confusion about evaluation criteria, and social factors that disrupt the group process.

The prescriptive approach to problem solving includes a series of structured stages. The problem identification and analysis stage is affected by the severity and complexity of the problem, group norms about discussing problems, and the amount of uncertainty in the environment. The process of developing and selecting alternative solutions is improved by creativity techniques to generate alternatives and by analysis techniques to examine alternatives in a systematic manner. Implementing solutions requires planning and an evaluation system to provide feedback on the process.

Organizations use temporary problem-solving teams to deal with a variety of issues and to encourage improvement. These teams function more effectively if they use structured techniques, such as process mapping.

The team may use a variety of techniques to improve its problem-solving skills. Problem analysis techniques help clarify what is known about a problem. A criteria matrix is used to evaluate alternative solutions. Action plans create a map to guide implementation. Force field analysis may be used at several stages to evaluate alternatives and implementation programs.

Team Leader's Challenge 11

Your organization uses improvement teams composed of professionals and managers throughout the organization to solve important organizational problems. Team membership is highly valued because participation provides good visibility to upper management. Consequently, team members are highly motivated to perform. You have been selected to lead the next team. To prepare for the role, you have been discussing problems with former team leaders.

The last improvement team got off to a fast start. At the first meeting, the team diagnosed the problem and started generating solutions. Members quickly focused on a preferred alternative and began developing an implementation program. After several months of work, the team presented its proposal to top management. However, when it started implementing the proposal, serious problems became apparent and the project was scrapped.

How can the new team leader avoid the problem of the previous project team?

What problem-solving approaches should you use?

How can you prevent the team from wasting time on a proposal that does not really solve the problem?

Activity: Using Problem-Solving Techniques

Objective: Problem solving is improved when a team follows a structured approach. The team should analyze the problem thoroughly before developing alternatives. It should develop a set of alternatives and then use evaluation criteria to help select a solution. Force field analysis can be used to understand the issues related to implementing a solution.

Activity: Have the team follow a structured approach to problem solving. The team can be given either an organizational problem or a social problem to solve. For example, develop a program to improve graduation rates at a university or encourage the use of condoms. After a problem has been selected, the team should use a repetitive why analysis to understand the causes of the problem, develop several alternative solutions, use the criteria matrix to analyze the alternatives, select an alternative solution, and use force field analysis to understand the issues that will affect implementation of the solution.

Step 1: Analyze the problem using a repetitive why analysis (Activity Worksheet 11.1). State a clear definition of the problem. Then, complete the following analysis of the causes of the problem by asking what caused the problem. Repeat to identify underlying causes. This analysis should help you understand the different causes of the problem.

ACTIVITY WORKSHEET 11.1
Repetitive Why Analysis

Problem Definition:		
Why? Causes of the problem	*Why? Underlying causes*	*Why? Underlying causes*

SOURCE: From Pokras, S. (1995). *Team problem solving.* Menlo Park, CA: CRISP Publications.

Step 2: Generate alternative solutions to the problem. Make sure that each alternative relates to at least one of the causes identified in Step 1.

Step 3: Analyze the alternative solutions using a criteria matrix (Activity Worksheet 11.2). For this activity use cost, effectiveness, and acceptability as criteria for evaluating the alternatives. Rate each alternative solution as high, medium, or low on these three criteria and then combine these into an overall rating. Use this analysis to select a preferred solution.

ACTIVITY WORKSHEET 11.2
Criteria Matrix

Alternative Solutions	*Evaluation Criteria*			
	Cost	*Effective*	*Acceptable*	*Overall*

SOURCE: From Pokras, S. (1995). *Team problem solving.* Menlo Park, CA: CRISP Publications.

Step 4: Good ideas often do not get implemented because the advocates focus on the benefits of the proposals and ignore the problems. Evaluate the benefits and problems of your solution using force field analysis (Activity Worksheet 11.3).

ACTIVITY WORKSHEET 11.3
Force Field Analysis

Driving Forces: What are the benefits of our approach? Who will support it? Why?	*Restraining Forces: What problems does our approach have? Who may resist it? Why?*

SOURCE: From Pokras, S. (1995). *Team problem solving.* Menlo Park, CA: CRISP Publications.

Step 5: Develop a plan to implement your proposal based on the results of the force field analysis.

Analysis: Did the team members find the use of the structured problem-solving approach helpful? What aspects of it did they like or dislike? Did it improve the quality of the solution?

Discussion: What are the advantages and disadvantages of using a structured approach to problem solving?