WHAT S THE PROBLEM?
A DYNAMIC MODEL FOR TEACHING PROBLEM SOLVING SKILLS EXPERIENTIALLY

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ABSTRACT

This paper discusses an experiential learning (role-play) exercise based on problem solving methodologies proposed by Kepner and Tregoe. IL has been used successfully over several years to teach managerial problem solving skills in a wide variety of settings, and with a wide variety of students and trainees. The exercise has proven to be a powerful, dynamic teaching and learning tool that consistently and predictably produces positive learning results.

INTRODUCTION

For managers, problem solving is an indispensable skill, ranking equal in importance with decision making, human relations, communicating, planning, organizing, controlling, and other management competencies. The American Management Association (in its Graduate Management Competency Based Program), and more recently, the American Assembly for Collegiate Schools of Business (in their accreditation requirements) have placed problem solving competency alongside other high priority management skills for future managers.

If one accepts the predictions of Naisbitt [1985], Peters [1987], and other similar authorities, managers are likely to continue to encounter complex and rapidly changing work environments well into the next century. Successful managerial job performance in an increasingly turbulent: environment will require the ability to cope wish and solve problems of increasing complexity, and with increasing frequency.

Ackoff [1978], and Kepner and Tregoe 11965], among several. others, have articulated the art and science, and the theory and practice of managerial problem solving process with considerable skill. Bass and Vaughn [1968], in their classic work, have asserted chat: the training process requires management (e.g., planning and control) to be most efficient and effective.

Most problem solving situations (including those that appear on the surface to be relatively simple situations) typically involve several problems. Thus, the problem solving process is complicated by the fact that: it requires that the manager focus attention and efforts on the central or highest priority problem first. Yet, as the exercise discussed below dramatically demonstrates, most managers fall to focus on the core problem, and thus tall into a trap that often derails effective problem solving.

This paper presents an experiential learning (role-play) exercise based on the problem solving methodologies proposed by Kepner and Tregoe. This exercise has been used successfully over several. years to teach managerial problem solving skills. It has been used in a wide variety of conditions and settings, and with a wide variety of trainees. For example, It has been used to teach problem solving skills in management development programs in private sector businesses. It has also been used to teach top level executives, middle managers, and supervisors in university continuing education programs. It has also been used with equal. success to reach undergraduate and graduate (MBA) students in management theory classes in three different college and university-Level business school settings.

Benefits of Role Playing Exercises

The underlying purpose of any learning process goes beyond simple absorption of knowledge to the development or enhancement of personal and professional competence. Whereas no one would argue that the acquisition of knowledge is unimportant, knowledge in and of itself is incomplete until the capacity for applying it is achieved successfully. Any experienced executive knows very well that skillful application of knowledge has considerable value in the marketplace. This is especially true of business disciplines, just as it is in other professions, such as Law and medicine.

Basuray and Shani [1986) point out that the seeds of experiential learning theory can be found In the work of Jung [1960], Rogers 11961], Maslow 11962), KoIb [1981], and others. Most authorities agree that role-play exercises introduce the significant elements of authenticity and realism into the classroom learning environment.[1] These important facets of learning are not present in traditional lecture and discussion methods of teaching. Many authorities point out that these elements are important: in learning. This appears to be especially true, in most employee training and development programs.[2]

In live role-play situations, all of the participants (including role players, observers, and the instructor) not only perceive (e.g., see and hear) events as they unfold around them, but they also have an opportunity to actually react to and participate in the events as they occur. In this way, the participants experience the process, rather than just learning about theory related to the process. This method of learning forgoes high levels of theoretical abstraction common in most Learning formats, and places learners in positions where they must concentrate Their attention on the realities around them, for example, on the behaviors of other players.

Moreover, role playing also creates a situation, which provides instantaneous feedback to the participants. In this way, various forms of reinforcement are available to everyone involved. Thus, the players can verbalize their feelings and reactions immediately. This, in turn, can lead to post-exercise processing to enhance the learning experience by positively reinforcing key points and issues which were exposed or developed during the role playing experience.

METHODOLOGY AND ADMINISTRATION

Purpose and Objectives

There are two primary purposes of this exercise: The first is to dynamically demonstrate the kinds of traps

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1 For example, see Wohlking, Wallace, "Role Playing" in Craig, Robert L., Editor, Training and Development Handbook, 2nd Edition, New York: McGraw-Hill Book Company, 1976.

2 For example, see Vaught, Bobby C., Frank Hoy, and W. Wray Buchanan, Employee Development Programs, Westport, Connecticut: Greenwood Press, 1985.

and pitfalls into which managers can (and usually do) fall, and the "rabbit trails" down which managers usually run, during real-world problem solving situations. This is easily achieved during the role-play. The second major objective is for the participants to learn a mote effective method for solving real-world business and management problems.

After the role play Is completed, a structured critique and discussion is used to review specific events during the exercise (and their impact on effective problem solving), rehearse and emphasize key points and issues which appeared or occurred during the exercise, and to otherwise stimulate thinking and enhance the learning process. This is followed by a Lecture in which the instructor presents a step-by-step problem solving model for future use. The lecture portion of the exercise is an adaptation of the Kepner-Tregoe Problem Analysis model.

General Preparation

This exercise requires a minimum of seven trainees who are to play the roles of members of the firm's executive committee in a successful medium-sized business. The exercise has been conducted with as few as ten trainees, and with as many as fifty trainees. Based on experience with groups of different sizes, the ideal group size appears to be about twenty trainees. The specific roles include the President, the Vice Presidents for Research and Development, manufacturing, Marketing, Finance, and Human Resources, and the Corporate legal Counsel. Others present fill the Observer role. The Instructor plays the role of Chairperson of the Board of the firm.

Room seating is configured so that the role players (except for the Board Chairperson/Instructor) are seated around a conference table at the front (Or center) of the room, with observers seated at the rear (or around the edges) of the room. It is useful to have either chalkboard or flip chart available to facilitate the role-play, although their use is optional. These would also be useful during the postexercise processing, and during the lecture portion of the exercise. Some facilitators will also use an overhead projector during the lecture portion of the exercise.

The minimum amount of time required for completing the exercise is one hour, however, a one hour session will be uncomfortably right for most: instructors, especially the first time or two through the exercise. The ideal time would be between ninety minutes and two hours. This could be divided into two (or perhaps even three) sessions if necessary; it could be run on two or three different days, with the role play on day one, followed by the post-exercise critique, and then by the lecture (On subsequent days).

Starting the Exercise

The exercise is announced in the class session preceding the class in which it will be implemented. Thus, trainees know in advance that the subject of the next class or training session is problem solving, and that it will involve a role playing exercise.

Depending on the facilitator's objectives, role assignments may be allocated either as much as a week in advance of the exercise, or immediately prior to starting the exercise. In order to avoid subsequent accusations of being "set ups' or "sandbagged" by the facilitator, when the instructor is ready to allocate specific roles to specific participants, the instructor asks for volunteers from the audience. Volunteers are allowed to randomly draw (by lot) one "role" from

the seven required roles (the Executive Committee) needed to run the exercise. Others present (those who do not volunteer) serve as Observers in the exercise.

The exercise begins when the instructor gives each member of the Executive Committee two handouts, one of which is a description of the scenario (situation) in the role play, the other provides an individual instruction sheet. The exercise has been run successfully a number of times giving role players as little as ten minutes, and as much as a week, to prepare to play their role in the exercise.

The Situation

The situation involves a successful medium-sized manufacturing and marketing firm which has developed the reputation for being excellently run. The firm's principal (major) product accounts for 35% of sales, and 40% of profits. The firm currently enjoys annual sales revenues on the order of $10,000,000, and employs approximately 125 people. Of these, 85 are employed in the manufacturing department, 20 are in sales and marketing, and the balance are in other administrative units (e.g., R D and Human Resources).

The firm faces a minor crisis, which has been brewing over the last several days. The firm has a series of problems that are related to its principal product. To be specific, random malfunctions apparently caused by defective products have, for reasons as yet unknown, caused property damage and physical injury to end-users in a major east coast: city. This has resulted in several lawsuits against the firm, as well as some jobbers and distributors. The media have picked up the story, where it got wide attention when the news wire services carried it nationwide. This has, in turn, had a negative impact on the firm's stock (traded on the OTC market); of course, this could have an impact on the Long term financial stability of the firm. Also, several distributors and jobbers have cancelled (or returned) orders pending resolution of these problems. IL may be necessary to shut down production of this product within the next ten days if the problems are not resolved promptly. Thus, this scenario is not: unlike problems that occur more or Less routinely in the true-to-life world of business.

The scenario described above was developed as an enhancement of a real problem-solving situation described by Kepner and Tregoe. Several other contexts have been developed and used by the writer over several years with equal success. The writer believes almost any similar problem solving scenario could be developed and used to reach this material. Thus, other facilitators are free to develop different scenarios more to their liking where that seems to be appropriate. For present purposes, the situation outlined above will be useful as a guideline for others who may want to develop and use their own contexts. (Copies of typical handouts and instruction sheets may be obtained from the writer.)

The Players

The President is expected to conduct a meeting of the company's Executive Committee to deal with the problems discovered in the context of the situation. The President is informed that the meeting must end within a specified time (usually from 20 to 45 minutes, depending on available time). He (or she) is also informed that the Chairperson of the Board must be briefed on the strategy for dealing with the problems the firm faces before leaving the country on a crucial overseas trip later in the day. This trip

and the President's departure cannot be postponed without compromising the firm's mission and general business strategy. Thus, the President is under some pressure *to* identify and deal, with the problems uncovered in *the* scenario within a relatively short time-deadline. strategy Thus, the President is under some pressure to identify and deal with the problems uncovered in the scenario within a relatively short time-deadline.

In addition to an individual copy of the scenario- setting sheets, Executive Committee members are notified that they will be expected to play their role as head of one of the important departments in the firm. They are notified that they have been called to a meeting with the President; they are also informed that the firm is facing what could become a very serious problem if not managed properly.

They are asked to play their role as though they really were the executive assigned to their department, and to "play hardball," that is, as they would expect to play if their job depended on their actions during the exercise. (Student participants frequently tend to "pull their punches" in dealing with other students if this point is not hammered home by the facilitator.) They are asked to prepare for the meeting by making notes to answer two questions from the perspective of their role in the department they represent: (1) What is likely to be the problem in this situation? and (2) What specific actions would you recommend the President take to deal with these problems?

Observers are provided a copy of the scenario sheet and a list of important specific issues and questions for which they should watch or listen during the role-play. These issues and questions address such things as details of the actual sequence of events that transpire during the role play, the effectiveness of the role players, whether the executive committee ever identify "the" problem in the situation, and so forth. Observers are instructed to make notes in response to these questions for future reference during the post-exercise processing and discussion.

Trainees complete a Learning Experience Feedback document after the exercise is completed in which they report what they learned from the exercise. These reports help the trainees focus their thinking on key issues, and also tend to reinforce the key lessons in the exercise and lecture. They also help them chink about how their learning experience will help them become more effective managers in the future.

RESULTS OF THE ROLE PLAY

One of the most interesting aspects of using this model for teaching problem solving skills has been the fact that after a decade of use this exercise has consistently produced similar results. As noted previously, it has been used in various academic and management training settings, and with trainees from the ranks of top level management (Vice Presidents, Directors), middle level managers and supervisors, to undergraduates and MBA students in the college classroom. In the writer's experience, this exercise has produced highly predictable results.

The individual playing the role of the President usually starts the meeting of the Executive Committee by asking for input from each of the members of the Committee. This results in a round-robin description and discussion of the problems each of the other role players have identified in the situation. The typical response is that each executive states his or her

perception of what "the problem" is (or what he or she thinks it is), as viewed from his or her departmental viewpoint. In other words, the R & D executive indicates that the problem may be an R & D problem, but it could also be a problem with manufacturing processes. Manufacturing usually Gees it in a similar way but may mention defective raw materials and purchased sub-assemblies.

The Marketing executive sees the problem in an entirely different light: the problem is that sales are declining. On the other hand, the Personnel executive thinks the problem is that the firm may have to shut down the production line and lay off a lot of people. Further, the corporate Legal Counsel sees the problem as the growing potential for large financial losses resulting from lawsuits, while the CFO tends to see the problem as a threat to the firm's cash flow and long term financial stability.

In some role-play groups, especially among executives and other line managers, finger pointing and accusations become a significant part of the role-play. For example, the Marketing VP accuses the VP Manufacturing or R & D of causing the problems with declining sales in the field. In other words, it quickly becomes clear in this situation that rather than there being one primary problem, there are a numerous problems, and that each executive sees "the problem" differently. It is not unusual when running the exercise for the Executive Committee to identify twenty or more problems in the scenario, frequently doing so within the first four or five minutes.

Then something very subtle occurs which always has the effect of throwing the management team off their problem solving track. What happens at this point is that there is a subtle shift in emphasis from problem identification to problem solving. The shift is so subtle that no one seems to realize that it has happened, much less why it happened. It is typical for this shift in focus to occur within three to five minutes of starting the exercise, frequently even less.

Whenever it occurs, the rest of the time for the exercise is spent deciding who is responsible for doing what, once the meeting ends; the basic objective becomes solving all of the problems identified in the scenario, tactics they will apply, and so forth. In other words, from this point onward, the role play team approaches the problem solving process using a shotgun strategy, rather than identifying the priority problems, then dealing wish the central or core problem first (that is, using a rifle strategy).

After the role-play ends, and when the President briefs the Chairperson of the Board, the first question asked of the President is always, "What's the problem?" In over ten years of using this exercise, the writer has never received a satisfactory answer to that question. The reason, of course, is that the President has not stopped to identify the central or core problem prior to applying the shotgun strategy for solving all of the problems identified. This sets the stage for the post-exercise critique and processing which enable the trainees to see what has happened. More importantly, they are then motivated to learn how to avoid this trap in the future. This is the focus of the Lecture portion of this exercise.

EVALUATION AND DISCUSSION

There are several benefits, which accrue from the use of this exercise, and there are also some limitations. These are discussed below.

Benefits of the Exercise

Vaught and Petit [1986J have noted two significant advantages which allow role play exercises to take on added value when compared to traditional teaching methods. They assert that when role-play exercises are used as a process to teach concepts, suggestions, comments, perceptions, and reactions are available as feedback during post-exercise processing from passive participants in the exercise (observers in the audience). Additional possibilities for future methods for dealing with the situation can be described, participants weighed and potentially adopted. In this way, all can benefit in future situations. This benefit certainly applies to this role-play model.

Another significant benefit of this exercise is that the trainees actually experience the remarkable tendency to fall into the trap of using a shotgun strategy for dealing with problems in a realistic, live situation. For example, students have reported that "…..during the actual role play exercise, it just seemed so natural, so logical, and so right to pursue a 'fix' for all problems the team had identified during the exercise." Indeed it does seem natural, logical, and right. Fortunately, in post exercise processing, the students learn that it may seem rights but it is both inefficient and ineffective as a means of solving problems. Further, they understand why, based on their experience with the role-play.

The fact is, of course, that once the central or core problems are identified, and the causes of the core problem deduced, and Chen corrected, the secondary and tertiary level problems cease to be (or become) problems. It should be noted that solving the primary or core problem does not solve pre-existing secondary and tertiary problems (that is, those that occurred before the core problem was remedied); because these problems will not "just go away they must be managed. On the other hand, the solution of the core problem will cause additional secondary and tertiary problems to cease, thus they won't continue to be sources of future problems.

Another important benefit Is that the students are taught a rational, step-by-step approach and methodology for effectively and efficiently dealing which problem solving situations. As noted above, the writer uses the Kepner-Tregoe seven-step model for teaching this material.

Limitations of the Exercise

Perhaps the most important limitation of the exercise has been that it appears to loose some of its effectiveness in groups larger than twenty-five trainees. For example, in reviewing student feedback, the writer has noticed that passive participants (i.e., Observers) in larger groups disclose lower levels of understanding of basic concepts, fewer perceptions of enhanced skills, and Less ability to apply what they have learned to their work, than do those who actively participated (i.e., as members of the Executive Committee). The larger the group, the more frequently this tendency has been observed.

Also, since only seven individuals can take an active role in the role play exercise at one time, only these seven can actually experience the excitement of the role play. Observers gain an experience, but what they experience is something slightly different, and it is experienced in a second-hand manner.

One other important limitation is worth noting. Becoming proficient in a skill requires a considerable amount of time. One can learn the theory, and be exposed to the process experientially in this exercise, but It will take months, perhaps even years, for students to become skilled, proficient problem solvers. As with learning or enhancing any specific applied skill, one exposure will not permanently inscribe the process, nor the skills, on the mind of the trainees.

Students have reported that although they fell into the same traps in problem solving situations subsequent to participating in the role play exercise, they also reported that they begin having "Ah Han' experiences in which they realized that they had fallen into the trap (shotgun strategy), backtracked, and then pursued the problem solving process using a strategy which focused on removing the cause of the core problem.

CONCLUSION

Over the past several years, the writer has found this exercise to be a very dynamic and powerful teaching and learning tool. The role play introduces several important concepts and skills analogous to problem solving in real settings. For example, the exercise demonstrates (and reinforces) the necessity of having common goals as a prerequisite for effective problem solving.

It also dynamically demonstrates the need to address problems globally, rather than from narrow or functional perspectives. Further, trainees learn the necessity of identifying and focusing on the core problem, and deducing its underlying cause, since removing (fixing) the cause of the core problem eliminates the continuation of secondary and tertiary problems, which spin off the core problem.

Although the exercise has consistently produced similar results when it has been applied in various see- tings, the writer has not as yet had an opportunity to use ii with a team of role players made up of Presidents and Chief Executive Officers. It would be exciting Co conduct this exercise within a group of Presidents and CEO's to see if the same results would occur with more experienced problem solvers.

In this role play, students are forced to deal with problems much like those they will experience in real world contexts. Thus, the exercise provides a defensible basis for Transfer of learning into real world problem solving situations. It seems to work, and it appears to have a enduring impact on learning. It deserves further experimentation and application as a technique for teaching problem solving through experiential methodology.

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