

Developing Effective Teams

Janet R. Achor
Purdue University
West Lafayette, Indiana

D. Perry Achor
Purdue University
West Lafayette, Indiana

Attempting to incorporate team projects in a construction class can be frustrating to the students and the instructor. An example illustrating how to successfully establish teams that will motivate members to work together through experiential learning is presented here.

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Introduction

The majority of construction projects and tasks in the construction management industry are accomplished by teams of employees, both in the home office and in the field. Therefore, it is essential that students in construction management programs are provided the opportunity to learn how to work in teams.

The purpose of teams is to ultimately accomplish a task in a minimum amount of time while using all possible resources available to maximize profitability and aesthetics. This is accomplished by learning and developing each individual team member's assets and pooling their resources to accomplish a task.

Students are taught that a team's purpose is to ultimately accomplish a task, using human relations skills, during a minimum amount of time while using all possible resources available. Each team member's assets are determined and resources are pooled to accomplish a task. Through team development, students learn that construction projects are accomplished through teamwork during planning stages and during actual construction. This exercise will help students to become more familiar with such critical areas as planning, controlling, goals, priorities, and developing programs of action.

Most construction educators have received some experience in attempting to establish successful teams within a classroom environment. Generally discovered in attempts to establish teams are the difficulties inherent in teams such as attempting to reach consensus among strongly held beliefs, and dealing with hostility, anger, frustrations, and team members letting the team down. Discussed here are ways to address such difficulties, using an exercise, The Real Estate Project, so that students can better approach learning, and team projects in their careers.

Before Classroom Teams are Formed

Instructors need to be alert to the pre-team expectations that students tend to develop from past experiences. These expectations or attitudes can create self-fulfilling prophecies of either positive or negative feelings about teams. Instructors should encourage students to enter into the team concept with the expectations of both learning and enjoying working together as a team. When team members enter into a team setting with such expectations, other team members tend to react to these positive expectations in ways that allow the expectations to be fulfilled.

Instructors should encourage students to enter into teams with students they do not know well. The resulting benefits will be:

- Students can learn more from students they do not already know.
- Students can more openly confront non-friends on team task issues.
- Students can compare experiences and progress with friends from other teams.
- Students learn that in the industry, managers are not assigned to teams on the basis of friendship.

During the Team's First Meetings

Instructors can assist the students in developing positive expectations before entering the team situation. Students are advised that there are no second chances in making a first impression. The instructor encourages the students to think about what they desire from the group, what they wish to accomplish, and the role they wish to play in the group. Thus, before entering the team situation, the student is better prepared to be a positive and productive team member.

When students are in the process of forming a new effective team, they will encounter predictable issues, which need to be addressed. Such issues include:

- How do team members relate to each other?
- Who has power and influence?
- What is each member's role?
- How is conflict to be handled?

This is one of several team-building activities that can be helpful in setting the stage for an effective resolution to the above issues. Instructors can encourage team members to engage in the following:

- Doing something which requires self-disclosure (such as the sharing of values or feeling)
- Taking personal risks with each other (confronting, disclosing, sharing)
- Not allowing the task to become more important than managing relationships
- Establishing a few team goals that:
 - satisfy team members' needs for belonging
 - are a minimum 50% achievable
 - are specific and concrete

Engaging the students in such team-building activities at the beginning of their meetings together can better prepare them to accomplish team tasks, and maintenance roles more successfully. Presented here is a Team Planning and Production Task exercise (Pfeiffer, 1985). This exercise can be implemented in the instructor's course, done by the students, as a way to assist in the development of successful teams within the classroom environment.

Applying a Classroom Exercise:

Team Planning and Production Task: The Real Estate Problem

Purpose

- To develop knowledge of the value that plans and objectives have on team productivity.
- To explore the effects of objectives, planning, organizing, directing and controlling have on team productivity and output.
- To examine different factors that may affect profitability and aesthetics.
- Human dynamics! Power - who takes it?

What to Expect

This is a highly involved task and team members always enjoy it. The spirit of "getting into" the exercise is enhanced when a clear climate of inter-group competition is established.

The exercise is especially useful at the beginning of the course when participants may not recognize the importance of setting objectives, planning for profits, or designing an organization structure to enhance task accomplishment. Many teams will treat Step 1, and especially 2, very superficially. This may be frustrating for them later when they begin to build and realize that they have no idea of where they are going or how to get there. Other teams may spend most of their time planning to conserve resources, maximize aesthetic value, or devising elaborate designs for "shockproof" buildings. Often these teams are highly effective at constructing creative buildings, but they may show a very low profit and be one of the least successful groups. Other teams may find that their "plans" did not allow for time contingencies.

Since this is a fairly complex exercise to run, it is very important that you have all materials and physical facilities prepared well in advance. It is useful to obtain extra help and space, especially if the total group is greater than 25 people. Note all "Operating Hints," below, carefully. Also, be sure to have all participants remain through the conclusion. The exercise has a "game-like" quality. Without a good wrap-up, it can be perceived as just that, a game. Through analyzing the experience, however, participants come to several valuable conclusions about their behavior.

Introduction

Most textbooks describe the management process as one that involves four functions: planning, organizing, directing, and controlling. How each of these functions is performed will determine, to a great extent, whether a company is successful or not in meeting its objectives.

Like larger systems, small teams must also consider these functions if they are to be successful. Frequently, team task accomplishment involves interdependencies among members and requires a high degree of coordination.

In both cases, tasks to be accomplished must be analyzed and objectives must be established in advance. Once these objectives are clear, the team can plan how it will organize its members and utilize resources to achieve these objectives. In companies, one of the objectives will involve profitability. Just as companies must plan and organize for production, they also need to plan and organize to ensure that profit objectives are met.

In this exercise, each team will have an opportunity to compete with other teams in constructing a building. The success of the teams will be measured by the profit each team makes in the project. Profit is determined by subtracting costs from the total appraised value of the finished structure. As the teams will see, many factors are involved in determining the appraised value. Therefore, it is essential that the teams analyze this task carefully, set objectives, and plan the best possible organization that will allow each to meet them.

Procedure

STEP 1: Each team should allow itself sufficient time to become familiar with the parameters set forth below in Step 1. Discuss these until everyone understands them, then proceed to Step 2.

Task Directions. Each team will be required to construct a building out of 3" x 5" ruled index cards (to be provided) and to sell the building at the end of the exercise. The sale price will be the total appraised value as determined by the Real Estate Board valuation standards outlined below. The winning team will be the team with the greatest profit, regardless of the appraised value of the building. Teams are instructed to make two sketches, plan A and plan B, before beginning to construct the building.

Material and Tools. Each team will have the same raw material and tools available. These are 3" x 5" ruled index cards, one ruler, one pair of scissors, one stapler, and one roll of 1/4" tape. Extra staples and tape will be available upon request without charge. The cost of construction cards (raw materials) is described below. The instructor provides all of the materials and tools.

Cards cost \$70 each. At the beginning of the exercise, each team will receive a package of 100 cards and will be charged \$7,000 as the initial startup investment. Additional cards may be purchased from the supplier at the regular price. At the end of the exercise, each team may redeem any unused cards for \$50 each. To purchase or redeem cards, ONE PERSON only from each team must go to the supply depot to carry out the transaction.

The presenting team leader will designate the supply depot at the beginning of the exercise.

Construction and Delivery Time. At the beginning of the exercise, the team leader will announce the amount of time each team will be allotted to construct the building. No team is allowed to build until the team leader announces BEGIN PRODUCTION. When the time is up, the team leader will announce STOP PRODUCTION. No construction is allowed after this point. Each team will have 30 seconds in which to deliver your completed structure to the Real Estate Board for appraisal. Building received after 30 seconds will not be appraised, and they will be disqualified. No team members are allowed to remain with the building after it is delivered, except for the Real Estate Board members.

Real Estate Board. Each team should designate one member to serve on the Real Estate Board. The board member may help plan your building, but he or she will not be able to actually help during the construction phase. The Board is responsible for appraising each building and assuring that building codes are met. The Board will convene during the construction period to decide upon criteria for the DROP-SHOCK test and quality and aesthetic values. The board must appraise one building before going on to the next. Once a building is appraised, it cannot be reappraised.

Building Code. All buildings must be fully enclosed (sides, floors and roofs). They must have ceilings and be capable of withstanding a DROP-SHOCK test. This test may consist of dropping the building or dropping an object on the building. It will be the Real Estate Board's responsibility to decide which test.

Appraisal Values. Buildings are appraised on the basis of quality and aesthetics. In order to obtain the total appraised value, the total of the quality and aesthetic values is multiplied by the total square inches of floor space in the building.

Quality Valuation. Quality is determined by subjecting the building to the **DROP-SHOCK** test. Various qualities are assigned values as follows:

- Minimal quality: \$12.00 per square inch of floor space
- Good quality: \$14.00 per square inch of floor space
- Better quality: \$16.00 per square inch of floor space
- Top quality: \$18.00 per square inch of floor space

Aesthetic Valuation. The Real Estate Board can set an aesthetic value from \$0.00 (zero) to \$3.00 per square inch.

Other Instructions. Once construction begins, your team will not be allowed to ask the team leaders to clarify any game rules to resolve any team difficulties. You are on your own. Five minutes before construction is to stop, the team leaders will notify the teams of the time remaining. While the Real Estate Board is appraising buildings, each team will

be expected to clean up left-over raw materials and return them to the supply depot. All unused cards should be redeemed.

STEP 2: Each team should discuss the task and establish the following:

- What are your team's objectives in this project?
- What plan will your team use to achieve the objectives?
- How will members be organized and coordinated to accomplish the team's task?
- How will your team utilize resources?
- Who will serve on the real estate board?
- How will your team deal with the uncertainties, e.g., unknown time allocation and DROP SHOCK test?

One member of each team should be designated to report on your team's objectives, plan, and organization structure during the discussion at the end of the exercise.

STEP 3: Each team should assemble together at one work place (table or two tables). The team leaders will designate the following: (1) supply depot and supply person(s); (2) delivery station for real estate board; and (3) construction time (20 - 25 minutes). In addition, the team leaders will distribute all materials and tools to the teams. Finally, the people designated to serve on the real estate board will be asked to convene. No one is to use any materials or tools at this point.

STEP 4: When the team leader announces BEGIN PRODUCTION, the team may build. When the team leader announces STOP PRODUCTION, the team must deliver the team's building to the real estate board within 30 seconds.

STEP 5: The Real Estate Board appraises the buildings. The teams clean up and return the raw material. The team leaders and supply persons compute total cost and enter figures on board or easel. The Real Estate Board appraises the buildings and enters total value on board or easel (10 minutes).

STEP 6: The team leaders and supply persons compute the profit for each team. The total costs are subtracted from the total appraised value for each building to determine the winning team (i.e., most profitable).

STEP 7: The entire team and the team leader should discuss the results in terms of the objectives, plan, and organization of each team to determine how these factors affect output and profits. Team members should respond to discussion questions for their own teams.

Discussion

After the exercise, the students are required to answer the following questions. The answers are turned in and also used for class discussion analyzing the team efforts.

- What was the primary objective in this task?

- Given this objective, what other objectives did your team set? Did you try to minimize/maximize floor space (profit)? Quality? Resources used? Aesthetic value? Cost?
- Did your team's plan allow for the uncertainty associated with construction time? Did your team establish any contingency plan or alternative for long or short construction periods? Various shock tests?
- Did team members attempt to influence the Real Estate Board either before or during the appraisal?
- What factor in your team's efforts do you think account for its success or failure in this task?
- How did your team's division of labor and coordination of efforts affect your performance?
- What effect has your team's success or failure experience had on: (a) you? (b) your team's cohesion/identity? (c) your attitudes toward other teams and individuals?
- What does this exercise demonstrate about the role of team objectives?
- What is the value of planning, as demonstrated in this exercise?

Conclusion

Establishing teams in the classroom as an important component of academic efforts in a construction program is essential. Incorporating teams within the curricula ensures that students are exposed to the value of team skills. Effective teams must establish high goals and objectives that are accepted by the team members. Effective teams establish high standards of performance, rather than being pressured to perform by the leader. Effective teams allow members to disagree and to determine effective ways to resolve problems and inter-team conflict. Effective teams make decisions by consensus with consideration of alternatives, resulting in a cohesive sense of unity. In addition, students learn that effective teams recognize individual team member contribution.

Instructors who ensure that students receive team development skills within a construction program provide graduates who are better prepared to become productive and successful team workers and managers in the construction industry.

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