

# Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

## THE QUALITY GAME

Joao S. Neves, Trenton State College

### ABSTRACT

The Quality Game simulates a situation in which a firm experiences all sorts of quality problems. The players are called to participate in a quality meeting to analyze the production process, the product and the firms relationship with its customers. Through the implementation of the changes of proposed in the quality meeting, the participants recognize the advantages of total quality management concepts and techniques.

### INTRODUCTION

The Quality Game can be played in many settings. An ideal situation is a group of 15 to 20 participants. Up to twelve people will be selected to play specific roles in a hypothetical firm while the rest will act as customers, or as acute observers. The Quality Game is easy to set up. The instructor starts by explaining the purpose of the game, the nature of the activities, and the roles expected. The instructor should proceed with the task assignments, and line up five desks to function as workstations. Timing of the game is useful in that it will help understand the impact of quality on cost and capacity. There can be one quality inspector. Initially the instructor may provide the quality inspector with a calculator since he/she is responsible for checking the result of all operations. The exact role of the quality inspector may be decided by the group at the quality meeting. The instructor should act as the general supervisor, making sure that the inputs reach the production process and that the final product is delivered to the customer.

### PRODUCT

The product in this organization is a card with a number on it. This number is the result of a sequence of arithmetic operations. Customers provide two inputs and ask for the result of a particular sequence of operations. The two inputs consist of two numbers which are materialized in the form of two-index cards-an X-card and a Y-card. The two inputs go through a series of production steps and the final product consists of a stack of the cards used in the intermediary stages stapled together. On the top surface, the result of the arithmetic operations is written.

### CUSTOMERS

Customers come to the firm with one or more requests, that is, one or more pairs of X-and Y-cards. Customers do not know the exact sequence of operations necessary to arrive to the final product. However, they will find out very soon if the product "works", that is, if the result is not correct, the customer returns to the firm and demands that the product be fixed. Different customers, or different orders, may have different quality specifications. For example, the final result may be acceptable rounded to the closest integer. Alternatively, one, two or more decimal places may define the acceptable limits of specification. Typically, customers do not tell these limits to the firm.

### PRODUCTION PROCESS

The production process is organized into five workstations. Each workstation (WS) is responsible for calculating two operations. The instructor starts the game by supplying ten pairs of cards to the participants who act as customers. These cards are to be processed by the group. Many quality problems are likely to arise.

### QUALITY MEETING

After the first batch of ten cards is processed and all quality problems between the firm and the customer are resolved the instructor will call a quality meeting. The purpose of this meeting is for the entire group-workers, customers, and observers-to think about quality and propose changes that will lead to a better performance. The group should focus on the causes for defectives and the means to overcome them. One of the members should take some notes. A fishbone graph may be constructed on the board. The instructor should provide some leadership in terms of assuring that different areas of quality improvement are covered.

After the quality meeting, the instructor will release a second batch of ten cards. These will be processed by the group in a similar manner as before except that the quality proposals have been incorporated. Many fewer defectives will occur this time. The time necessary to complete this batch will be significantly reduced. Less people will be involved in the production process, and it will be easier to meet the more stringent quality specifications.

Here are some topics for the quality meeting:

- (a) change the quality control strategy, from quality-at-the-end to quality control at the critical operation or to quality-at-the-source;
- (b) provide equipment to critical operations, that is. assign the calculator to the square root operation rather than to the quality control function;
- (c) specify at the beginning of the operations the number of decimal places necessary;
- (d) Redefine the work methods: stop stapling the cards together which makes rework very difficult.;
- (e) mark the cards with either an X or an Y and simplify the numbering system on the cards; reorder the cards before starting to work;
- (f) redefine the product: simplify the formula, eliminate operations and work stations; decide what to do with the freed workers.

### DEBRIEFING

Depending on the circumstances, this phase should take 10 to 25 minutes and it should focus on the accomplishments of the entire group. The emphasis is on the process of analyzing the causes of defectives and on designing effective ways to overcome them rather than on issues of productivity or individual performance.