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663. DECK OF CARDS: USING DEMING'S FUNNEL EXPERIMENT*

Goal

- To demonstrate the harmful effects of overadjusting a process.
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Group Size

Four teams of up to five people each.

Time Required

Thirty minutes.

Materials

- Four colored dots to serve as the "targets," one colored dot for each subgroup.
- One deck of fifty-two playing cards per subgroup.
- Four small tape measures, one per subgroup.
- A dozen colored dots of a different color for Team B.
- Index cards on which the rules for each subgroup are written in advance.
- Paper and pencils for each subgroup.
- One copy of the Deck of Cards Trainer Notes for the facilitator.

Physical Setting

A room large enough for four groups of people to stand and work in small circles.

*This activity was inspired by W. Edwards Deming's Funnel Experiment, as discussed in his book, *Out of the Crisis*, Chapter 11: Common Causes and Special Causes. MIT Press, Cambridge, Massachusetts.

Process

1. Before using this activity for the first time, read through the rules and do a dry run with volunteers so that you are familiar with the results that each subgroup will achieve.
2. Prior to the session, place one colored dot or "target" on the floor to mark where each of the four subgroups will be located for this activity. Also write the rules and team designations (A, B, C, or D) on the index cards.
2. Ask the participants to form four small groups, with no more than five members each, and to assemble around one of the dots on the floor.
3. Tell the subgroups that they represent four different manufacturing teams, and that their objective is to deposit as many "products" (playing cards) as close to the target (the dot) as possible, while following their particular rules.
4. Tell the teams that they are to "deliver products" by dropping one playing card at a time from shoulder height. Demonstrate dropping a card perpendicular (not horizontal) to the colored dot or "target" on the floor. (This provides the most variation.)
5. Reiterate the goal for each subgroup: To deliver as many products, as close to the target as possible, while following the rule for the team. Hand out one deck of playing cards, a tape measure, one "rule card," and paper and pencils to each team. Give Team B the extra dots of a different color. Go over the rule that each team received with that team:
 - *Team A:* Do not adjust. Drop every card over the target.
 - *Team B:* After each drop, measure the distance (X) from the target to the spot where the card landed. Position your next drop at X distance from the last position you used. Use the additional colored dots to mark your last positions.
 - *Team C:* After each drop, measure the distance (X) from the target to the spot where the card landed. Set the next drop position X distance from the target, but in the opposite direction.
 - *Team D:* Set the next drop position directly over the spot where the last card you dropped landed.
6. Allow the teams to conduct a dozen drops. Pay particular attention to teams B and C, as their rules are the most difficult to follow.

7. After all have finished, review the activity with the entire group:

- What rule did your group follow?
- What results did you achieve? Why do you think that happened?
- Can you think of times on the job when this type of results happened?
- What happens to an organization as a result of overadjusting a process?
- What can you do in the future to prevent this type of problem in your organization?

Variation

- If time permits, do another round, allowing teams to make process improvements rather than following one rule. Have each team identify one improvement to make, test it, and then compare results. For example, one process improvement might be to hold the card parallel to the floor before dropping it. The result using Rule A will be that almost every card will settle down on top of the target!

Reference

Deming, W.E. (1986). *Out of the crisis*. Cambridge, MA: MIT Press.

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Kristin J. Arnold, MBA, CPCM, maintains a private consulting practice specializing in team facilitation services and training, with an emphasis on strategic planning, strategic partnerships, collaborative problem solving and team building. Ms. Arnold has extensive experience as both an internal and external consultant with a wide variety of manufacturing and service industries, as well as the government sector.