

Fun with the Fishbone Diagram: How Fundamental Attribution Error Affects Team Problem

Solving

MOBTC Submission

Abstract

Fishbone Diagrams are a popular problem solving tool used in industry and upper level undergraduate management classes. To complete a Fishbone Diagram, cross-functional teams

brainstorm possible causes to a problem. In industry, these potential causes are investigated to determine the root cause of a problem. However, this process is subject to Fundamental Attribution Error which limits the effectiveness of the tool. The purpose of the “Fun with the Fishbone Diagram” exercise is for teams to work through a business problem while purposefully making attribution errors. Participants will learn how to create a Fishbone Diagram and how to minimize attribution error.

Introduction

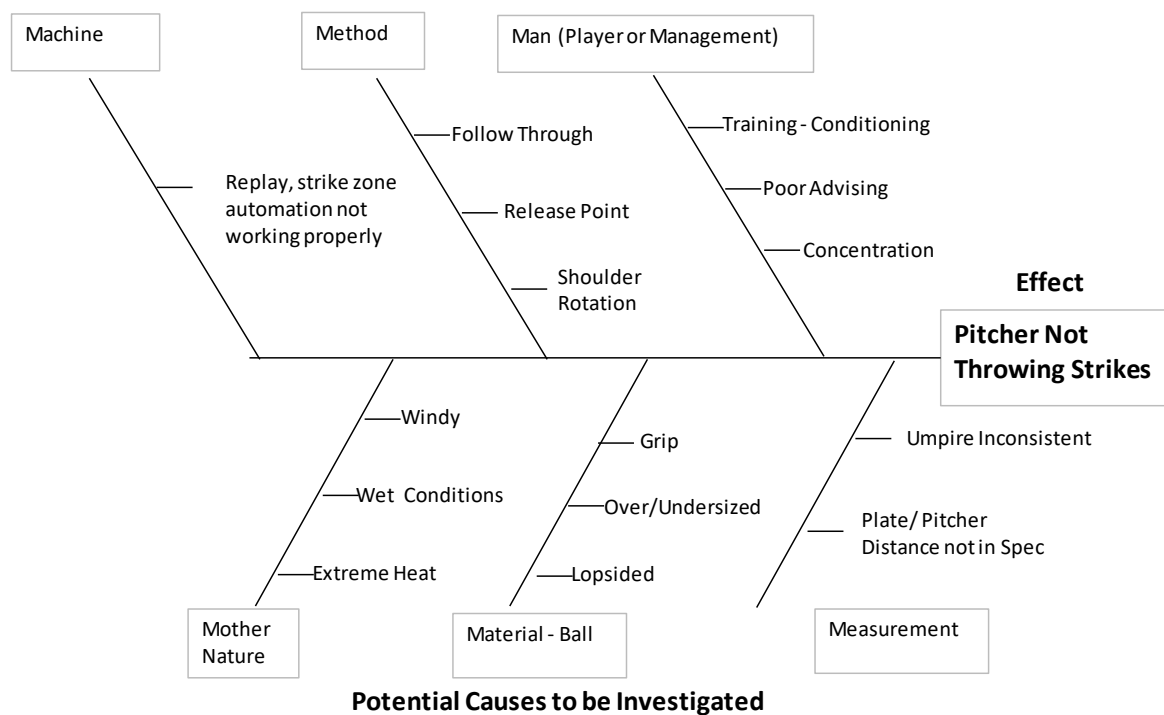
The Fishbone Diagram, also known as a cause-and-effect diagram, is a popular cross-functional, team-based quality control tool mentioned in many Operations Management and Total Quality

Management textbooks. Students in upper level undergraduate or graduate classes who are learning how to use this tool will gain a significant hard skill that can be used in virtually any industry. However, soft skills such as leading meetings effectively or brainstorming strategies are often not taught to students learning the Fishbone Diagraming process. Additionally, this process is susceptible to fundamental attribution error. The purpose of the “Fun with the Fishbone Diagram” exercise is to show participants how to properly use the tool while minimizing biases. Participants will assume the roles of different workers within a restaurant, i.e. wait staff, kitchen workers, or managers, and they will attempt to create possible causes to the effect/problem: “Steaks being sent back to kitchen for improper cooking (doneness) have risen 20% in the month of May.” Each team, though, will create causes which are relevant to other departments, but not their own, which is where the fun begins. The Fishbone Diagram is a tool that employs cross-functional teams to generate as many possible causes as possible but often employees will protect their own interests by not providing objective potential causes.

Theoretical Foundation

The Fishbone Diagram is very effective for cross-functional teams who are trying to determine the unknown root cause of a problem or defect, via brainstorming. Typically, the head of the

diagram, “the effect,” is listed, then, multiple “causes” are brainstormed, which will then be investigated by the team. The diagram consists of six categories, all beginning with the letter ‘M’ for ease of remembrance: Measurement, Man (Persons and/or Management), Method, Machine, Mother Nature, and Material. Below is an example (non-exhaustive) Fishbone Diagram for a baseball pitcher not being able to throw strikes:



Cross-functional teams typically create fishbone diagrams for a few reasons. First, teams are often better at generating many ideas, building consensus amongst departments, and obtaining buy-in from managers, than single workers (Robbins, DeCenzo, & Coulter, 2014). Second, since each department within an organizations has particular skill sets and competencies, problem solving is best done cross-functionally where these different knowledge bases can interact (Chircop, 2006). Although benefits exists from the use of cross-functional teams, their disadvantages are seldom mentioned, especially in regard to creating Fishbone Diagrams. For

example, the OM (6th ed.) text walks the reader through the process of creating a Fishbone Diagram as well as presenting an example, but pitfalls associated with creating the diagram are not mentioned (Collier & Evans, 2017). As cross-functional teams gather to complete a Fishbone Diagram, members from different departments will typically possess fundamental attribution error (FAE). FAE means that individuals, or in this case each department, will blame external causes for failures (Shtudiner, Klein, & Kantor, 2017). Thus, each department is likely to blame others for potential causes (failures) when filling out the fishbone diagram. Professors should not only teach students how to properly use the Fishbone Diagram but they should also teach students how to effectively lead brainstorming sessions to minimize FAE.

Learning Objectives

1. Participants will learn how to conduct root cause analysis via the Fishbone Diagram.

Participants will have a deeper appreciation for rooting out the cause of problems after this exercise. Often, symptoms to problems are treated and the underlying cause is not removed. For example, “poor training” is often deemed to be a cause for employee failures in most industries while the training, or management system, is often ignored while the symptom is “fixed.”

2. Participants will learn to recognize FAE during brainstorming sessions.

Especially during root cause analysis, FAE is a major problem. Participants will be more aware of how psychology, in this case attribution error, applies to brainstorming sessions and how to minimize these biases.

3. Participants will gain experience working in a simulated cross-functional team.

Cross functional-teams are used in industry to solve problems and this exercise simulates the experience of working in a cross-functional team. Each participant will be assigned a role and will be expected to work with others to solve a real-world business problem.

Session Description and Exercise Overview

The “Fun with the Fishbone Diagram” exercise is an hour in length.

1. In the first 15 minutes of the session, the presenter will describe how the Fishbone Diagram works and provide the “pitcher not throwing strikes” example from above. Once all participants understand the purpose and function of the diagram, the exercise begins.
2. In the following 15 minutes, participants will be divided into departments to solve the problem: “Steaks being sent back to kitchen for improper cooking (doneness) have risen 20% in the month of May.” Class sizes may vary but preferably at least two participants will be placed into each group with three-to-four total groups. Each department, i.e. kitchen staff or wait staff, will secretly be given the directive to not mention causes that are related to their own departments (or functional areas). Additionally, each group will be ordered to over-emphasize the potential causes from other departments. In this 15 minutes section, each cross-functional team will jot down potential causes on a blank Fishbone Diagram.
3. In the next 20 minutes, the presenter will allow each group to take turns mentioning potential causes. The presenter will fill in a Fishbone Diagram on the whiteboard. Each department, of course, will mention causes not associated with their department.
4. The final 10 minutes of the session is for debriefing. Specific questions to be asked are:
 - a. What are some pros and cons of using the Fishbone Diagram?
 - b. How can you incorporate this activity into your respective classes?
 - c. What suggestions can you make to students to minimize FAE?

References

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