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Complex learning: organizational learning from disasters

Richard Choularton

15 East Putnam Road, No. 381, Greenwich, CT 06830, USA

Abstract

This paper examines how organizations and society learn from disasters. While learning can and does take place, the depth of this learning is often superficial. The paper argues that lessons that are more fundamental are learnt with difficulty. In order to examine the aetiology of disasters and organizational learning from them, the paper presents a theoretical framework based on systems theory. Contemporary thought on organizational learning complements this theoretical framework. Two industries, the oil industry and aviation industry, are examined in order to examine different types of learning. Finally, the paper addresses obstacles to learning and the issue of risk migration.

Keywords: Disasters; Double-loop learning; Organizational learning; Systems theory

1. Introduction

Scholars argue that disasters are not events; rather they are social constructions. For example, Dombrowsky (1995) argues that:

Disasters do not cause effects. The effects are what we call disasters (1995, p. 242).

In other words a disaster is an amalgam of the results of an event or series of events, whose impact is disruptive, destructive and/or negative in nature, and whose magnitude is sufficient to be labelled 'disastrous'.

If disasters are amalgams of 'effects', as Dombrowsky suggests, then it is possible that not all of the 'effects' are negative. One positive effect is learning. This paper examines organizational learning in the wake of disasters. The paper argues that organizations, as well as society, do learn from disasters. However, learning tends to

E-mail address: choularj@yahoo.com (R. Choularton).

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occur at different levels. While superficial learning is common, more fundamental lessons are harder to learn.

The paper will begin by developing an outline of a theoretical framework for examining and analyzing organizational learning in the wake of disasters. A general sociological disaster theory outlined by Mayntz (1997) is used to put disasters in a broad societal context. Social theory on the aetiology of disasters, or the disaster cycle, complements this broad societal framework. This section is important because it provides a framework, which allows disasters to be analyzed in a systematic manner. In the context of this framework, different types of learning will then be discussed.

This theoretical framework will be applied to two case studies, examining aviation safety and oil spills. The case studies pay special attention to learning processes. Examples of how difficult it is to learn fundamental lessons will highlight the challenges that organizations face in ensuring the future mitigation of analogous disasters.

Finally, conclusions will be presented discussing obstacles to learning from disasters. These obstacles include organizational issues, such as poor safety cultures, and societal issues such as risk migration.

2. Theoretical Framework

In 1997, Mayntz proposed a general sociological disaster theory using a systems model. This model attempts to explain why disasters occur and what they are. There are four main tenants to this model. First, all systems (including societies and their sub-groups, i.e. organizations, settlements, etc.) are prone to internal and external disturbances. Second, systems must react to these disturbances. Third, systems only collapse if precautionary sub-systems cannot cope with these disturbances. Finally, the balance between the requirements and problems the system faces determine precautionary sub-systems. Perrow (1999a) describes the dichotomy that Mayntz establishes between requirements and problems when discussing complex systems, such as aircraft, by arguing that:

> *...in the search for speed, volume, efficiency and the ability to operate in hostile environments, all laudable goals, we have increased the complexity and the coupling of systems unnecessarily and this has reduced their operational reliability, as well as their ability to withstand deliberate attacks or invasions (1999, p. 150).*

In essence, Perrow juxtaposes the requirements of organisations to produce efficiently, quickly and in quantity, with the robustness of the precautionary systems that the organization employs to deal with problems.

Mayntz identifies several types of disturbance that may lead to systems failure. First, chains of misinterpreted and/or unnoticed events, known as incubation chains, may lead to systems breakdown. Second, one element in a widely ramified set of institutions may fail, causing the whole system to fail. The Barings Bank failure