

Social proof and decision-making in aviation

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Abstract

Several accident reports were examined to investigate how a pilot's decision-making is influenced by the decisions made by pilots flying in her/his proximity. Among all the possible theories on influence the concept of social proof (Cialdini, 1993) was used, one that seems particularly appropriate for the analysis of accidents that occurred under deteriorating weather conditions in high-density terminal areas. In the paper it is hypothesized that, under those conditions, a very critical moment occurs when pilots should start making no-go or divert decisions after a stream of successful takeoffs and landings has been conducted. The specific goal of the analysis was twofold. The first was to understand through which mechanisms social proof may jeopardize aviation safety. The second was to show in detail the effect of social proof on the decision-making of an individual pilot in the discussed scenario. Following an examination, potential streams of research are highlighted that may yield significant results in this area.

Introduction

Between 1975 and 1994, four major US airline crashes were attributed to the captains' decision to continue or initiate flight into severe wind shear conditions. This paper provides a broad view of those accidents by considering social psychology dynamics that may have affected the pilots' decision making in those settings, potentially leading them to decisions that were, ex-post, deemed incorrect (Dekker, 2002). Specifically, among all the possible theories of influence, the problem was framed in terms of Cialdini's (1993) concept of social proof, one that seems particularly useful in the analysis of accidents that occurred under deteriorating weather conditions in high-density terminal areas. In the paper, after introducing readers to basic concepts of weather related decision making in aviation, literature is reviewed that could help explain the decisions made by the flightcrews involved in four major airline accidents in which this type of issue seemed to play a role – Eastern 66, Pan Am 759, Delta 191 and USAir 1016. Further to reconstructing the accidents, two concepts are examined that may be relevant for the study of weather related decision-making in aviation. First, why may social proof endanger aviation operations in the case of arrivals/departures to/from busy airports under deteriorating weather conditions? Second, how does social proof impose a bias on the weather decision making of pilots operating in high density terminal areas?

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