

Aviation Psychology and Applied Human Factors: The effect of mood on performance in a non-normal situation.

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Abstract The effect of mood on performance everyday situations studied and the results commonly reveal a mood-congruence relationship. However, little is known about the effect of mood on performance in non-normal situations such as those experienced during an unscheduled event. The study investigated whether induced mood (positive or negative) influenced performance during an unscheduled aircraft evacuation. Forty-five participants (15 female) with an average of 21.9 (SD=3.96) years were randomly exposed to either positive or negative mood facilitation. Following this, all participants watch the same preflight safety video, and then had to conduct an unscheduled evacuation following a simulated water ditching. Participants exposed to a positive mood manipulator were found to commit fewer errors during the evacuation exercise and completed the evacuation in less than half of the time taken by participants who were expected to a negative mood manipulator. In safely-critical environments such as aviation, those results highlight the advantages of creating an atmosphere or environment that induces positive moods.



Methods

The research was conducted in two stages. The first stage tested the efficacy of the mood manipulator, while the second stage tested the effect of the mood manipulator insite, namely, it effect on performance during and unscheduled evacuation of an aircraft. While both stages could have been incorporated into one experimental sequence, it would have required the movement of mood three times, as opposed to two; the third time would be part way through the experimental sequence, thereby disrupting the natural flow of events during the unscheduled aircraft evacuation, hence jeopardizing the applied objective (i.e. ecological validity) of the research.



Background



The effects of mood performance is well documented. Pleasant/positive moods such as happiness or clarion have been shown to improve intellectual performance (i.e., verbal and qualitative ability; Albaracin & Hart, 2011), task interest (Hirt, Melton, & Harackiewicz, 1996), self-perceived creativity (Montgomery, Hodges, & Kaufman, 2004), teamwork (Barsade, 2002), desicion-making (Barsade & Gibson, 2007), and life meaningfulness (King, Hicks, Krull & Delgaiso, 2006). Within teams, pleasant moods (i.e. Happy) have been shown to improve communication skills such as anticipatory communication patterns and detail of verbal responses (Pfaff, 2002). Happy people are also less sensitive to threats within their work environment, less defensive or cautious with their colleagues, and more optimistic and confident (Cropanzano & write 2001). By contrast, unpleasant/ negative moods such as saddness or sorrow have been shown to adversely affect: desicion-making in terms of quantity of food eaten (Tice, Bratslavsky & Baumeister, 2001); affective states, information processing, and task performance (Friedman, Forster, & Denzle, 2007) ; success and motivation of female rowers (Raglin, Morgan, & Luchsinger, 1990); and team process including performance (Jordan, Lawrence, & Troth, 2006)> However, the relationship between mood nd performance is not always in mood-congruence direction.

Results- Stage 1

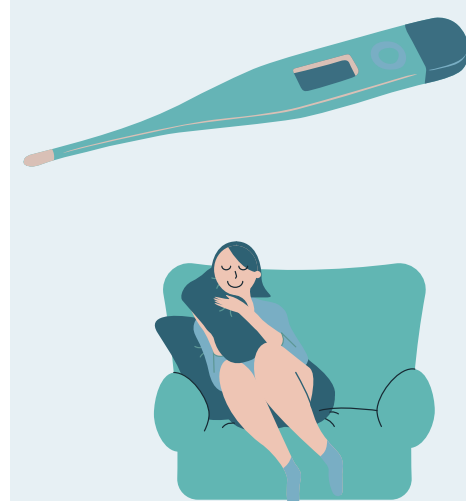
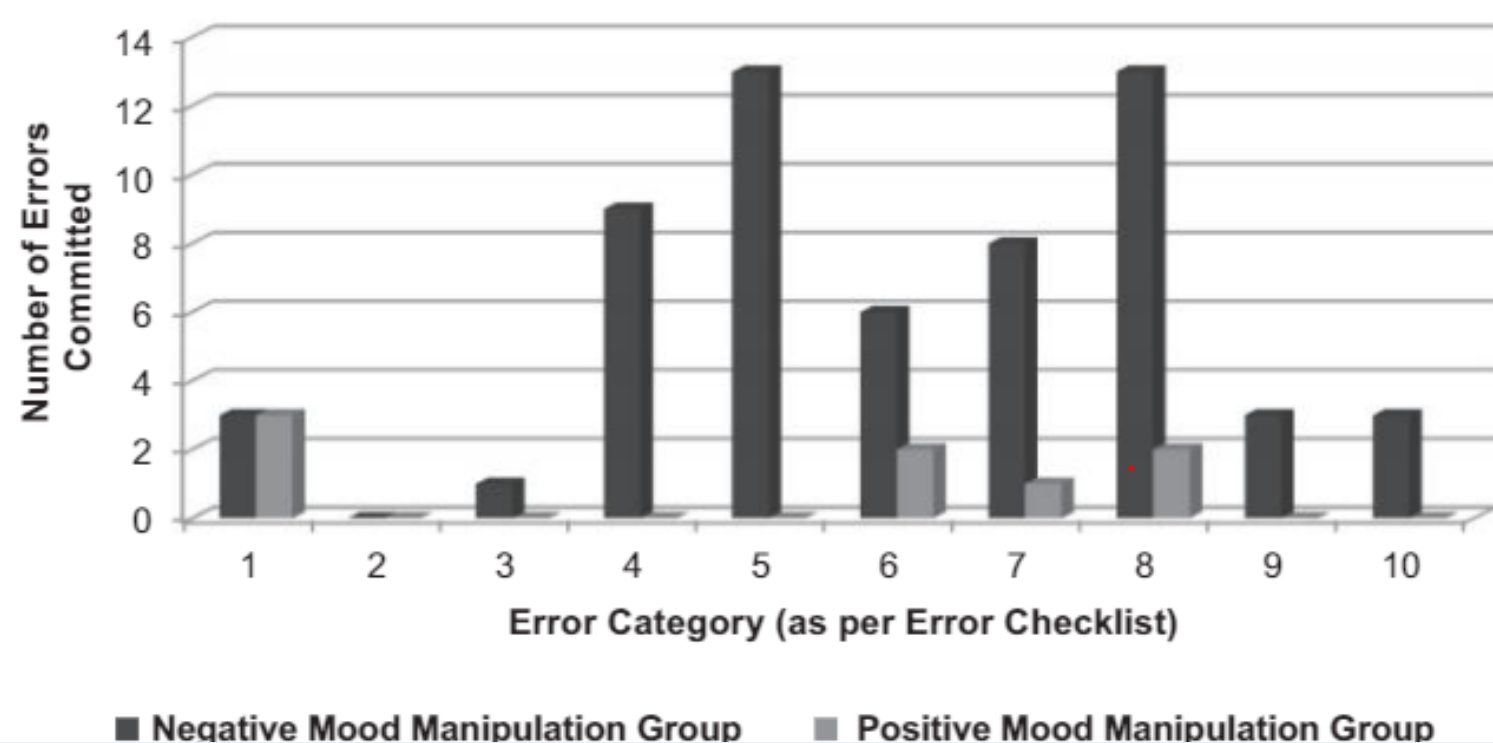
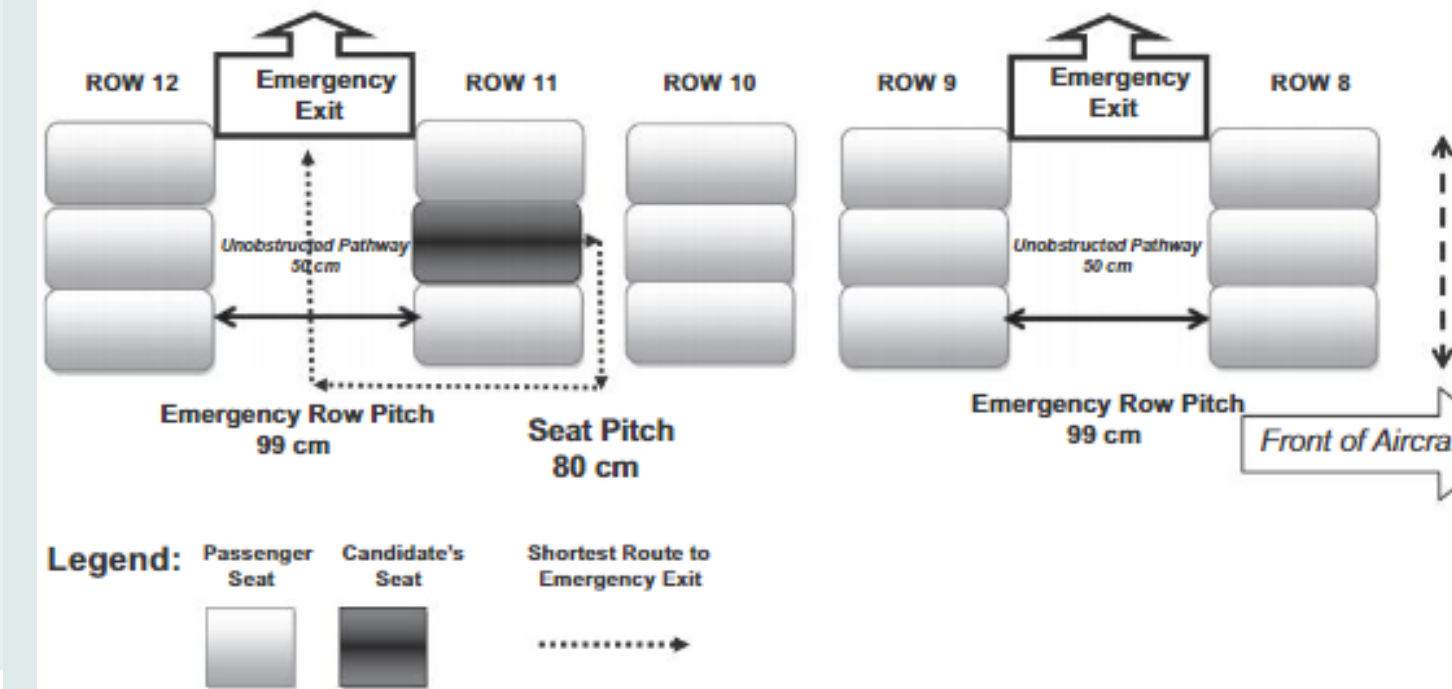


Table 1. Mood state before and after exposure to mood manipulation, including standard deviation and effect size for each experimental group

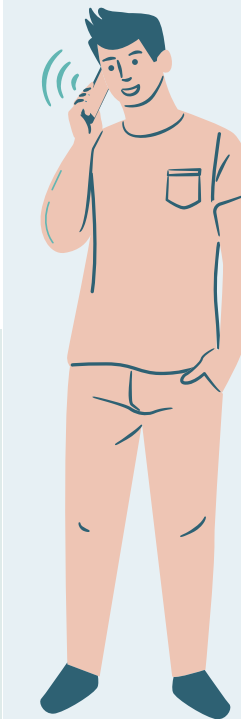
Mood state	Positive			Negative		
	Before (SD)	After (SD)	Effect Size	Before (SD)	After (SD)	Effect Size
Depression	0.27 (0.50)	0.32 (0.61)	0.09	0.32 (0.43)	1.10 (0.96)	1.13
Vigor	1.52 (0.97)	1.52 (0.99)	0.00	1.36 (0.82)	1.37 (0.75)	0.01
Anger	0.23 (0.42)	0.24 (0.49)	0.02	0.29 (0.40)	1.12 (0.99)	1.17
Tension	0.46 (0.46)	0.97 (0.78)	0.82	1.03 (0.88)	1.73 (0.96)	0.87
Confusion	0.41 (0.40)	0.71 (0.66)	0.57	0.81 (0.67)	2.53 (1.18)	1.86
Fatigue	0.77 (0.73)	0.69 (0.72)	0.11	0.86 (0.83)	1.62 (1.09)	0.79
TMD	24.63 (2.18)	25.41 (2.89)	0.31	25.86 (2.74)	30.73 (4.27)	1.39

Notes. Total Mood Disturbance (TMD) score calculated using the formula Depression - Dejection + Tension - Anxiety + Anger - Hostility + Fatigue - Inertia + Confusion - Bewilderment + (24 - Vigor - Activity). Effect size calculated using Cohen's d.

Results- Stage 2



Discussion



The results from the present research suggest that the effects of mood on performance are similar irrespective of the context or situation in which performance is examined. Moreover, performance in a normal situation such as an scheduled evacuation of an aircraft revealed that individuals in the negative mood and manipulation group, in the terms of the time to complete the evacuation. Similarly, participants in the participants in the positive mood manipulation group; however, mood in the positive , mood did change in the desired direction.

Application and Future Research

From an applied perspective, these results have important implications. Moreover, consider the situation this study was attempting to replicate , namely an emergency ditching shortly after take-off and not long following the preflight safety brief; a situation similar to that recently experienced by US Airways flight 1549 that made the emergency landing in the Hudson River (National Transportation Safety Board, 2010)