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Title

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Permalink

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 27(27)

ISSN

1069-7977

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Publication Date

2005

Peer reviewed

The Effect of Emotion on Syllogistic Reasoning in a Group of War Veterans

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The effect of emotion on deductive reasoning has recently become an area of interest in empirical research. Several studies have now provided evidence for a suppression effect of emotion on logicality (e.g., Oaksford, Morris, Grainger, & Williams, 1996). For example, on a conditional inference task, Blanchette & Richards (2004) observed that participants were less likely to provide normatively correct answers when reasoning about emotional, compared to neutral stimuli.

While results have been consistent, most studies have examined relatively mild levels of emotional intensity, either through laboratory-induced moods, or by comparing emotional and non-emotional contents. There has been little research examining deductive reasoning in the context of real-life, and possibly more intense emotional experiences. In this study, we examine the reasoning behaviour of war veterans on syllogisms that are either neutral, generally emotional, or emotional and specifically related to combat experiences.

Methodology

Thirty British war veterans participated in this study. They had varied deployment experiences, ranging from the Second World War to the 1992 Gulf War. Age ranged from 40 to 89, ($M=67.6$, $SD=17$).

Syllogisms were prepared based on eight different figures (4 valid, 4 invalid). Each version was presented with each of three content types : Neutral (e.g. *Some schools are nice buildings...*), Emotional/general (e.g. *Some sick children have leukaemia...*), and Emotional/specific (e.g. *Some friendly fire incidents result in death...*). For each, two versions were created, one with believable and one with unbelievable conclusions. These were included in separate booklets, given to different participants. Thus, participants reasoned about 24 problems. Participants had to determine whether the conclusion logically followed from the premises. Participants also completed subscales of the DRR1 (King, King, & Vogt, 2003) which provides an index of the intensity of combat experiences.

Results

Accuracy scores were compared across congruent (valid and believable; invalid and unbelievable) and incongruent problems (valid and unbelievable; invalid and believable). A 3x2 nested ANOVA was carried out on the proportion of accurate responses.

Participants were more accurate on congruent ($M=.66$, $SD=.15$), compared to incongruent problems ($M=.39$, $SD=.16$), $F(3,19)=20.6$, $p<.001$.

Accuracy also differed based on content type. Participants were most accurate when reasoning about emotional/ specific

problems, compared to emotional/general, and neutral problems, $F(2,38)=3.31$, $p<.05$. The two effects did not interact ($F<1$).

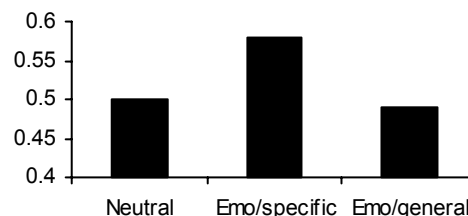


Figure 1. Effect of content type on accuracy

We examined the relationship between intensity of combat experience and the extent to which participants' responses were more accurate for emotion specific problems (accuracy emotional/specific – accuracy neutral). There was a significant negative correlation, $r=-.40$, $p<.05$. The more intense participants' combat experiences were, the less they showed an advantage in reasoning about emotion specific problems.

Conclusions

This is one of the first studies to investigate deductive reasoning about highly emotional, personally significant contents. Results showed the opposite of a suppression effect, in contrast with previous research. Participants were more likely to provide normatively correct answers when reasoning about emotional contents that were specifically related to strong emotional experiences. This advantage in reasoning about emotional contents diminished with increasing levels of combat experiences.

Acknowledgments

This study was conducted with the support of a British Academy grant awarded to Isabelle Blanchette (SG-35169).

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