

## **Vocal expressions of emotion and positive and negative basic emotions**

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**Objective:** Previous studies have indicated that vocal and facial expressions of the 'basic' emotions share aspects of processing. Thus amygdala damage compromises the perception of fear and anger from the face and from the voice. In the current study we tested the hypothesis that there exist positive basic emotions, expressed mainly in the voice (Ekman, 1992). Vocal stimuli were produced to express the specific positive emotions of amusement, achievement, pleasure, contentment and relief.

**Design & Methods:** Participants performed a categorisation task (labelling each emotional sound) and a set of rating tasks (rating each stimulus on a seven-step scale). Twenty English and 20 Swedish participants were tested in their respective languages, to address aspects of linguistic influence (e.g. Swedish has no word meaning 'amusement').

**Results & Conclusions:** English and Swedish subjects categorised the sounds very similarly, and were generally highly successful at labelling sounds correctly. However, there was some systematic confusion between the categories contentment and pleasure. From the ratings study, each class of sound was rated highest when rated for itself. However, when rated for contentment, sounds of pleasure and achievement were rated as high as or higher than contentment sounds. Ratings for arousal, valence and approach were highest for achievement, also high for amusement sounds and lowest for relief. Principal component analysis showed two factors accounting for 80 per cent of the variance. These did not conform to the circumplex model of emotion. These data provide support for Ekman's initial suggestion and suggest that the concept of basic emotions might be extended to include positive emotional states.

*Proceedings of the British Psychological Society, Volume 12, No 2, August 2004*