Emotionally mediated crossmodal correspondences affect classification performance
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Introduction

Previous research has provided evidence that cross-modal music-to-color associations are mediated by emotion. That is, there is a high correlation between the emotional ratings of the music and the emotional ratings of the colors chosen to go with that music [1]. Further experiments found similar music-to-face and face-to-color relationships.

These results were replicated with a wide range of genres [2], as well as lower level auditory stimuli including melodies [3], intervals, timbres [4], and natural sounds [6], and alternative visual stimuli such as texture [5] and abstract art [6].

Several more traditionally studied crossmodal correspondences (e.g. pitchkey) have been shown to impact the efficacy of human information processing, most commonly in the form of effects on classification performance (see [7] for review).

Question: Do emotionally mediated crossmodal correspondences affect classification performance?

Methods

![Stimuli Diagram]

**STIMULI**

**VISUAL**

Colors: Happy, Sad

Faces: Happy, Sad

Timbres: Happy, Sad, Major, Minor

**AUDIO**

Intervals: Perfect 4th, Perfect 5th

![Classification Task]

Visual and auditory stimuli are presented simultaneously.

Stimuli are either emotionally congruent or incongruent.

Participants indicate as quickly as possible the emotionality of the visual stimulus (Task A) or the auditory stimulus (Task B).

Experiment 1

**Color / Timbre:** Participants classified the emotion (sad / happy) of either colors (Task A) or instrumental timbres (Task B). Tasks and response keys were counterbalanced.

![Experiment 1 Diagram]

**Experiment 2**

**Color / Intervals:** Experiment 1 was replicated using musical intervals as auditory stimuli.

![Experiment 2 Diagram]

**Experiment 3**

**Faces / Timbre:** Similar results using emotional faces is consistent with emotion mediation.

![Experiment 3 Diagram]

**Experiment 4**

**Faces / Intervals:** Results of experiment 3 were replicated using musical intervals (e.g., major vs. minor thirds).

![Experiment 4 Diagram]

CONCLUSION

These results indicate that emotionally mediated crossmodal associations have consequences for information processing, as demonstrated by effects on classification speed and accuracy.

The presence of visual stimuli often affects processing of auditory information, but not always vice versa.

Results from experiments pairing faces with audio suggest emotion mediation rather than correspondences between low-level stimulus dimensions.

Future work should explore:

1. alternative emotional dimensions such as Angry / Not Angry,
2. whether crossmodal emotion congruency also modulates multisensory perception (i.e. facilitates binding).

REFERENCES


