

# The Emotional Characteristics of the Piano, Celeste, and Harp with Different Pitch and Dynamics

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## Introduction

- **Instrument:** Piano, Celeste, Harp.
- **Factors:** Pitch, Dynamics.
- **10 Emotions:** Happy, Romantic, Comic, Calm, Shy, Heroic, Angry, Sad, Scary, Mysterious, Scary.

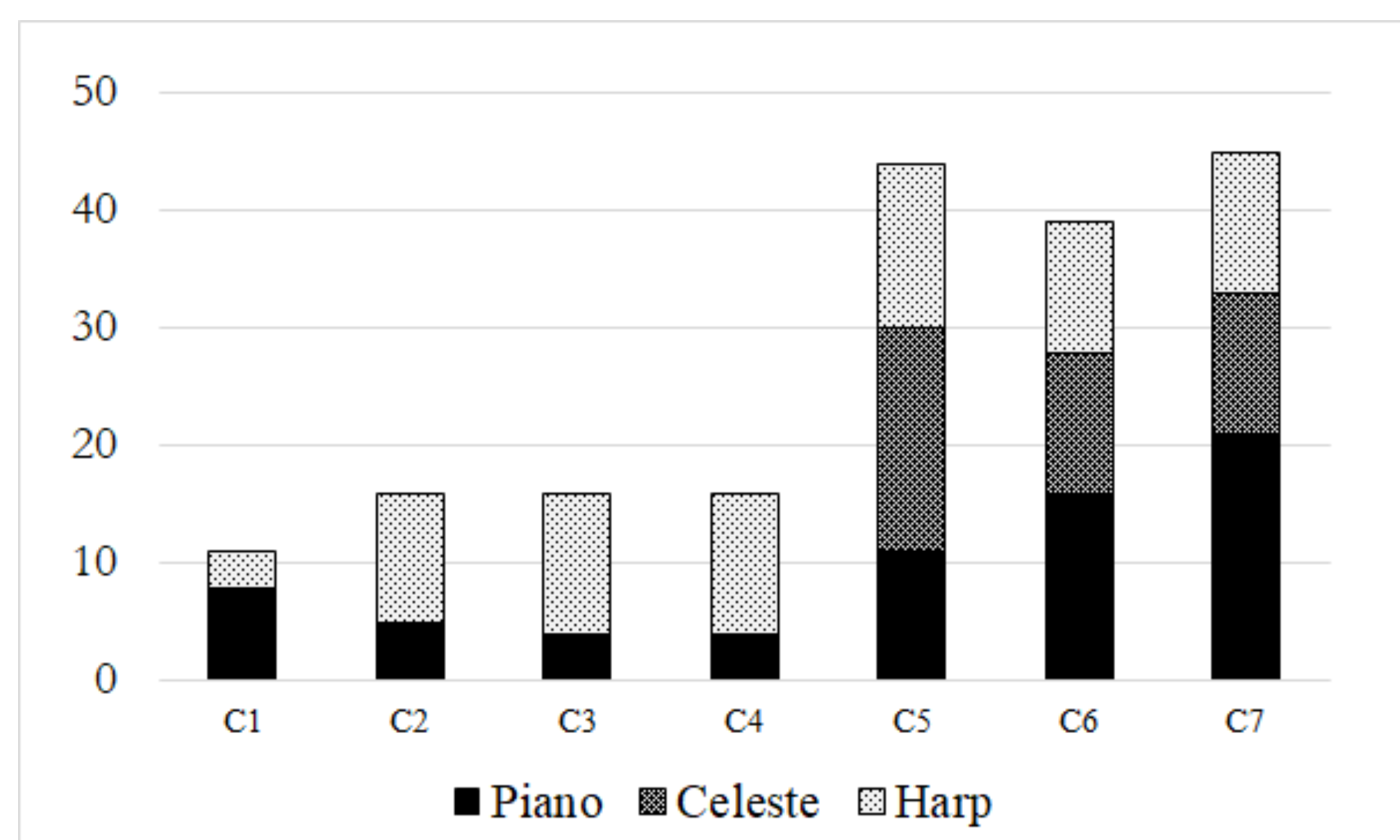
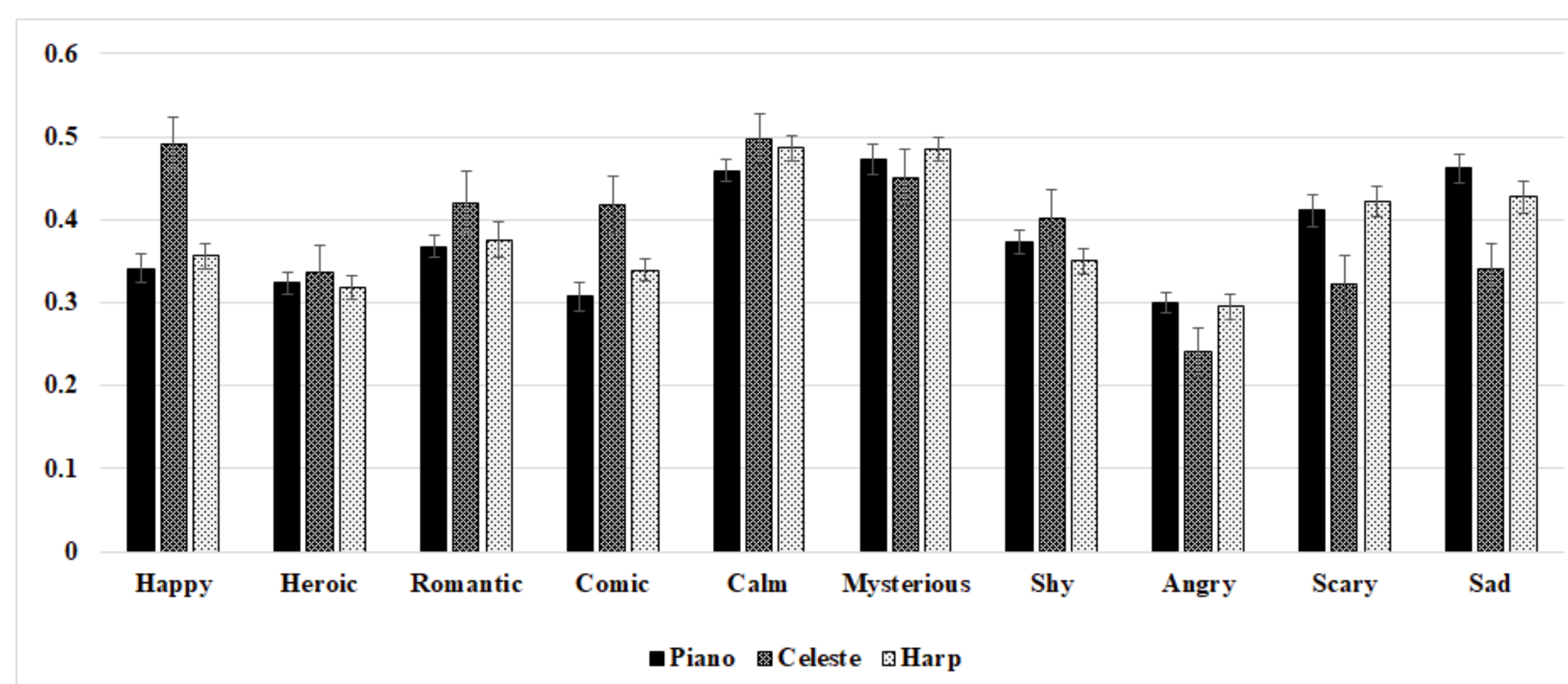


- **Objective:** comparing how the emotional characteristics of the piano, celeste, and harp differ with pitch and dynamics. (all three instruments have some similarities in the sound producing mechanism).

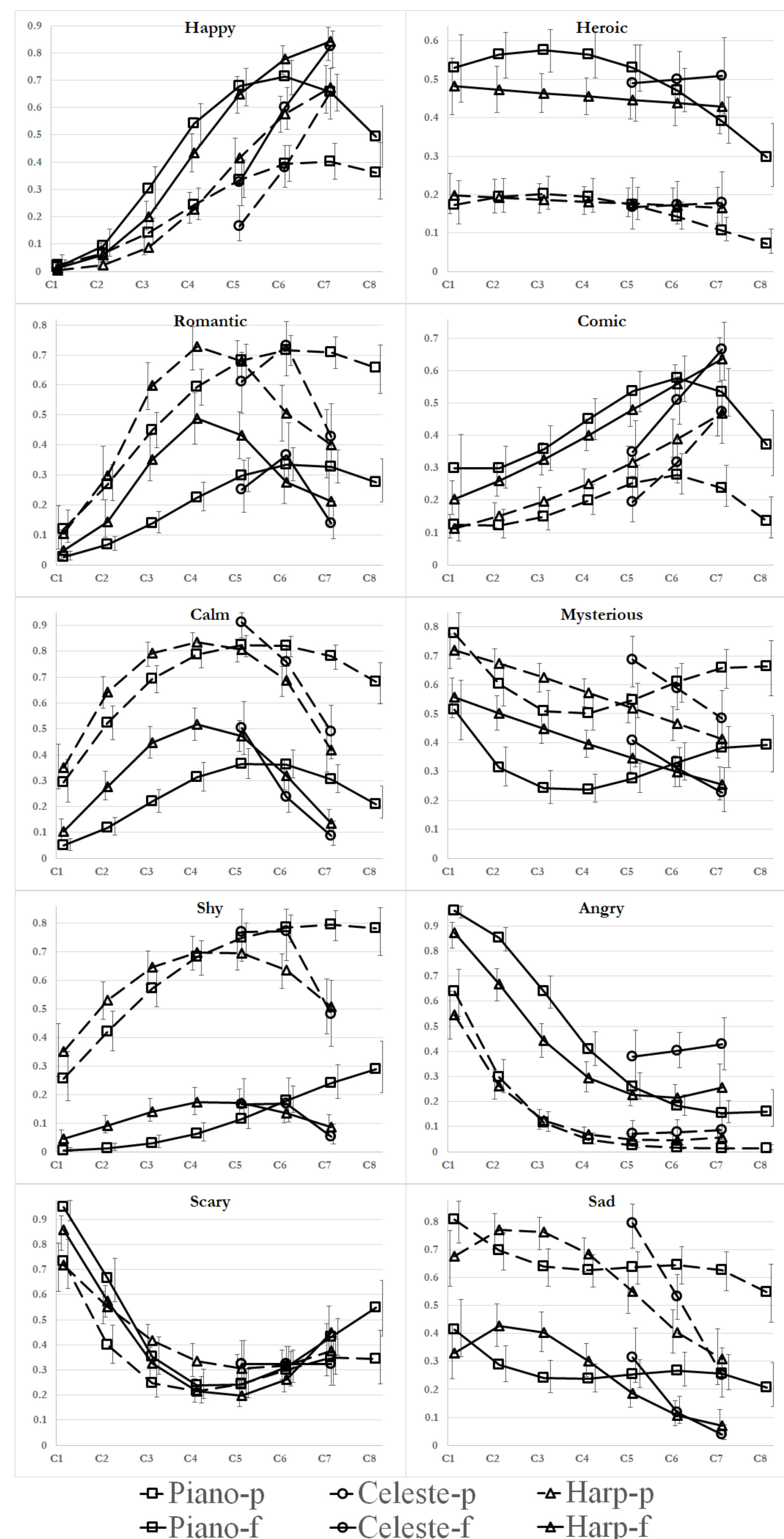
## Stimuli:

- **Pitch**
  - Piano: C1, C2, C3, C4, C5, C6, C7, C8.
  - Celeste: C5, C6, C7.
  - Harp: C1, C2, C3, C4, C5, C6, C7
- **Dynamics:** *forte* (f) and *piano* (p) for each note.
- **Total:** 36 sounds (18 notes × 2 dynamic levels), each one is 1s.

## Differences Between the Individual Instruments

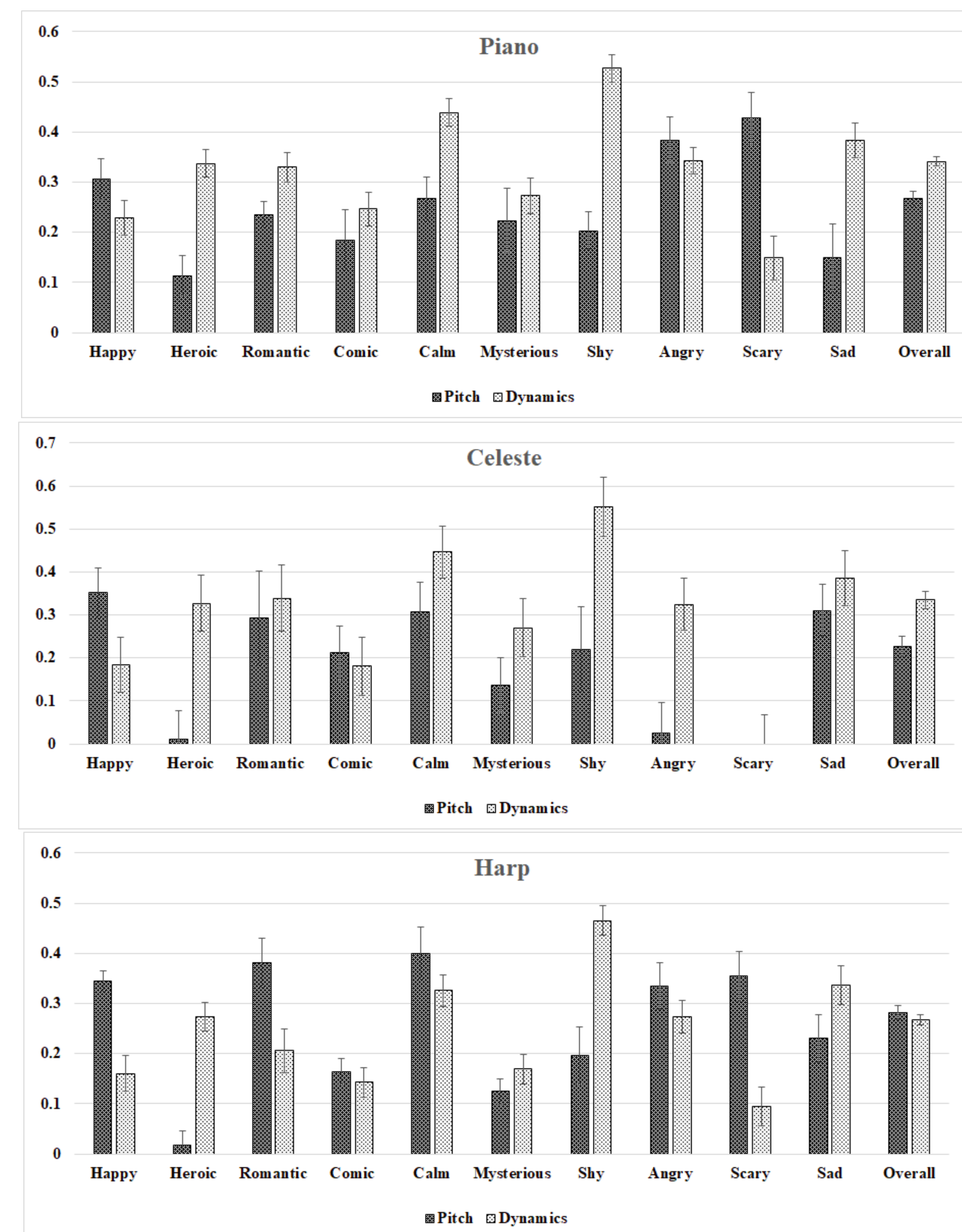


## Results of Instrument, Pitch, and Dynamics



- **Pitch**
  - **Arched Shape:** Happy, Romantic, Comic, Calm, Shy;
  - **Decreased:** Heroic, Angry, Sad;
  - **Asymmetric U-Shape:** Scary;
  - **Nor Clear:** Mysterious.
- **Dynamics:**
  - **Loud Notes:** Happy, Heroic, Comic, Angry;
  - **Soft Notes:** Romantic, Calm, Mysterious, Shy, Sad;
  - **Same:** Scary.

## Overall Relative Strength of Pitch and Dynamics



- Overall, dynamics was more important for the piano and celeste, while pitch and dynamics had about an equally important effect for the harp.
- For the piano, pitch was the most influential factor for Happy, Angry and Scary.
- For the celeste, pitch was the most influential factor for Happy. The effects of both pitch and dynamics were near zero in Scary.
- For the harp, pitch was the most influential factor for Happy, Romantic, Comic, Calm, Angry, and Scary.