

# E-motions in the visual arts: exploring the methods



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**E-MOTIONS.** Last year (Actis-Gosso and Zavagno, ECVF 2013 now in Actis-Grosso and Zavagno, *Art and Perception*, in press) we presented an experiment aimed at preliminary testing the hypothesis according to which facial expressions related to specific emotions (i.e. EFEs), such as anger, fear, and joy, incorporate a sense of dynamicity and are used to enhance the representation of motion in static artworks.

We hypothesized that the visually more dynamic emotions are those with 'unstable' facial expressions, i.e., expressions that imply muscular tensions that cannot be held for long (e.g., rage, grief, amazement: **E-motions**) whereas static emotions are those which can last and even represent a constant facial feature in some people. To test this hypothesis we chose eleven static artworks from which we derived twelve human figures that were manipulated to produce two sets of stimuli: headless bodies (Set 1) and bodiless heads (Set 2). Participants were asked to rate each stimulus for eight emotions (such as joy, sadness, surprise) and perceived dynamicity. As expected, we found that some facial emotions (i.e., disgust, anger and fear) are positively related to the dynamicity attributed to the artworks: those emotions are the more sudden ones and thus the more 'unstable'.

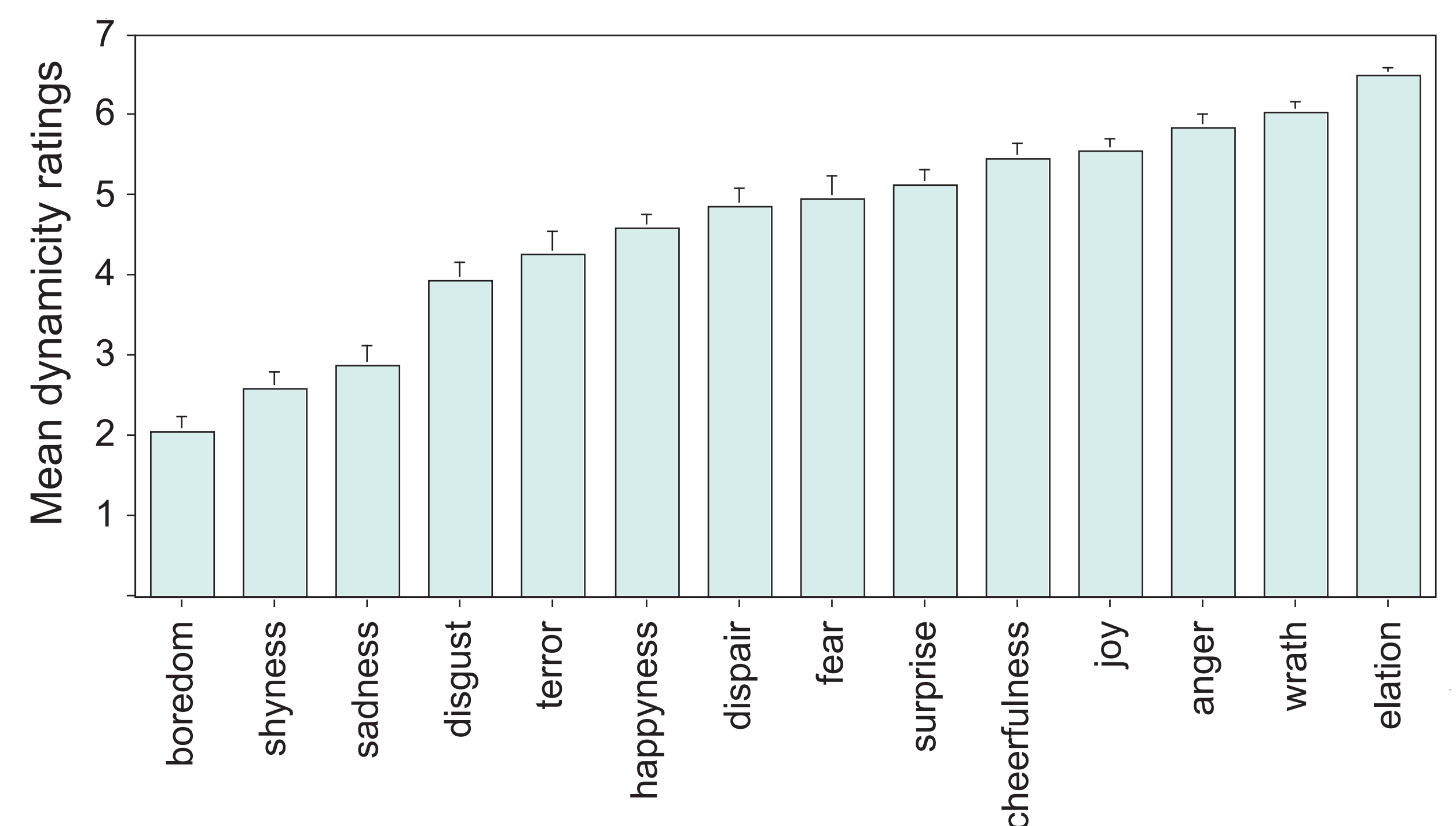
*This year we refine our paradigm by facing some methodological and conceptual aspects.*

## Experiment 1

It appears necessary to have participants rate the implicit dynamicity inherent to the terms we intend to use in future experiments, without any connection to visual stimuli. This step is necessary because positive and negative emotions may be conceptualized in different ways in terms of dynamicity based on the degree of arousal with which they are usually experienced.

Participants (n=50) have been asked to rate the implicit dynamicity inherent to 14 terms indicating different emotions, without any connection to visual stimuli. We decided to test more words than in our previous studies (i.e. 14 vs. 8) because we had the impression that some words do not fully describe the emotions depicted by the images; for example, words such as 'joy' and 'sadness' are by nature ambiguous as far as arousal is concerned: terms like 'cheerfulness' and 'despair' appear more suitable, as they imply a higher degree of arousal. Speaking about 'joy', the term may stand for a steady sense of happiness, or for cheerfulness or even for euphoria and enthusiasm, emotions that are usually accompanied by sudden motion.

The words we tested were of course in Italian: the English translation is not always perfectly overlapping the original meaning, and more than one alternative is possible. Hence, data ought to be considered valid only for the Italian words.

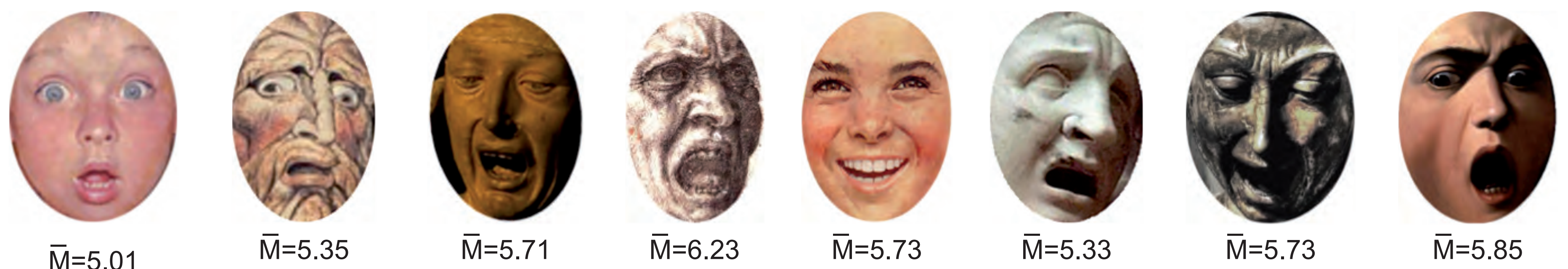


## Experiment 2

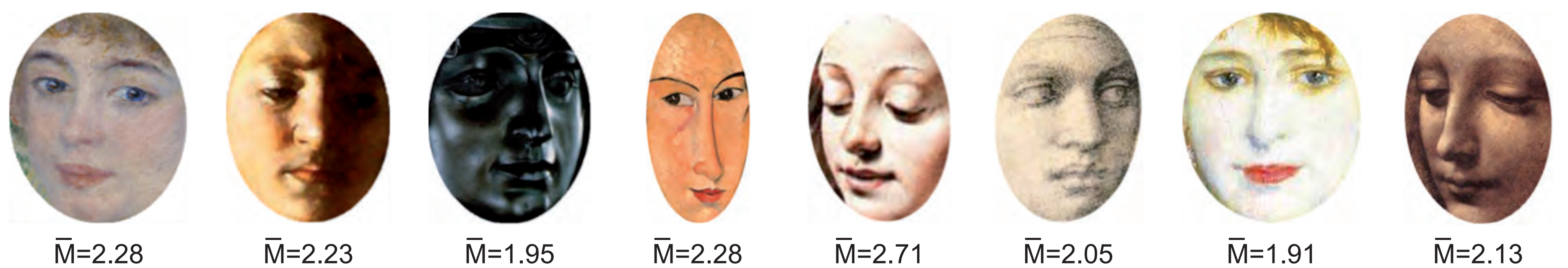
We need to build a rich database of EFEs and corresponding headless bodies derived from artworks. In particular, the bodiless heads showing EFEs should be normalized in size and color palette and comprise only frontal and three-quarter portrait poses. Each EFE should be classified in terms of the emotion(s) it depicts.

We began creating such data base. We are still in the basic testing stage, and for now we have collected 42 EFEs and had a different group of participants (n=60) rate them in terms of perceived dynamicity without any reference to emotions.

Sample of EFEs with high dynamicity scores



Sample of EFEs with low dynamicity scores

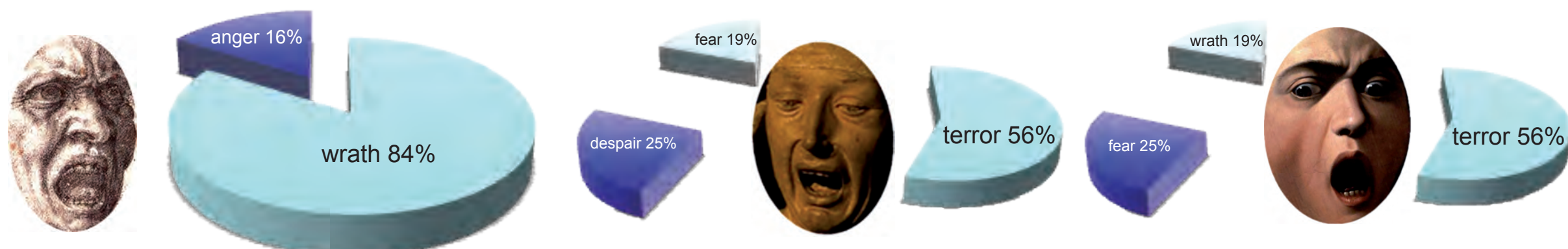


## Experiment 3

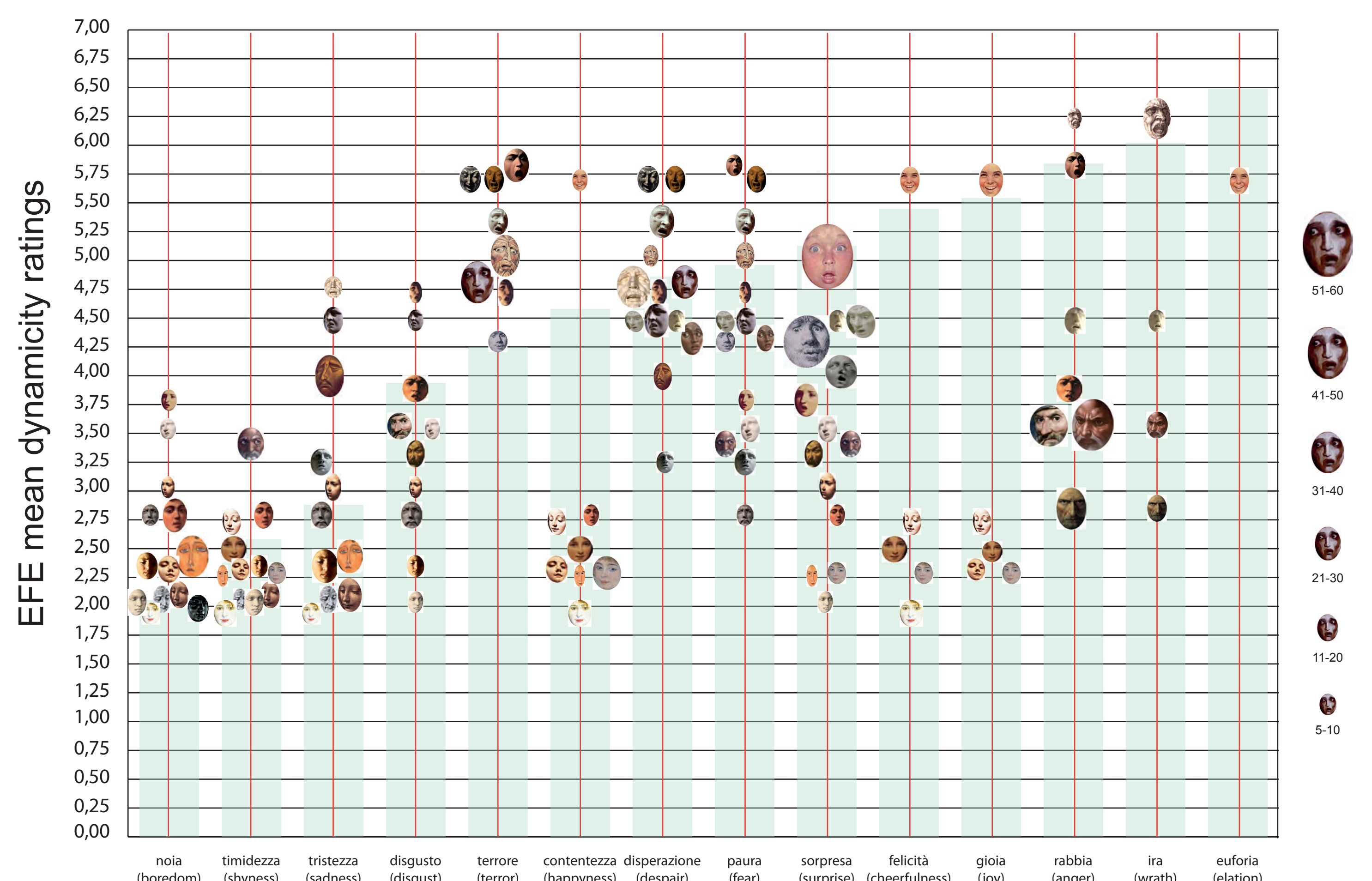
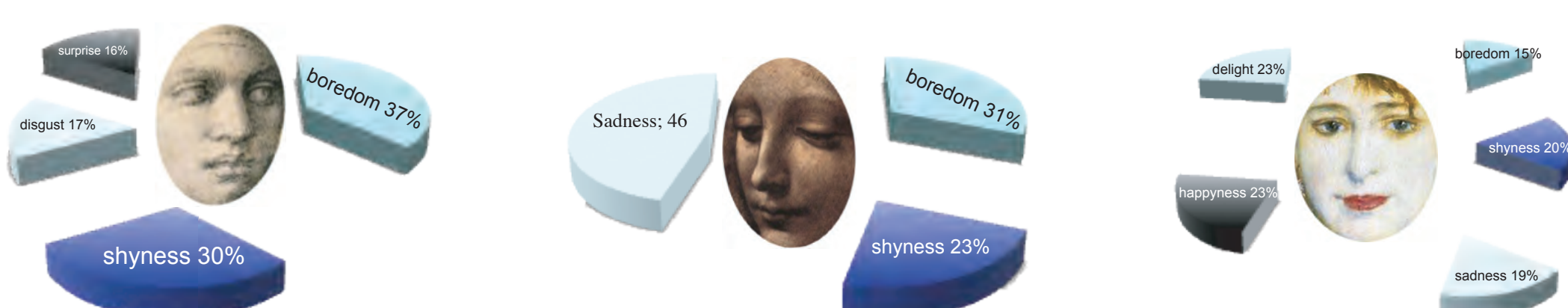
We need to test our instruments and method by testing the fit between word dynamicity ratings, EFEs dynamicity ratings, and EFEs emotion classifications.

Another group of participants (n=60) performed a forced-choice procedure, in which they were asked to choose, for each face of Experiment 2, a single emotion as indicated by the 14 terms used in Experiment 1.

High dynamicity



Low dynamicity



From the synoptical view it appears evident that participants rated each face as showing a mix of different emotions, with very few exceptions. This is particularly true for faces with low scores in dynamicity. There is also a discrepancy between dynamicity ratings of EFE's classified under certain emotions and the dynamicity evoked by the corresponding words (e.g. happiness or anger). Participants claimed that they did not always find the exact match for the emotion depicted. This informs us that we need to test a larger number of words to build a comprehensive scale of the degree of dynamicity evoked by emotions.