Testing Emotions In Orange Soda, Flavored Milks, and Convenience Cheese: Men Versus Women

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Abstract

Previous work has suggested that men and women may experience the same emotions, but with different intensities, during sensory testing. If this is correct, perhaps the method by which they are tested could magnify the differences or similarities between the two genders.

Prior to testing, 216 subjects were given poster boards divided into twelve boxes each labeled with an emotion and asked to attach a picture they believed best represented that emotion. Subjects were randomly assigned a treatment tool: 1) My Pictures (subject's completed poster board), 2) Predefined pictures, or 3) emotion words only. Testing was conducted over three days, with one product category tested per day. Emotion questions were asked at the beginning and end of the consumption experience.

The results indicated a significant difference between males and females across all product categories and methods combined (p=0.0385), with males having slightly larger variability within their responses than women. Comparing emotion method across all product categories, the change in emotion was significant between males and females for the My Pictures method (p=0.0249), but neither Predefined or words only methods were significant (p=0.3421 and p=0.2362, respectively). There was no significant difference between genders for each method when compared within each category (p>0.05). These results imply that the My Pictures method may identify differences between genders suggesting that a consumer generated image testing method could be used for future gender based emotion testing.

Keywords: Emotion, Methodology, Gender

Objectives

- To determine if the change in emotional response differs by gender through use of three different emotion testing methods and different food product categories.
- To determine which (if any) of the testing methods is able to detect a difference between gender.

Hypothesis

- A significant difference will be found between male and female emotion responses.
- An image related emotion testing method will be capable of detecting a significant difference between genders while the words only method will not.

Introduction

The use of emotion testing has greatly increased recently with development of methodologies and new applications (King, Meiselman, & Carr, 2010; Macht, 2008) and a variety of different approaches for emotion testing among consumers have been used (Thomson, Crocker, & Marketo, 2010; Desmet & Schifferstein, 2008). Other studies have found significant differences in emotional expressions or responses between males and females (Gard & Kring, 2007; Kring & Gordon, 1998). Studies comparing the relationship between emotion and gender in the context of food are often observing only abnormal eating behaviors (Costanzo et al., 1998; Macht, Gerer, & Ellgring, 2003), and currently none have used emotion images to elicit emotions amongst consumers. By using males and females from the general population this study hopes to acquire new information about the relationship between gender and change in emotional responses in the context of eating. This study used three different emotion testing methods (two image related, and one word related) across three food product categories to determine if: 1) a significant difference in change in emotions between males and females is detected, and 2) which (if any) of the tested methods is able to detect a difference between genders. Previous studies suggest an underlying difference in regard to emotions between males and females; this study anticipates finding a significant difference between genders.

Materials and Methods

Products and Emotions

The overall testing protocol (Figure 1) shows the testing locations, testing methods and questionnaire skeleton. Three product categories were chosen for the study, each sample within the product category was selected based upon a series of QMA/Napping exercises where products with different textural attributes/experiences were selected. Three different emotion methods were used for testing: 1) My Pictures (Figure 2), 2) Predefined pictures (Figure 3), and 3) words only. The testing methods were randomly allocated to the subjects upon arrival at the testing sights; randomization occurred separately for each day of testing. The My Pictures method consisted of 12 emotion images which had been selected by the subject. The Predefined pictures method had the same 12 emotions, but images which had been selected by researchers. The emotions used for testing included: caring, excited, sociable, self-confident, surprise, detached, fatigued, inferior, judgmental, raging, sad, and fear. These emotions were selected based upon extensive research of emotions across 4 countries (4 languages) and approximately 500 emotions and includes positive, neutral, and negative emotion (Thomson & Crocker, 2011).

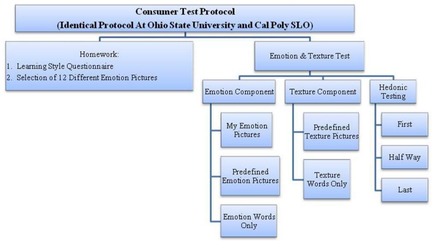
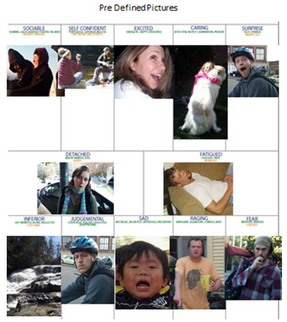


Figure 1: Study's overall testing schematic including locations, pre-test day requirements, and questionnaire.



Figures 2: Example of My Pictures method (above); each My Picture method was unique.



Figures 3: The Predefined pictures method (right); the Predefined picture method was the same, pictures did not change.

Emotion and Liking Testing

Subjects at both locations were asked to indicate their emotional state by Choose All That Apply (CATA) prior to testing the sample. The consumer was then directed to answer liking questions related to the sample at the first taste and half way through consumption. At the end of sample consumption, the liking questions and their end emotional state (CATA and POMS). Sample sets were randomized within and across all subjects and each subject saw all samples.

Results

A significant difference in the change in emotion by gender was determined when compared across all products and emotion methods (p=0.0385), with males having non-significant higher variability in their emotional responses than females (Figure 4). When comparing change in emotion by gender and by emotion method separately (Figures 5 & 6), a significant difference between change in emotion by gender in the My Pictures method was found (p=0.0249). No significant difference was seen at the α=0.05 level for change in emotion by gender in the Predefined picture method or words only method (p=0.3421 and p=0.2362, respectively). There was no significant difference (α=0.05 level) between change in emotion and gender when compared by food product. The 2 (gender) x 3(emotion method) MANOVA yielded a significant whole model (p=0.0047), a significant main effect for gender (p=0.0333), and emotion method (p=0.0256), there was not a significant interaction effect (p=0.1368). The 2 (gender) x 3(food product category) MANOVA yielded a significant whole model (p<0.0001), a significant main effect for gender (p=0.0338), significant food product category (p=0.0001), and no significant interaction (p=0.3210).

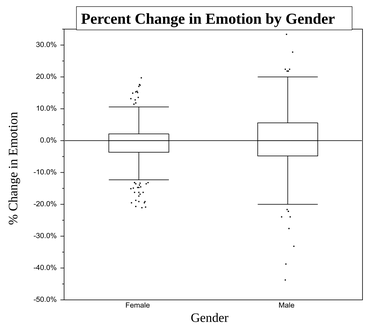


Figure 4: Change in Emotion by Gender across all product categories and emotion testing methods; males appear to have greater variability in their change in emotion.

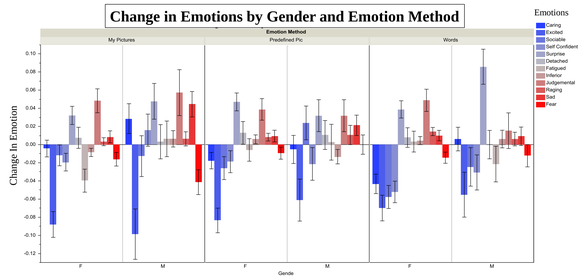


Figure 5: Change in emotion by gender appears to vary by both the emotion and emotion method

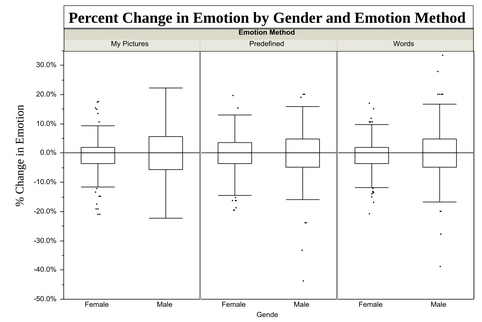


Figure 6: Change in the frequency percent of emotions by gender and emotion method; males tend to appear more variable in their emotion responses than females.

Conclusions

1. **The My Pictures method is the most sensitive emotion testing method compared to the other two methods considering it was the only method able to determine a significant difference in change in emotion between males and females.**
2. **A significant difference in change in emotion by gender was determined when compared across all three emotion testing methods, with higher variability in emotion responses amongst males.**
3. **The Predefined pictures and words only methods appear to not be as sensitive to differences between groups as the My Pictures method.**
4. **Second test hypothesis was confirmed with the My Pictures method, but not with the Predefined pictures.**
5. **The contextual connection to emotion images may be a better emotional anchor for consumers than universal emotion images or words only.**

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