Food and Wine Pairing:  
The Effect of Education and Test Repetition(95,443),(907,903) on Hedonic and Intensity Ratings

HARRINGTON Robert, SEO Han-Seok, MIN Jieun  
University of Arkansas, US  
rharring@uark.edu; hanseok@uark.edu; jieunmin@uark.edu

The interactive relationship between food and beverages has been one growing in interest and variety over the past decade. Food and wine pairing has a long history but much of defined match relationships are based on regional pairings, anecdotal evidence and expert opinions (Harrington et al., 2010; Pettigrew & Charters, 2006). These relationships provide an interesting and under-researched area for study whether this research considers the food and wine combinations or the relationship between education and hedonic or intensity ratings. In comparison to general food and wine research, research on the impact of food and wine education has been even more limited. Most studies to date have focused on wine education in general rather than the study of the impact on food and wine appreciation or hedonic perceptions (Taylor et al. 2008).

The purpose of the current study is to assess the differences in hedonic pairing ratings for 2x2 combinations using two wines and two food items. Further, it investigates the impact of food and wine education on perception of match (hedonic ratings) and intensity ratings of wine elements.

Methodology and Results

The study used purposeful selection to create two comparable groups. Both groups were junior and senior-level students at a large mid-western U.S. university. Group 1 were students enrolled in a 16-week food and wine university course. Group 2 were student volunteers that were not enrolled and had not taken the 16-week food and wine university course. Thirty-two (23 females and 9 males) students with an age range between 21 and 33 years (mean age ± standard deviation = 23 ̅ 3 years) participated in this experiment. All participants confirmed that they had no clinical history of major disease and no impairment in smell and taste perceptions.

For the tasting sessions, the researchers selected two wines and two food items that are likely to create two good matches and two mismatches. The two wines included Ruby Port and Sauvignon Blanc; the two food items included dark chocolate and goat cheese. Ruby Port combined with dark chocolate and Sauvignon Blanc combined with goat cheese are thought to be good to ideal matches. Conversely, the Ruby Port with goat cheese and Sauvignon Blanc with dark chocolate should be perceived as significant mismatches based on conflicting taste elements of sweetness level and acidity level as well as texture conflicts when consumed together (Harrington, 2008).

Each participant was asked to complete a questionnaire assessing wine consumption and preferences, level of interest/knowledge in wine, and food and wine pairing experiences. The questionnaire also included demographic information and other factors that might impact study results: overall health status, smell function, taste function, specific health problems (e.g., respiratory disease, diabetes, taste dysfunction, etc.) or allergies to foods, odors or drinks. The survey utilized a Likert-type 9-point scale (e.g., 1 = extremely weak, 5 = neither weak nor strong, 9 = extremely strong) to assess perceived wine flavor strength, sweetness, dryness, sourness, and tannin level, as well as like or dislike level of the wine, food, and food and wine combinations.

Hedonic ratings for pairs of wine and food

There were no significant effects of test repetition (P > 0.05), wine sample (P > 0.05), and food sample (P > 0.05) on the hedonic ratings for pairs of wine and food samples. In addition, there were no significant interactions between test repetition and wine sample (P > 0.05) and between test repetition and food sample (P > 0.05).
However, there was significant interaction between wine and food samples \([F (1, 31) = 12.76, P = 0.001]\). Specifically, hedonic ratings for the pair of Port wine and chocolate were significantly higher than those for the pair of Port wine and goat cheese. In contrast, hedonic ratings for the pair of Sauvignon Blanc wine and goat cheese were significantly higher than those for the pair of Sauvignon Blanc wine and chocolate. These empirical findings provide support for previously assumed general match perceptions across both trained and novice consumers of wine and food (Immer, 2002; Simon, 1996).

**Effects of education and test repetition on ratings**

Interestingly there were no significant effects in intensity ratings of test repetition or grouping (education program or not) on intensity ratings for wine flavor, sweet taste, sour taste, tannic (astringency), and dryness \((P > 0.05)\). Although the wine samples significantly differed in terms of wine flavor \([F (1, 31) = 45.56, P < 0.001]\), sweet taste \([F (1, 31) = 41.90, P < 0.001]\), sour taste \([F (1, 31) = 7.48, P = 0.01]\), tannic (astringency) \([F (1, 31) = 4.32, P < 0.05]\), and dryness \([F (1, 31) = 10.96, P < 0.01]\).

**Conclusions**

The study demonstrated strong match differences among wine and food pairings. Specifically, these hedonic differences were consistent with earlier articulated expectations based on traditional rules and anecdotal evidence. More importantly is that this finding was consistent across groups and test repetition; this demonstrates the strength of these relationships for both novice and more expert consumers. While no significant differences were apparent for education effects, the study demonstrated some practical difference effects with participants in the education treatment able to more accurately assess presence and levels of tannin in the wines in this study when compared to the non-education treatment group and to the education treatment pre-test. The lack of statistical significance is likely to be a function of the lack of power in the tests and small sample size. Therefore, future research should extend this research using a larger sample and additional wine and food combinations.

**References**


**Keywords**: Food and wine; Hedonic rating; Education; Wine Intensity.

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