

# WINE MARKETING THROUGH SENSORY PERCEPTION

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## Abstract

*This article aims to investigate wine marketing studies in connection with multisensory experiences. The study was conducted using a funnel-type search on Web of Science and Scopus indexed papers, following the indications from the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement. The purpose of the meta-analyses was to answer the following questions: (1) Who is the most influential author in wine-related crossmodal perception? (2) Are there proofs regarding the impact of multisensorial experience during wine tastings? (3) Are there proofs regarding the impact of multisensorial experience on wine sales?*

**Keywords:** *wine marketing, wine tasting, cross-modal perception*

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## Introduction

In recent years, there has been increasing empirical research regarding the connections between music and lighting on one side and wine tastings and wine sales on the other. The influence of the multisensory experience is not limited to the wine serving environment but can be an element of added value in promotional campaigns (TV, posters, websites, social media), in retail, classic and online retail (Spence, Puccinelli, et al., 2014) or in wine tourism (Beverland, 2005). The Stroop effect has shown that there is a delay in the reaction between congruent and incongruent stimuli, with semantic and visual information being processed in different areas of the brain. For example, the word red written using a red font will be understood faster compared to green written in red font (Stroop, 1935). Music, especially ethnic music, increases the recall of certain foods or wines related to those regions, whereas classical pieces invoke a perception of higher quality (North et al., 2016; Wen et al., 2020). This review paper aims to improve the understanding of wine marketing studies in connection with multisensory experiences by testing the hypothesis enunciated in the Methodology section.

## The bibliographic databases

Previously owned by Thomson Reuters, Clarivate Analytics' Web of Science is the most well-known bibliographic database and its Journal Impact Factor (JIF) the dominant yet controversial metric in academics for decades (Vanclay, 2012), has been calculated once a year within the Journal Citation Reports (JCR).

Both Scopus and ScienceDirect are owned by Elsevier. Scopus indexes papers (title, abstract, keywords, citations, and other metadata) published by Elsevier or by other publishers, whereas ScienceDirect provides subscription-based access to full papers and books published almost exclusively by Elsevier. Since late 2016, Scopus has offered CiteScore, a journal metric seen as a competitor to JIF. It offers a citation window in the numerator of four years

for documents of the following types: articles, conference papers, book chapters, and data papers (Trapp, 2020).

JCR Impact Factor takes into consideration more document types (including editorial materials) but indexes fewer sources, so impact factors tend to be smaller compared to CiteScores (Okagbue & da Silva, 2020; Okagbue et al., 2020; Trapp, 2020). Furthermore, more journals carry a CiteScore and don't have an Impact Factor compared to the other way around (da Silva, 2020).

## **Methodology**

For this research, I have conducted a systematic study related to wine marketing based on multisensory experience. The study was carried out according to a funnel method, inspired by the model described by (Webster & Watson, 2002) and the indications from the PRISMA statement (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*) (Moher et al., 2009).

The selection of studies was intended to test the following hypotheses:

- (1) *Who is the most influential author in wine-related crossmodal perception?*
- (2) *Are there proofs regarding the impact of multisensorial experience during wine tastings?*
- (3) *Are there proofs regarding the impact of multisensorial experience on wine sales?*

The following combinations of keywords were used in this study:

- (1) *"marketing" and "multisensory" and "wine"*
- (2) *"sensory" and "wine"*
- (3) *"marketing" and "wine"*

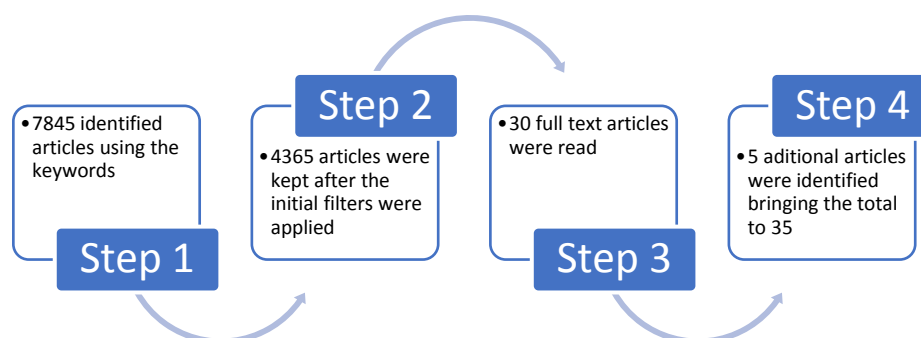
The document types were:

- (1) *Article*
- (2) *Proceedings paper*
- (3) *Review*
- (4) *Book chapter*

The initial search was conducted on Web of Science (WoS), complemented by results from ScienceDirect (especially for "full text") and Scopus. Web of Science does not allow searching strictly on the keywords of documents but on topics. Searching on topics includes the following fields (Clarivate Analytics, 2020): title, abstract, keywords declared by the author, and keywords identified by Web Of Science (KeyWords Plus). The latter is based on the articles cited by each article (Garfield & Sher, 1993). This type of search benefits topics or combinations of less familiar topics.

An overview of the steps of the study is presented in figure 1.

**Figure 1. The steps of the study (overview)**



Keywords or topics searching is just the first step of the process as results need to be curated. As shown in table 1, the first combination of keywords, the most restrictive one, returned only eight results in Web of Science. Out of those results, two were not even relevant to our research. For example, the article "The Effect of A Container's Weight on the Perception of Mineral Water" (Maggioni et al., 2015) was included in the search results due to the way topics work in WoS - it contained a reference to wine in the abstract: "For example, the results of a recent questionnaire-based study showed that *wine* is believed to be more expensive and of better quality when contained in a heavier bottle."

**Table 1. The filtering steps**

Keywords	No. of articles Step 1	No. of articles Step 2	No. of articles Step 3	No. of articles Step 4
"marketing" and "multisensory" and "wine"	8	6	5	5
"sensory" and "wine"	4349	3102	10	10
"marketing" and "wine"	3488	1257	10	15
Articles (re)discovered from the references of the articles from step 3				5
<b>Total</b>	7845	4365	30	35

In Step 1, there were overlaps between the results returned by the three combinations of keywords and between the three databases. In step 2, the duplicates were removed and filters were introduced to reduce the search space (last ten years, certain Web of Science or Scopus categories). After further filtering (e.g., by publishing year and by the number of cites, skimming through the metadata) and studying the content of the articles in step three, ten more relevant articles were identified from their bibliographies, adding to 40 articles in step 4. These articles are presented in table 1 or discussed in the next sections.

The most identified important articles, along with the number of cites (i.e., the total number of times the paper has been cited) are presented in table 2. They are the ones that fit best the

keywords, have been cited at least 10 times in one of the databases, or have been cited less, but they are recent (from 2019 and 2020). Finding the times cited number information in ScienceDirect, if full text is not available, is a bit trickier as the search has to be conducted using Advanced Search – References Section, and the results have to be counted. For Web of Science, when the paper was not indexed, the Cited Reference Search option was used to find the times cited number.

The IF and CiteScore of the journals are presented within parentheses. Some of the articles appear in the WoS column, but the journal in which they were published doesn't carry an IF. This is because they are included in the ESCI - Emerging Sources Citation Index, and thus don't appear in Journal Citation Reports (JCR). Nevertheless, this index, mainly created to expand geographic coverage, especially in social science and humanities, contains relevant articles, and includes widely cited documents (in both the top 1% and top 10%) (De Filippo & Gorraiz, 2020).

**Table 2. Most relevant articles**

<b>Article</b>	<b>Indexed in Web of Science/ Times Cited (journal impact factor 2019)</b>	<b>Indexed in Scopus/Times Cited (journal CiteScore 2019)</b>	<b>Full text in ScienceDirect/ Times cited</b>
Sensory profiling, the blurred line between sensory and consumer science. A review of novel methods for product characterization (Varela & Ares, 2012)	YES/289 (4.972)	YES/327 (6.2)	YES/328
Crafting brand authenticity: The case of luxury wines (Beverlaand, 2005)	YES/285 (4.888)	NO	
Consumer behaviour and sensory preference differences: implications for wine product marketing (Bruwer et al., 2011)	YES/101	YES/125 (2.6)	NO/32
Let the music play or not: The influence of background music on consumer behavior (Andersson et al., 2012)	NO/33	YES/27 (7.4)	YES
Assessing the Effect of Musical Congruency on Wine Tasting in a Live Performance Setting (Q. Wang & Spence, 2015)	YES/31 (1.535)	YES/23 (2.9)	NO/7
Wine consumers' subjective responses to wine mouthfeel and understanding of wine body (Niimi et al., 2017)	YES/19 (4.972)	YES/20 (6.2)	YES/20
Multisensory experiential wine marketing (Spence, 2019)	YES/18 (4.842)	YES/20 (3.3)	YES/20

Article	Indexed in Web of Science/ Times Cited (journal impact factor 2019)	Indexed in Scopus/Times Cited (journal CiteScore 2019)	Full text in ScienceDirect/ Times cited
Bridging Aficionados' Perceptual and Conceptual Knowledge to Enhance How They Learn from Experience (Latour & Latour, 2010)	YES/10	YES/23 (8.5)	NO/4
Wine psychology: basic & applied (Spence, 2020)	YES/0 (-)	YES/1 (3.3)	NO/1
Mozart or pop music? Effects of background music on wine consumers (De Luca et al., 2019)	YES/1 (-)	NO/0 (2.0)	NO/0
The influence of music on the perception of oaked wines—a tasting room case study in the U.S. Finger Lakes Region(Q. J. Wang et al., 2019)	NO/0 (-)	YES/2 (2.1)	NO/0

### Main results of the identified studies

Regarding the first hypothesis (*Who is the most influential author in wine-related crossmodal perception?*), even though the field of his published articles is broader: how the human brain manages and processes information from various senses (smell, taste, sight, hearing, and touch), the most influential author seems to be Charles Spence of Oxford University. He has published more than 1100 articles (not all directly related to wines) that have gathered more than 54,000 citations. The wine-related papers were written, mostly with Qian Janice Wang, a former Ph.D. student at Oxford, currently at the University of Aarhus.

Concerning the influence of multisensory experience in wine tasting (i.e., the second hypothesis: *Are there proofs regarding the impact of multisensorial experience during wine tastings*), the results indicate a favorable influence. In (Spence et al., 2013) the authors have experimented with establishing whether such comparisons reflect idiosyncrasies (i.e., the set of peculiarities and character traits) or there are certain crossmodally tendencies common to particular groups of people (e.g., those who consume wine, especially in social contexts: bars, restaurants, or parties). In the first part of the experiment, 24 participants tasted four different wines (1-sweet, 2-fruit, 3-with supple tannins, 4-with balanced acidity) accompanied by classical musical pieces containing combinations of sounds produced by string and wind instruments. Participants were instructed to assess on a scale of 0 to 10 how suitable the musical piece was with the wine they tasted. Variance analysis (ANOVA with Greenhouse Geisser correction) determined that the evaluations were not random.

In the second experiment, three wines were presented and tasted with and without ambient music by a group of 26 people, and another wine was tasted by the same people but without ambient music. Participants had to rate the wine in terms of sweetness, acidity, alcohol level, fruity taste, and tannin level and provide an overall assessment of the pleasure of tasting each wine. This experiment also established a strong link between the general evaluation of wine and listening to music. In the case of grading the intrinsic elements, the evaluations were more divided. A significant influence was established in the case of perceived sweetness, alcohol level, and tannins and a lack of influence in the evaluation of fruity taste. The authors

do not specify an important detail in this case, whether the serving with and without music was made from the same bottle or whether the wine was left to decant in the meantime. Similar experiments were repeated (Spence & Wang, 2015; Q. Wang & Spence, 2015, 2017) and the results show a positive influence of the atmosphere, including the lighting of different colors (Spence, Velasco, et al., 2014), on wine perception. Even though there can be other factors that can influence the results, such as social pressure, associative learning in a social context, and the desire to please (Behrens et al., 2008; Fehr & Fischbacher, 2003), it's clear that people declare that the association between wine and music is very appropriate.

On the one hand, a negative experience can have a long-term impact on the consumer (Riley & Tuck, 1985). On the other, strongly positive auditory, visual, olfactory or even tactile experiences can influence future consumer decisions (Yoon et al., 2012). Perception can also be influenced socially as (Berns et al., 2010) showed that a group of young participants changed their opinion about a music video when they received information about its popularity.

Some studies show that the senses can be misled. One of the most famous is that of the Ph.D. student (at that time) at the University of Bordeaux, Frédéric Brochet (Brochet, 2001). In this experiment, 54 enology students had first to describe a red wine and a white wine and, after a few days, a glass of the same white wine and another glass of the same white wine but colored in red. In both cases, the participants described the wines in words specific to white and red wines, respectively. However, in the second situation, they tasted two white wines (the hypothesis was verified using the Chi test). In another experiment by the same doctoral student, 57 people were also served a fine Bordeaux red wine (average priced) but presented as cheap table wine (VdT), and in a week, the same wine but presented as an expensive Grand Cru Cellar (GCC) wine. The tasting notes were very different; for example, 22 people described the wine with GCC label as pleasant, and only six the same wine but with VdT label as pleasant. We can only speculate if the participants in the study did not suspect that they were tasting a white wine, colored in red or the same red wine with different labels or they just preferred to show the usual patterns of the wines that were presented to them.

That is why the tastings in competitions are done blind, i.e., without knowing the bottle's label or shape. There are also variants in which the serving is made of black glasses to mask the color. But even the judgments of professional jurors can be oscillating. (Hodgson, 2008) analyzed the performance of jurors in several competitions between 2005 and 2008, starting from the observation that the same wine was marked with a gold medal in one competition and did not take any medal in the next. These medals are important as there is evidence of a positive link between the price of a wine and the obtained medals (Lima, 2006). About 65 jurors were tested each year. They received, without knowing it, in the same set of 30 wines to taste, three triplicate glasses of four different wines. For each set of three, the pouring was made from the same bottle. The conclusion was that only 10% of the tasters included the same wines in the same categories (gold, silver, bronze, without medal), being more consistent in the scoring with low scores of wines compared to scoring with high scores.

Investigations have been conducted on the influence of the jury's experience in evaluating white wine using projective mapping (Hopfer & Heymann, 2013). Four types of evaluators were compared: jurors with sensory experience, jurors with less experience but trained in taste recognition, people employed in the wine industry, and simple consumers (Barton et al., 2020). This study found that sensory experience strongly influences wine evaluations, with experienced people using around 57 terms to describe wines.

Regarding the third hypothesis, (3) *Are there proofs regarding the impact of multisensorial experience on wine sales?* there are claims of a positive impact of music on sales in general (Andersson et al., 2012; Areni & Kim, 1993; Choo et al., 2020; Trendowski, 2019), but not

specific on wine sales. There are also concerns regarding Return on Investment (ROI) in the case of more complicated and thus more expensive multisensory experiential wine events (Spence, 2019).

## Conclusions

This study has thoroughly reviewed over 35 papers related to multisensory wine marketing to test three hypotheses. These articles were chosen out of 7845 papers initially returned by the searches from Web of Science and Scopus using the guidance provided by the PRISMA statement. The findings suggest that the most influential author is Charles Spence of Oxford University. The results also show a provable influence of multisensorial experience on the perception of wine. Many stakeholders from the wine industry are trying to make the most of this trend to offer better experiences during cellar door visits and beyond those, including creating brand authenticity.

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