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► **To cite this version:**

Jean-Éric Pelet, Bonnie Canziani, Nic Terblanche. Adapting online wine education to China: a two-study multimethod approach. *International Journal of Wine Business Research*, 2024, *International Journal of Wine Business Research*, <10.1108/IJWBR-12-2023-0082>. <hal-04670360>

HAL Id: hal-04670360

<https://hal.science/hal-04670360v1>

Submitted on 20 Aug 2024

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Adapting online wine education to China: a two-study multimethod approach

Jean-Éric Pelet ^{a*}, Bonnie Canziani ^b, Nic S Terblanche ^c

^{a*}Dept of Information Systems, IAE d'Amiens, France, je.pelet@gmail.com; ^bDept of Marketing, Entrepreneurship, Hospitality and Tourism, University of North Carolina Greensboro, Greensboro, NC, USA; ^cDept of Business Management, Stellenbosch University, Stellenbosch, South Africa

^{a*} Jean-Éric Pelet 33 rue Laurence Savart, 75020 Paris, France, je.pelet@gmail.com

Abstract

◦Purpose

Teaching wine tasting online is challenging, even given the curated digital tools of the Wine & Spirit Education Trust, a highly renowned online wine certification system is used. This paper initially explores wine experts' opinions about online wine education and subsequently examines the feasibility of customizing wine appreciation lexicons to Chinese learners.

◦Design/methodology/approach

A two-study multimethod approach was adopted. Study 1, a two-stage Delphi study, was conducted with seventeen wine experts representing a number of countries, using a mix of closed/open-ended questions in an online survey. Data was collected in a market study in Study 2, conducted at agricultural markets in Thailand (pilot test) and China. Dialogues with market sellers were undertaken, evoking mental imagery of wine descriptors to explore the relevance of traditional versus local aromas and flavors to describe wine.

◦Findings

Findings concentrate on three main areas: general advantages/disadvantages of online wine education, reactions towards asynchronous/synchronous methods of wine tasting, and lastly, feasibility of customizing a wine appreciation lexicon for Chinese learners.

◦Originality

The article presents novel insights into the role of online wine education in China.

Key words: China; Delphi study; Market study; Learning management systems; Online wine tasting evaluation; Sensorial marketing; WSET certification

Paper type – **Competitive paper**; Topic-specific track: Changing patterns of alcohol consumption in emerging markets

1. INTRODUCTION

The wine market in China has received a fair amount of attention from both academics and practitioners (Cohen *et al.*, 2022). Prominent international brands have invested in vineyards near the Gobi Desert, aiming to turn the area into China's equivalent of Bordeaux. The emerging concern is to scale up demand for wine in China. Chinese consumption is critical on a global scale given the decline in demand in traditional wine producing countries (Berlinger, 2023). China has contributed to an increase in global wine demand since the beginning of this century (Anderson, 2020; Anderson and Wittwer, 2015). Despite a recent dip in wine consumption due to pandemic and economic stressors, demand is expected to rebound with Chinese Millennials and Gen Z consumers (Anderson, 2023; Daxueconsulting, 2023). Anderson (2023, p. 180) sees room for growth in the demand for wine in China because "(a) the overall alcohol consumption per capita in China is currently (2023) no higher than the rest of the world's at its current per capita income and (b) wine's share of that consumption was only 4.6% at its peak in 2012 and is now 1.5%, in contrast to the global average over the past decade of 13%".

Wine education is viewed as an important factor in motivating Chinese consumers to buy wine. More specifically, an online course is an interesting market strategy, considering the vast number of Chinese consumers who might be interested in learning about wine. Hence, this article focuses on wine e-learning to provide practical guidance for wine instructors in the digital space. Hu *et al.* (2023) found that digital platforms are now the Chinese market's most important communication tool and sales channel, and online retailing is Chinese consumers' first choice of channel for buying wine (Statista, 2021). Additional historical and cultural factors suggest that formal wine education might be welcome in Chinese society.

Extant literature states that there are important historical facts that justify educating Chinese citizens about wine. Firstly, grain wines were an important part of ancient Chinese rites and court culture. In Chinese legend, Du Kang (or Shao Kang), is credited with the invention of alcoholic beverages. Over thousands of years and miles, he became the deified patron of winemakers in China and Japan (Tōji). A modern Chinese wine brand carries his name. Secondly, Chinese culture links alcohol to traditional Chinese medicine. Teachings of Hu Se Jui (Yuan Dynasty) suggest that “[...] liquor brings the functions of medicinal herbs into play, promoting blood circulation and if one drinks a limited amount of liquor, it maintains good health” (Deadman 2005, p. 44) in Somogyi *et al.* (2011).

Wine education also supports the development of cultural capital of Chinese consumers. Zhang (2020) identified variations of conspicuous consumption in China, e.g., “conspicuous frugality” (p. 9) where consumers stress their restraint in some product categories generally associated with wealthy buyers, and “unostentatious conspicuous consumption” (p. 11) where consumers buy luxury goods that are not visibly marked to avoid displaying the brand or the status of the purchase. Chinese consumers look for ways to demonstrate higher cultural capital to combat perceptions of materialism in their purchases and comply with a Confucian ethic of controlling hedonism. Zhang (2020, p. 6) links cultural capital to education, citing Hennion (2007, p. 111) where consumers “follow the taste of others, searching for one’s own preferences, focusing on the quality of things and the training to perceive what is considered to be the best.” Cultural capital manifests as a deeper understanding of and focus on non-utilitarian characteristics of the product. Developing consumers’ cultural competence in the wine field is thus a corollary objective of marketing wine in China and serves to deflect accusations of materialism and ostentatious consumerism.

On-line courses in wine appreciation present a novel opportunity for expanding a wine culture in China. Since the onset of the COVID-19 pandemic, physical constraints on

gathering in food service establishments have prompted an increase in digitally enhanced wine experiences. Both consumers and aspiring sommeliers have turned to exploring digital wine tastings, either individually or in digitally enriched social settings such as video conferences or even Virtual Reality (VR) environments (Paluch & Wittkop, 2021). As explained by Moonen *et al.* (2024), while video conferencing offers advantages, such as facilitating participation in wine tastings from the comfort of consumers' or students' homes, VR emerges as a promising tool for creating immersive experiences that enhance wine tasting and learning beyond traditional two-dimensional formats. Recent research suggests that wine marketers must embrace the experiential multisensory trend sweeping through the alcoholic drinks industry to remain relevant to contemporary and future wine consumers (Spence, 2019, p.106). Results obtained by Moonen *et al.* show that “immersion is the main driver of learning and should be prioritized over the communal experience, as it allows participants to engage more deeply with the content and absorb information more effectively”, in the sommelier training context (p.13, 2024).

The recent realities of the Chinese wine market, as well as the expected growth in wine demand, present a strong case for the deployment of online wine appreciation courses. This view is also in line with the findings of Bruwer *et al.* (2024, p. 10), namely that “Educational programmes directed at highly ethnocentric consumers emphasising the advantages that buying of the products have for the national economy and the wellbeing of the citizens, if applicable, could reap benefits.” However, knowledge is limited about how Learning Management Systems (LMS) are used to teach wine tasting. Research has not kept pace with the post-COVID environment where augmented reality is being used to teach consumers wine appreciation in virtual tasting rooms on commercial websites (Carmer *et al.*, 2020; Wen and Leung, 2021). This paper suggests that motivating Chinese consumers to buy

wine requires us to examine critically existing online wine education approaches that have been largely developed in the Western world.

A two-study multimethod approach was employed. We firstly present literature about wine education and teaching wine tasting in general, followed by our two studies reported separately, i.e., a Delphi study (Study 1), and a market study (Study 2). Then we discuss general findings from Study 1 and Study 2, drawing attention to an array of factors that can affect online wine education. We conclude by summarizing the core insights and the limitations of our study.

2. BACKGROUND LITERATURE

2.1 Comprehending the theoretical basis of wine appreciation skill development in China

Wine consumers have long been encouraged to educate their palates. A consumer's ability to evaluate wines for important characteristics is part of the consumption experience and can be considered a form of cultural capital. Wine can be classified by many unique factors, including country-of-origin, color, harvesting year, place of origin or appellation, vinification method and style, estate and vintage, the grape varieties used, or price. Practices vary in different countries, and many practices have varied over time. Some factors are prescribed by the wine industry and others are governed by independent intermediaries involved in the vineyard to market sequence (Maguire, 2013). Wine connoisseurs, such as Robert Parker¹ for instance, fulfill a critical role in denoting features of wine that convey quality (Babin and Bushardt, 2019).

¹ Robert McDowell Parker Jr. (born July 23, 1947) is a retired American wine critic.

Wine has also been construed as a symbolic good; such goods possess “a two-faced reality, a commodity and a symbolic object their specific cultural value and their commercial value remain relatively independent, although the economic sanction may come to reinforce their cultural consecration” (Bourdieu, 1984b, p. 3). For example, strategically limiting wine production may correlate with masstige or luxury branding (Wolf *et al.*, 2016).

There is clearly a longstanding cultural field of practice surrounding the appreciation of wine that has been merged with science and transformed into formal wine education systems. Fledging wine consumers are taught to describe wine based on wine terminology standardized across wine encyclopedias and textbooks (e.g., Bepaloff, 1988; Schuster, 2017; Multicom w/Wiegand, 1996). A leading wine certification provider, the *Wine & Spirit Education Trust (WSET)*, incorporated a vocabulary for comparing wine color, taste and aromas to fruits, vegetables, and other materials into their training system used globally, including across Asia (Pelet and Canziani, 2023; WSET, 2021).

WSET students are introduced to primary, secondary, and tertiary flavors and aromas in wine. Primary flavors and aromas are those that come directly from the grape variety itself. These include fruit, floral, and herbal notes, as well as certain mineral and earthy characteristics. A Sauvignon Blanc might exhibit primary aromas of grapefruit, lime, and green apple. Secondary flavors and aromas are those that arise during the winemaking process and can include notes of oak, vanilla, toast, and spice, as well as yeast-derived characteristics such as bread or pastry. A Chardonnay that has been aged in oak barrels, for example, might exhibit secondary aromas of vanilla and toast. Tertiary flavors and aromas are those that develop as the wine ages. These can include notes of honey, leather, tobacco, and earth, as well as subtle changes to the primary and secondary characteristics. A mature Bordeaux might exhibit tertiary aromas of dried fruit, tobacco, and forest floor.

Understanding these key components is crucial for identifying the unique characteristics of wines and passing tasting exams. Currently, online activities comprise four e-learning components when using a LMS such as the WSET: tasting, video, multiple-choice questions (MCQ), and theory (short-answer style questions/forum discussions). Student results for the examination are incorporated into learning analytics and analyzed using cross-tabulation, also known as contingency tables, a statistical method employed to compare qualitative (categorical) variables (de Winter and Cahusac, 2014). The statistical analysis aims to identify patterns between student interaction with the online activities and the examination results. This data aids in uncovering how student characteristics, external influences, and internal influences impact their evaluations of wine (Devlin, 2020).

Tempere *et al.* (2019, p. 98), are of the opinion that “although there is no standard for wine-tasting training, a number of papers have reported on experts’ ability to discriminate among and categorize wines, highlighting a process involving perceptual clues and cognitive processing.” In the realm of e-learning, the acquisition of expertise is a gradual process that unfolds over time and experience. Initially, immersion in or with the learning material entails not only tasting wines from specific regions but also studying visual and other sensory information related to wine, including the shapes and textures of vineyards, grapes, and soils (Moonen et al. 2024; p.4). Prior research has indicated that individuals with a heightened mental imagery ability and the capability to engage in narrative transportation tend to excel in the holistic processing demanded by sommelier education (Latour and Deighton, 2018).

This phenomenon resonates with findings in consumer learning literature, which posit that increased exposure leads to a shift towards more analytical processing and reduced reliance on holistic approaches when encountering novel information (Alba and Hutchinson, 1987). Alba and Hutchinson (1987) assert that analytical processing tends to be associated with individuals who have attained expert status, contrasting with the more holistic processing

characteristic of novices. One strategy for fostering analytical processing in e-learning environments involves the adoption of specialized lexicons or vocabularies tailored to the subject matter. This approach, as demonstrated by West, Brown, and Hoch (1996), can enhance learners' ability to decompose content, mitigate evaluation errors, and maintain consistency in preferences over time. By employing structured vocabularies, learners exhibit behaviors indicative of expertise, including the ability to articulate preferences and comprehend content nuances (West, Brown, and Hoch, 1996).

However, there may be both objective and subjective approaches to the appraisal of [wine] (Charters, 2006, p. 251), particularly in determining what is desirable to the consumer. We might describe a wine in a certain way because the flavors and aromas we detect are linked to smells and tastes that are personally familiar to us.

“...an avid gardener, for example, might pinpoint specific florals like jasmine or honey blossom in their glass of white, while the not-so-green-thumbed novice may just smell or taste a general floral scent. Similarly, someone who has grown up in a household with spice-based meals might pick up a hint of five spice in their Pinot Noir, while someone less familiar with spicy food can't specify that 'spicy' flavor they're experiencing” (Melbourne International Flower and Garden Show, 2022).

Wang (2017) infers that Western style wine knowledge is largely absent among potential Chinese wine drinkers. In addition, the analogies used to describe a specific wine may be difficult to interpret based on the taster's geographical base (Caissie *et al.*, 2021; Rodrigues and Parr, 2019), raising the question of whether Chinese consumers can easily identify with standardized ways of characterizing wines (Cliff *et al.*, 2016; Croijmans and Majid, 2016).

2.2 Educational theories pertinent to wine LMS creation for Chinese consumers

The development of wine appreciation skills can occur organically within family and social milieux (Bourdieu, 1984a). Fountain *et al.* (2020, p. 188) highlight the importance of tourism's context in the development of wine appreciation by referring to the work of Charters and Ali-Knight (2002) and Charters *et al.* (2009) by stating that "Wine tourism also provides learning opportunities, including how to store and age wine, match food and wine, evaluate the sensory components of wine and learn about wine culture". Learning can also take place via formal wine education, both face to face and online. We are particularly interested in the latter. Education is a fitting approach to assist in the transfer of wine preferences. Various education approaches have been followed to foster wine appreciation such as showing how wine is made (La Tour, 2011), participating in a general wine course, as well as considering alternative methods of delivering (Sagala, 2013) and structuring of wine education courses (Corsi, Cohen and Lockshin, 2013a).

Incorporating insights from scholarly investigations into immersive technologies such as virtual reality (VR) headsets and cave automatic virtual environments (CAVEs), Moonen *et al.* (2024) investigate their capacity to facilitate immersive wine tasting experiences within sommelier education and not with normal students. Their study offers novel insights into sommeliers' learning experiences in immersive environments, shedding light on the comparative effectiveness of virtual reality (VR) and cave automatic virtual environments (CAVEs) in enhancing wine tasting skills. They identify immersion and social presence as key psychological mechanisms.

The work of Corsi *et al.* (2013a) was aimed at finding an appropriate educational approach that could improve the perceptions of Australian wines among younger Asian students. Corsi *et al.* (2017, p. 297) explored several studies on "cross cultural differences on sensory descriptions and how they are measured" and found that the studies were in

agreement that “culture influences individual and social group processes” and “cultural and linguistic differences represent a barrier to understanding consumers’ perceptions”. Corsi, Cohen and Lockshin (2013b, pp. 66-67) found that the complex description of Western wines is even more problematical for the Chinese market for the following reasons, firstly because of a “lack of wine knowledge and experience” and secondly “a lack of understanding of the sensory descriptors of wines based on Western terms.” The following section reports on the two studies presented in this paper.

3. METHODOLOGIES, SAMPLING, DATA COLLECTION AND FINDINGS OF THE STUDIES UNDERTAKEN

During the research design, the advice of Cohen and Lockshin (2017) was duly contemplated before the research methods and techniques for the study were selected. The subject matter at issue here, namely wine education in China, required a meticulous and thorough consideration because the Chinese do not possess a history for wine consumption customs and beliefs when compared with Western traditions and etiquette. The objectives that were set out to be achieved with the study made a Delphi study, where the collective knowledge, opinions and wisdom were accumulated, an appropriate choice as a platform to depart from for the study. The planning and justification of the topics investigated, demanded a strict screening of potential panellists as well as a careful consideration of the issues to be put to the eventual panel. The panellists emerging from the screening process are all well-endowed with wine knowledge as well as capable and informed of different means to transfer such knowledge to others. To address the purpose of the paper, two empirical studies were undertaken. In the first study, the opinions of wine experts were collected to gain insights in the leveraging of LMS to teach wine. The second study is a market study study with the focus on identifying Chinese equivalents for WSET fruits and aromas.

3.1 Study 1: A Delphi study of expert opinions on a wine Learning Management System

Study 1 focused on wine tasting activities in wine certification courses conducted by the Wine and Spirit Education Trust (WSET). Wine evaluation is defined as describing a wine based on a set of common wine characteristics (Demaecker, 2017; Lesschaeve and Noble, 2022). The process of wine evaluation involves four biomechanical steps: (1) examine the appearance of the wine using your sense of sight; (2) examine the aroma and bouquet of the wine using your sense of smell; (3) examine the flavor and texture of the wine using your senses of taste, smell, and touch; and finally, (4) arrive at an overall assessment of the wine based on all your sensory information (Arvisenet *et al.*, 2016). Teaching wine evaluation completely via a virtual platform is quite novel, as wine evaluation is typically learnt face to face via an instructor-led physical tasting (Devlin, 2020).

A Delphi study² was conducted with identified wine experts such as wine makers, sommeliers, and industry specialists (Hodgson, 2009) to determine how LMS can be leveraged to teach wine. The Delphi method combines expert input, anonymity, and an iterative process, and has been used extensively in marketing (Kerr and Patti, 2015). Delphi studies allow for a deeper understanding of opinions (Hsu and Sandford, 2007). The research question of Study 1 addressed in this paper is as follows:

RQ1: How does one effectively teach wine appreciation in a LMS context?

Following Donohoe and Needham (2009), we invited 885 potential experts, identified through networking (colleagues, academics, past WSET students). Of these, 157 accepted to participate. From the 157 contacts, we screened for people who: 1) scored above 40 on the 44-item Wine Knowledge Scale of Velikova *et al.* (2015), 2) had WSET qualification of medium or higher, 3) resided in major wine-producing countries to ensure a multinational sample, 4)

² The Delphi study is still online for those who are interested: <http://kmcms.net/Doc/Experiences/winesensory/>

were age 18 or older, and 5) self-identified as English literate. The sample gender mix was male (53%)/female (47%); modal age (35 to 44); median education (bachelors).

The Delphi study was conducted over four months via email, between December 2022 (Round 1) and March 2023 (Round 2). The questionnaire covered the following issues in teaching wine online: 1) Overall impressions of e-learning for wine, 2) Consideration of wine tasting learning formats – asynchronous and synchronous options, and 3) Practical considerations regarding teaching wine tasting online, including availability of culturally relevant teaching materials. A mix of closed and open answer designs gave respondents the opportunity to provide context to all their answers.

3.2 Findings of Study 1, the Delphi method

The Wilcoxon paired signed rank test (z-scores) was used to evaluate the stability of responses; non-significant z-scores indicated consistency in opinions between Rounds 1 and 2 (von der Gracht, 2012). A *consensus* meant agreement among 100% of experts and *majority agreement* constituted agreement among at least 70% of experts (Barnes and Mattsson, 2016).

In total, 15 discrete open-ended items (nine advantages and six disadvantages of wine LMS) were elicited via the Delphi questionnaire. Majority agreement was only achieved for two advantage items – accessing courses any time and no need to travel. The disadvantages raised design concerns, including lack of practical applications, insufficient explanations given during classes, lack of interaction, technical problems during Internet connection and harder to learn via LMS. However, none of these disadvantages approached a majority (Table 1).

Insert Table 1

Experts indicated on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) the acceptability of two teaching formats to learn wine tasting online: (a) participating

in synchronous tastings with peers and instructor and (b) watching videos of tastings asynchronously. Results showed 13 of 17 felt synchronous online tastings were acceptable as a main method of teaching wine tasting (ranking 4 or 5). Only 3 of 17 felt that video instruction alone was acceptable (ranking 4 or 5). Experts were also asked to explain their reactions to asynchronous and synchronous formats for teaching wine tasting (Table 2). Reactions to asynchronous formats largely centred on schedule flexibility and controlling the pace of learning. Regarding synchronous formats, respondents noted its usefulness in clearing doubts, applying concepts, and providing structure and human connections that support learning.

Insert Table 2

Experts were asked to suggest best practices for learning to characterize the aromas and flavours of wine in an online course. One question asked experts to identify tools and equipment that learners need to have on hand for wine tasting during their online course (Table 3). Items were identified by experts, such as natural light, white paper, a white background, a quiet environment with a lack of odors, a spittoon, a corkscrew, a napkin. Tasting templates were also mentioned, e.g., an aroma wheel and an oak wheel such as “Le Nez du Vin” kit (or equivalent), and a tasting evaluation sheet with good evaluation criteria. Quite apparent was the desire for an Asian version of the WSET wine tasting aroma/flavor guide which has tasters employ fruits, vegetables, and aromas to describe the taste of wine. This finding led to Study 2.

Insert Table 3

Learners often taste a range of wines during the course. Over 70% of experts agreed that it is preferable if the learner is delivered a standardized box of samples directly to their preferred address as opposed to shopping for wine samples on their own. Suggested wine sample sizes

were split between 50 ml/1.7 US fl oz, and 100 ml/3.4 US fl oz. The modal number of diverse wine samples required to evaluate a single type of wine was 3 with 6 votes. Experts also identified prominent retailers (Table 4) that could supply wine in their region; availability of wine samples was not viewed as a major obstacle for online wine students. Respondents were also asked to predict any problems regarding deliveries of wine samples via transport firm or post. Problems raised included complications with delivery timing, possible out of stock or seasonal issues, mandated physical presence for signatures, customs, taxes, state laws and restrictions, and spoilage concerns.

Insert Table 4

3.3 Study 2: A market study of the WSET wine lexicon

Learners are taught to characterize wines with tastes and colors of other substances based on standardized descriptive terminology perpetuated by published wine texts. Of interest in Study 2 is the evolution of this descriptive vocabulary that has been used to characterize sensorial aspects of tasting wine. Ancient writers such as Aristotle and Pliny the Elder (Shapin, 2012, p.54) spoke of basic tastes similar to modern categories of sweet, sour, bitter, salty, harsh, astringent, and acidic. A more literary school of wine-talk took precedence in the late 18th and early 20th century periods where writers in Europe, e.g., France and England, attempted to evoke wine characteristics and their effects on the drinker through literary allusions (Broadbent, 2007). According to Shapin (2012, p.81), the strategic deployment of our more recent referential language for describing wine was in large part due to researchers Amerine and Roessler at the University of California, Davis Campus, as well as Ann C. Noble (who designed the initial ‘wine aroma wheel’). The hope was that the creation of a scientifically supported standardized referential vocabulary (largely referring to fruits and

vegetables) would let wines be more reliably described, and more effectively marketed (Shapin, 2012).

The science underlying wine tasting trait vocabulary focuses on esters, i.e., organic acids that arise naturally during the fermentation process in wine and which can be explained as follows: “When grapes ferment, yeasts consume the natural sugars produced when the grapes ripen, and the byproduct of this reaction is Carbon Dioxide, Alcohol and over 200 aromatic esters. Each grape variety has a unique chemical make-up with varying amounts of these organic esters that upon processing will give rise to a host of aromas. Coupled with the esters from oak barrels and wine maturation, we have a whole portfolio of wine esters that contribute to its overall aroma profile” (Chandran, 2023).

However, the descriptors used to describe a wine sample may not appear, taste or smell exactly the same to LMS learners who access the course from different geographical places (Caissie *et al.*, 2021; Rodrigues and Parr, 2019). Leading wine LMS provider WSET seems rather not adapted to the Asian context, according to previous research (Pelet, 2023; Pelet and Canziani, 2023; WSET, 2021). People with different cultural backgrounds may not share similar knowledge of fruits, vegetables, spices, etc. being used as descriptive terms (Cliff *et al.*, 2016; Croijmans and Majid, 2016). Soeiro (2021) notes that wine tasters residing in low/no wine production areas might differ from wine tasters from traditional wine producing regions.

Following the Delphi study in this paper, a market study was designed to investigate if the fruits and aromas mentioned in WSET wine training materials could be found in China. The underlying objective of Study 2 was to validate the wine descriptive lexicon used by WSET for teaching wine evaluation in an online setting to Chinese learners. This prompted the research questions 2 and 3 underpinning Study 2:

RQ2 Is evaluation of wine best approached as a case of simple transference of traditional wine appreciation methods to new groups of consumers through wine education that originated in Western contexts?

RQ3 Conversely, should the wine tasting lexicon evolve within the cultural frameworks of new market geographical areas such as China, and how may this be approached?

During July 2022, a market study was conducted at Chinese farmers markets (which was preceded by a pilot test in Thailand with the aid of an experienced translator who was fluent in Thai, Chinese and English). A market study was deemed the most suitable approach to determine how well Chinese agricultural varieties supported (or not) recognition of the fruits, vegetables, and other plants used to describe wine in the WSET® system (de Benedittis 2019).

Data collection consisted of direct observation combined with optional semi-structured interviews with vendors. By engaging in normal marketplace activity, researchers could witness or question the availability of items on the WSET inventory (Fischer, 2023). Researchers investigated 73 items to determine if the referent products or plants were physically present and sold in the market or recognized by vendors either by looking at their images or by hearing descriptions of them. The method relied on the mental imageries elicited from vendors about the aromas/tastes that form part of the WSET vocabulary. The concept of mental imagery (Kosslyn *et al.*, 2001, p. 635) refers to “when perceptual information is accessed from memory.” For example, olfactory mental imagery is the proficiency to sense a smell without any physical olfactory stimulus (Mainland and Sobel, 2006).

Sixteen BBA students in courses taught by one of the authors were involved in this study. This assignment was worth 50% of the final mark. Students were specifically trained to take on investigator roles in this study and were instructed to align their dress, appearance,

speech, and body language with that of the respondents (Becker, 2002), while trying to retain a sense of authenticity and openness.

Each investigator group, consisting of 3 to 4 students, visited a single market. Members of the groups stayed together in order for one student to pose questions, and the others to take notes and photos. On-site meetings between the professor and individual research groups happened four times during the day to ensure that the students felt confident and experienced support from the professor, as well as handling any difficulties encountered by the students during their interactions in the markets.

The following markets in China, i.e., Zhong Xin, Zuanxin, JingXi, and Pengli, were selected on the recommendation of fellow expert faculty. They generally represented extremely large markets with the biggest number of professional sellers within reasonable travel distance of the researchers. The observations commenced in high density areas of the markets with the widest variety of goods. A snowball method was applied to locate large vendors of certain produce, e.g., citrus, or promising next stops. The data-collection process was to fill the whole data entry table in one day. On average, 10 seller table visits were made per group to permit completion of the data table (saturation).

Observations were recorded in a data entry table, i.e., a written form listing 48 fruits, vegetables and flowers, and 25 aromas, as represented in Appendix (Link to Appendix - see market data table format in <https://www.kmcms.net/Doc/Experiences/winesensory/wset-china.pdf>). Researchers showed sellers photographic images as well as providing verbal descriptions of each reference item from the WSET system. Each of the WSET foods/materials was recorded as accessible in the Chinese agricultural market or not available/not recognized by vendors. Alternatives (substitutes) were discussed with food vendors when original WSET items were not available but still recognized. Justifications were documented for alternatives.

3.4 Findings of Study 2, the market study

The total number of sellers who took part in the study was 40. Information collected during the interviews and direct observation was scrutinised. The major findings of the analyses speak to the presence (or not) of specific WSET referential items in Chinese agricultural markets.

3.4.1 WSET referential items found in the markets studied

(a) *Flavour descriptors.* Respondents were asked to indicate their familiarity with 47 photographic images and verbal descriptions related to fruits, vegetables, flowers, dairy products, and trees. Twenty seven of these 47 original WSET flavor descriptors (57%) were found to be known to the Chinese. These descriptors are as follows:

- (1) Fruit (Kiwi fruit / Green apple / Papaya / Litchis / Passion fruit / Pomegranate / Kumquat / Black grapes / Cherries / Strawberry / Blueberry / Raisins)
- (2) Flowers (Dandelion / Daisy / Hydrangea / Tulip / Rose / Lavender)
- (3) Confectionary (Biscuit / Cake / Crackers / Potato chips)
- (4) Other (Nettles / Grass / Tomato leaves)
- (5) Dairy (Butter / Whipped cream)

Fruits (12) and flowers (6) represented most of the taste descriptors that Chinese acknowledged as familiar.

b) *Aroma descriptors.* The respondents interviewed were also exposed to 25 images and definitions representing items from the WSET inventory that are related to typical aroma descriptors found in wine descriptions. Of the 25 aromas, 19 (76%) were found to be alike for

Western and Chinese consumers. When the 19 aromas are analyzed for similarities, 9 distinctive subgroups can be distinguished. These distinctive groups are set out below:

- (1) Sulphur aroma: hard boiled chicken egg
- (2) Burnt matches
- (3) Lemon aroma: cut lemon peel
- (4) Mouldy aroma: Portobello mushroom/ commercial potting soil for gardening
- (5) Berry aroma: strawberry/ blueberry
- (6) Tropical fruit aromas: bananas / guava / canned pineapple / cantaloupe melon / honeydew melon
- (7) Lactic aroma: yogurt or sour cream
- (8) Spicy aroma: Cloves / black pepper / sesame seeds
- (9) Toasted oak aroma: Pine-smoked black tea / dark-roast coffee / burned white toast

Notably, fruit aromas constituted the majority of standardized aromas known by Chinese.

3.4.2 WSET referential items not found in the markets studied

Remaining is the question of which flavors and aromas of the WSET scale are unfamiliar to Chinese people? Answers shed some light on the opportunities to replace specific current flavors and aromas of the WSET vocabulary for use in wine appreciation courses developed for Chinese wine drinkers. As mentioned earlier, 20 taste items and 6 aromas are unfamiliar to the Chinese population. Table 5 illustrates the WSET flavors that are unfamiliar to Chinese people and their Chinese equivalents based on seller/grower inputs. Table 6 illustrates the WSET aromas that were unfamiliar to Chinese people and the Chinese equivalents of such aromas.

Insert Table 5

Insert Table 6

Overall, we found that 46 (27+19) out of the 73 tested descriptors were familiar to Chinese respondents. The figure of 46 represents 63% of the WSET inventory. Stated otherwise, 37% of the WSET vocabulary is unfamiliar or foreign to Chinese people.

4. DISCUSSION AND IMPLICATIONS

The increase in the use of Chinese digital platforms, especially consumers' preference of online channels for searching, communicating and purchasing of wine, indicate that the Chinese market is appropriate for online wine courses. This paper has addressed wine LMS through a two-pronged approach. Regarding RQ 1, how does one effectively teach wine appreciation in a LMS context, our findings from Study 1 showed a majority agreement among experts for specific advantages of online wine instruction, i.e., accessing courses anytime and no need to travel to an educational venue. Disadvantages included the lack of social interaction with others, lack of practical applications, and lack of opportunity to clarify lessons or concepts. No disadvantage stood out as a major limitation for online wine education. However, based on the responses received, it seems that respondents preferred a blended course format (switching between asynchronous and synchronous) to an entirely asynchronous experience.

Interestingly, 77% of the experts agreed that synchronous sessions enable students to experience guided tastings between peers and instructor, thus emphasizing the value of working collaboratively when learning wine tasting. Allowing learners to know who is geographically close to them at the beginning of the course could also facilitate the building of a community and a sense of belonging. It can furthermore help to save money when it is time to buy samples if students are able to share costs.

Alternatively, asynchronous formats also have a function in wine education. Learners can access the learning material at any time and place using a mobile device. Learners may go at a pace that fits with other demands on their time and routines. However, predicting engagement with tasting videos is an issue for online course design. The recent decade has seen a boom in online learning resources without much quality control, i.e., regarding quality concepts of simplicity, richness, vividness, clarity, structure, and speech expression. Monitoring these quality aspects will enhance asynchronous instruction in wine.

On the practical side, there are materials and equipment that learners need to have before they start to study wine sensory evaluation online. While no consensus was noted on materials required for wine tasting activities, a number of materials and environmental conditions were revealed in the findings. Experts recommended the use of white paper or board to provide background contrast to avoid wine colours picking up the hues in surrounding environs. Likewise, the air in tasting locations should be clean and neutral to enable the taster to concentrate on the wine's aroma without being distracted. Water is used to cleanse the palate between tastings.

Findings in Study 1 suggested that it is especially frustrating when the students' background or geographic location does not enable them to find or recognize the standardized Western-based fruits, vegetables or aromas. Some of the standard items listed on the WSET aroma/flavor guide for wine tasting are not available everywhere, e.g., in Asia. We already know that wine students are concerned about their lack of experience with wine due to cultural backgrounds, i.e., "religious reasons", "lack of familiarity", "rareness of drinking wine" or "never having drunk wine before" (Soeiro, 2021; Madden *et al.*, 2000; Prescott, 2015), and unfamiliar descriptors are an added deterrent. Existing bias impacts the task at hand, as illustrated by Bodington (2022, p. 112) who stated that "Wine ratings are, or are equivalent to, assignments drawn from a discrete and bounded set of scores or ranks" and he

refers to various scales, including the WSET scale, as examples. Such a perspective places undue emphasis on acceptance and limitation of standardized systems. In Study 2 the emphasis was, inter alia, on finding appropriate words for describing wine in Chinese contexts.

Notably, the results of Study 2 have shown that 37% of WSET descriptive terms for flavors and aromas presented some difficulty to Chinese study participants, since the words referred to produce or plants not available or not well-known at the agricultural markets. The results enable us to respond to the remaining two research questions:

RQ2: The findings clearly indicate that a simple transference of traditional wine appreciation methods to new groups of consumers through wine education that is largely Western in origin, is not presenting the most inclusive opportunity. The motivation for this response to RQ2 is found in the significant portion of the tested standard vocabulary (WSET scale) that needs to be adjusted to ensure that the desired spectrum of aromas and flavors is conveyed to new groups of consumers through the adoption of appropriate Chinese equivalents.

RQ3: We argue that it is not necessary to reinvent the wheel in totality in respect of current training systems. It is, however, essential that wine educators look more closely for opportunities within the Chinese agricultural framework to strengthen those sections of the WSET inventory that were found to be unfamiliar for the Chinese participants. We justify a customized approach to wine descriptors in part due to restrictions on imported wines in China. In 2013, an anti-corruption campaign against wine as gifts or bribes not only destroyed the high-end French wine market in China, but also reduced the import of wines from other countries since mid-2000 (Kunbing, 2023a). Now more Chinese wine drinkers prefer cheap local wines (Daxueconsulting, 2023; Kunbing, 2023b). Many Chinese wine consumers buy wine from supermarkets since there are few shops that specialize in wine. A lack of

advertising and information about wines further complicates decision making by Chinese consumers (Yu *et al.* 2009). Thus, a Chinese based wine lexicon for consumers tasting primarily Chinese wines makes sense.

5. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

Our research has shown that there is a need to further investigate and identify possible solutions to the challenges faced by students who are learning about wine in a digital setting. Some challenges relate to course design issues, other challenges surface from cultural factors and diversity among wine learners. Study 1 was enacted to learn what we could do about teaching wine online, particularly in terms of teaching wine tasting in an online course. One outcome of this study is to energize future research directions. An interesting question that derives from Study 1 is, how could gamification be used for wine education in China to offset the lack of human interaction otherwise felt by wine LMS learners?

It is imperative to acknowledge certain limitations inherent in our study and outline avenues for future research. One notable limitation pertains to the absence of Chinese participants in the sample for the Delphi study (Study 1). This omission may have implications for the generalizability of our findings, particularly in the context of cross-cultural perspectives on wine education. Additionally, the lack of familiarity with wine among the student participants in Study 2 represents another potential limitation, as it may have influenced their engagement and comprehension of the material. Moving forward, future research endeavours could aim to address these limitations by incorporating a more diverse sample, including participants from different cultural backgrounds, in particular China, and varying levels of wine expertise. Furthermore, involving participants in the learning process itself, such as soliciting their input on the importance of factors like immersion, learning materials, and opportunities for social interaction during online lectures, could provide

valuable insights for enhancing the effectiveness of wine education programs. By integrating these considerations, future studies can further enrich our understanding of immersive learning experiences and inform the development of more inclusive and effective educational strategies in the field of wine education.

Of maximal importance is future research that will present ways to reengineer the WSET aroma/flavour guide for an Asian setting such as China. That was the basis for developing Study 2, a market investigation in the form of a market study to clarify the availability of standard fruits, vegetables, and other aromatic materials used by WSET to describe wine characteristics. A secondary part of Study 2 involved finding flavour/aroma substitutes in the Asian context, by eliciting suggestions from Chinese market sellers. The best way to achieve the redevelopment of wine tasting descriptors may be through further scientific inspection of the wine esters to see how they correspond to existing aromas and flavour sources in Chinese contexts. Decolonising wine language is a potential means to lure other cultures to share their experiences and terminology with existing wine consumers. A “partial decolonisation” of Chinese terminology (where our findings identified certain lacking WSET Chinese equivalents) could provide some guidance for the global wine community. We are then not telling the wine consumer ‘let’s educate you’ ... we’re preferably saying ‘you can educate us’ (Robinson, 2023). It is important to always keep in mind that China is a big country with various regions that differ substantially in many respects that do not offer “one size fits all” in any respect on wine education.

No research is without limitations. Given our desire to have representation from major wine producing countries in Study 1, sampling decisions were made that reduced our ability to dig deeply into any one culture. Future research might involve a robust sampling of subgroups within Asia or China who have differing attitudes towards wine LMS in their lives.

For example, consumers who see European wine as a luxury purchase or as status/conspicuous consumption versus individuals who are interested in growing the markets for domestic Chinese wine production and consumption. Their attitudes towards wine education and wine tasting using Westernized terminology might be impacted by their goals.

ACKNOWLEDGMENTS

Authors thank 3 main colleagues: 1) Janette Devlin, WSET, London, UK, for the raw material and expertise she has brought in discussion along 2020 and 2021; 2) the 17 experts from the Delphi study: Angeliki Tsioli, Allison Mildred Lyzenga, Antoinette Louisa Milne, Veronica Mary Wells, Deron Benjamin Deron Tett, Ekaterina Degtiareva, Yunting Yunting Fang, Elaine Patricia Taylor, Gauthier Bernardo, Garret Spillane, Joaquim - Dias Soeiro, Michael Sy, Nathan Zachary, Pablo S Fernandez, RP (prefers to stay anonymous), Samuel Michael Adams and TP (prefers to stay anonymous), as well as 3) students from the MM 7106 International Business Marketing class supervised by Sid Suntrayuth Ph.D. in ICO Nida University (Bangkok, Thailand) in 2022, who have participated to the market study: Miss Aina Dulyaseree , Miss Jing Wang, Mr. Pariya Chokprasoettaworn, Miss Tidanuch Techaphulphol, Miss Yating Liu, Miss Rui Ma, Mr. Xiaoyu Gao, Miss Nattharica Yamroongruang, Miss Natthaporn Yamroongruang, Miss Notorn Khemsastra, Miss Supaluk Sotsukpiam, Miss Fon Promboon, Miss Jin Chen, Miss Xiaojing Ma, Mr. Junyu Zhu, Miss Suchada Karestree). A huge thank you to the all of you.

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