

# **Marketing wines to South African Millennials: the effect of expert opinions on the perceived quality of Pinotage wines**

by

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## ABSTRACT

Despite South Africa being a wine producing country, South Africa's wine consumption is relatively low. It will be important for the country's wine producers to capture the potential of new and emerging markets to sustain its wine industry in the future and to grow domestic consumption. In recent years, Generation Y also known as the Millennial generation, has emerged as one of the most important consumer groups. This generation has substantial purchasing power and is one of the largest groups ever in any modern economy. Due to the size of this segment, it is important to understand their consumer behaviour. Furthermore, while Pinotage is known as the South African grape, little research has been done on the consumer liking and acceptance of Pinotage in South Africa. In order to capture the potential of the emerging Millennial market, it will be important for Pinotage producers to comprehend how they can effectively market Pinotage to the Millennials. One specific marketing tool that can be used to target Generation Y is expert opinions. Therefore, the purpose of this research was to investigate the use of expert opinions as a marketing tool for marketing Pinotage to South African Millennials.

The study consisted of sensory hedonic testing to measure the acceptance of different Pinotage wines and a follow-up questionnaire to measure willingness-to-pay. A total of 126 young Millennials took part in the study, of which eventually 101 datasets were used for statistical analysis. Results of this study has confirmed expert opinions as an effective marketing tool to market Pinotage to South African Millennials. While positive expert opinions did not reinforce perceived quality for already generally liked wines, they increased perceived quality for Pinotage wines that were not liked in general. Female Millennials specifically seem to be influenced by expert opinions and packaging. Initial results from the female Millennials show a relative dislike for Pinotage compared to male Millennials when tasting Pinotage blind. However, expert opinions and packaging increased liking significantly for women. Millennials also seem to be willing to pay more for positive expert opinions. However, contrary to hedonic liking, packaging can completely offset the positive effect of expert opinions on the willingness-to-pay. Even more, the negative effect of the packaging can exceed the positive effect of the expert opinion and can decrease liking significantly. Furthermore, the perceived value of Pinotage wines with a screw cap was significantly lower than those with a cork closure.

Due to several research constraints, the findings of this research report should be approached with caution and the results are tentative.

## OPSOMMING

Alhoewel Suid Afrika 'n wyn produserende land is, is die wyn verbruik in Suid Afrika relatief laag. Vir die Suid-Afrikaanse wyn produsent is dit belangrik om die potensiaal van nuwe en opkomende markte vas te vang om sodoende die toekoms van die Suid-Afrikaanse wynbedryf asook groei in plaaslike wynverbruik te verseker. In onlangse jare het dit te vore gekom dat Generasie Y, ook bekend as die Millennium generasie, een van die belangrikste verbruikers groepe is. Hierdie generasie het 'n aansienlike koopkrag en is een van die grootste groepe nog ooit in enige moderne ekonomie. As gevolg van die grootte van hierdie segment, is dit belangrik om hul verbruikersgedrag te verstaan. Verder, alhoewel Pinotage bekend staan as dié Suid-Afrikaanse druif, is daar tot dusver min navorsing gedoen rakende verbruiker voorkeur en die aanvaarding van Pinotage in Suid Afrika. Daarom sal dit vir Pinotage produsente belangrik wees om te verstaan hoe hulle Pinotage effektief aan hierdie millenniums kan bemark om sodoende die potensiaal van die opkomende millennium mark vas te vang. Een spesifieke bemarking instrument wat gebruik kan word om hierdie Generasie Y te teiken is deskundige mening. Die doel van hierdie navorsing is dus om uit te vind of deskundige mening as 'n bemarkingsinstrument gebruik kan word om Pinotage aan Suid-Afrikaanse Millenniums te bemark.

Die studie bestaan uit hedoniese sensoriese toetse om die aanvaarding van verskillende Pinotage-wyne te meet gevolg deur 'n vraelys wat die bereidwilligheid-om-te-betaal meet. 'n Totaal van 126 jong Millenniums het aan die studie deelgeneem waarvan daar uiteindelik 101 datastelle gebruik is vir statistiese analise. Die resultate van hierdie studie het bevestig dat deskundige mening wel as 'n doeltreffende bemarking instrument gebruik kan word om Pinotage aan Suid-Afrikaanse Millenniums te bemark. Alhoewel positiewe deskundige mening nie die waargenome gehalte van wyne waarvan daar oor die algemeen van gehou is verhoog het nie, het dit wel die waargenome gehalte van wyne waarvan daar in die algemeen nie van gehou is nie, verhoog. Dit blyk dat spesifiek vroulike Millenniums beïnvloed word deur deskundige mening en verpakking. Aanvanklike resultate het getoon dat vroulike Millenniums minder van Pinotage hou in vergelyking met manlike Millenniums wanneer Pinotage blind geproe word. Deskundige mening en verpakking het egter vroue se smaak vir Pinotage aansienlik verhoog. Dit blyk ook dat Millenniums bereid is om meer te betaal vir positiewe deskundige mening. In teenstelling met hedoniese smaak kan verpakking die positiewe uitwerking van deskundige mening heeltemal geneutraliseer wanneer dit kom by die bereidwilligheid-om-te-betaal. Selfs meer, die negatiewe uitwerking van die verpakking kan

die positiewe uitwerking van deskundige mening oorskry en sal die smaak aansienlik verminder. Verder is die waargenome waarde van Pinotage wyne met 'n skroefdop aansienlik laer as dié met 'n kurk sluiting.

As gevolg van verskeie navorsing beperkings, moet die bevindinge van hierdie navorsing verslag met omsigtigheid benader word en die resultate is tentatief.

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# CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT

## 1.1. Background

Despite South Africa being a wine producing country, its wine consumption is relatively low. The liquor market is dominated by beer which represents almost 76 percent of total liquor consumed in South Africa in 2014. At the same time, total wine consumption per capita has been declining since 1998 although it seems to have been increasing over the past five years (GAIN, 2014; SAWIS, 2015a). This increase in wine consumption can mainly be attributed to the rise of an affluent black middle class, also known as the Black Diamonds (Ndanga *et al.*, 2009).

The South African wine industry is very important for the country's economy, amounting to 1.2 percent of its total GDP in 2013 (SAWIS, 2015b). Simultaneously, the wine industry is very competitive when all the upstream and downstream activities are included. In 2014, there were 559 wine cellars of which 485 were private, with over half of them clustered in Paarl and Stellenbosch (SAWIS, 2015a). With over 13,000 individual South African wines, producers deal with fierce competition on both price and quality level. Therefore, it is extremely important for wine marketers to develop a viable marketing strategy.

Generally speaking, wine is a complex product with a wide range of intrinsic and extrinsic cues characterizing each wine such as taste, alcohol content, vintage, origin and packaging. Therefore, consumers often struggle to assess the quality of wine. Research has established that consumers will often rely on these intrinsic and extrinsic cues in the assessment of quality (Beneke and Carter, 2015; Li *et al.*, 2015; Mueller and Lockshin, 2008). Jacoby, Olsen and Haddock (1971) were the first to develop cue utilization in a consumer's perceived quality process. Later, Steenkamp (1990) introduced a model for the quality perception process which is based on the acquisition of intrinsic and extrinsic quality cues in the environment. Since then, the importance of choice cues in forming a quality perception has been investigated for many products including wine. Often, these studies employ discrete choice methods or a similar method to establish the relationship between cues and perceived quality. This way however, the influence of cues on the experienced quality of the taste of the product is not investigated. Li *et*

*al.* (2015) found four key extrinsic factors that influence drivers of liking: perceived satiety, brand and labeling, price and the emotional impact to decision making. Another study found gold medals and region to be the deciding factors in wine choice (Lockshin *et al.*, 2006). D'Alessandro and Pecotich (2013) established that novice wine drinkers mainly rely on country of origin as an extrinsic cue in wine quality perception while experts rely more on physical quality and brand information. A limited amount of research is focused on the influence of quality cues on experienced quality and furthermore there is some disagreement in the literature on the importance of these factors (Henley *et al.*, 2011; Mueller *et al.*, 2010). Keown and Casey (1995) identified intrinsic cues such as taste to be the main influencing factor in wine acceptance and liking. Mitchell and Greatorex (1988) on the contrary established that consumers perceive taste as a difficult to assess cue, therefore taste causes uncertainty in a quality judgment process. According to Lockshin and Hall (2003), the perceived quality of wine is subject to perceptual bias and is based on perception of price, label and recommendations of friends or experts.

Recommendations from friends can be seen as “strong-tie” information sources while expert opinions are “weak-tie” personal information sources (Chocarro and Cortinas, 2013). These expert opinions come in different forms such as wine awards, sommelier suggestions and reviews in wine magazines. Duhan *et al.* (1997) propose that individuals will mainly use “weak-tie” information sources when evaluating instrumental cues, i.e. the technical- or performance-oriented aspects such as taste, of a product.

## **1.2. Problem statement**

### **1.2.1. Introduction**

South Africa has a long history of wine making, starting with the arrival of the Dutch East India Company officer Jan van Riebeeck and his men in 1652 (Fourie and Von Fintel, 2014). Van Riebeeck's job was to set up a provision station at the Cape of Good Hope to supply products such as vegetables, wheat and fruit to the Company's passing trading ships. However, having been in the Cape the year before, Van Riebeeck also knew that the Cape offered a great climate for vineyards: wet winters without severe frost and long, hot summers with a balanced temperature (Kench *et al.*, 1983). Therefore, he decided to plant vines from France, the Rhineland and Spain. The first wine was eventually made in the Cape on 2 February 1659, of which Van Riebeeck wrote in his journal: “Today, praise be to God, wine was pressed for the first time from Cape grapes” (Prial, 1992). Once Van Riebeeck's venture into wine had proven successful, other farmers in the Cape soon followed his example. The arrival of Governor

Simon van der Stel in 1679, a man with a background in viticulture, meant another great step forward for the South African wine industry. A piece of land was granted to van der Stel, which he named Constantia, and he started producing the worldwide renowned Constantia wines together with his son Willem Adriaan van der Stel (Van Zyl, 1987). Since then, the South African wine industry has grown to be a global player in the wine industry.

In 2014, there were 559 wine cellars in South Africa of which 485 were private (SAWIS, 2015a). Most producers only produce on a small scale, harvesting less than 500 tons annually. Stellenbosch is the biggest wine region of South Africa, with 170 private wine cellars in 2014, followed by Paarl with 119 cellars. There is a total of 1 369 white and 795 red varieties planted in the country. The Stellenbosch wine region produces slightly more red varieties than white, respectively 102 and 77 different ones. Pinotage is the third most planted red grape in South Africa, following Cabernet Sauvignon and Shiraz. Around 50 percent of the wine sold in the domestic market in 2014 was packaged in a glass container. However, there is also a relatively big market for wine packaged as “bag-in-box”. Almost 30 percent of all wine sold in 2014 in South Africa was packaged as a “bag-in-box”. Compared to 2013, the sales of Pinotage in 2014 in 750ml glass containers increased with over 22 percent while the increase of red wines in general was only 16.9 percent. Pinotage was the biggest growing variety in sales of 750ml glass bottles. Despite this growth, it is still important for Pinotage producers to focus on reaching and targeting emerging, economically active consumer groups to ensure the future of Pinotage.

### **1.2.2. *Vitis vinifera* cv. Pinotage**

*Vitis vinifera* cv. Pinotage was created at the University of Stellenbosch in South Africa in 1925 by Professor Abraham Izak Perold. Perold was the first Professor of Viticulture at the university and was responsible for crossing Pinot Noir and Hermitage (i.e. Cinsaut) which eventually led to the new variety Pinotage. The first wine from Pinotage grapes was made at the Elsenburg farm in 1941. However, the acceptance of Pinotage wine has been met with plenty of reluctance from wine producers and connoisseurs. Pinotage adversaries in the past would state that the wine displays notes of nail varnish and rusty nails and would discredit the future of Pinotage. Only in 1991 did Pinotage make headlines around the wine world when Kanonkop’s 1989 Pinotage was judged as the world’s Best Red Wine (Pinotage Association, 2014).

In 2014, 79 339 tons of Pinotage were utilized for wine making purposes. Just over 5 percent of all varieties produced in South Africa, and 15 percent of all red varieties produced was Pinotage. One fifth of all Pinotage is produced in the Swartland wine region. Other principal

Pinotage producing wine regions are Breedekloof (16.5 %), Paarl (15.2%), Robertson (14.3 %) and Stellenbosch (13.9 %) (SAWIS, 2015a).

### 1.2.3. South African consumers

#### 1.2.3.1. South African population statistics

South Africa has a total population of 54 956 900 people. Just over 80 percent of the male population as well as the female population is African. The coloured group follows with close to 9 percent of both the female and male population. The size of the white racial group is slightly smaller than the coloured group, with just over 8 percent of both the male and female South African population (refer to Table 1).

**Table 1:** Mid-year population estimates for South Africa by population group and sex in 2015, adapted from StatsSa (2015)

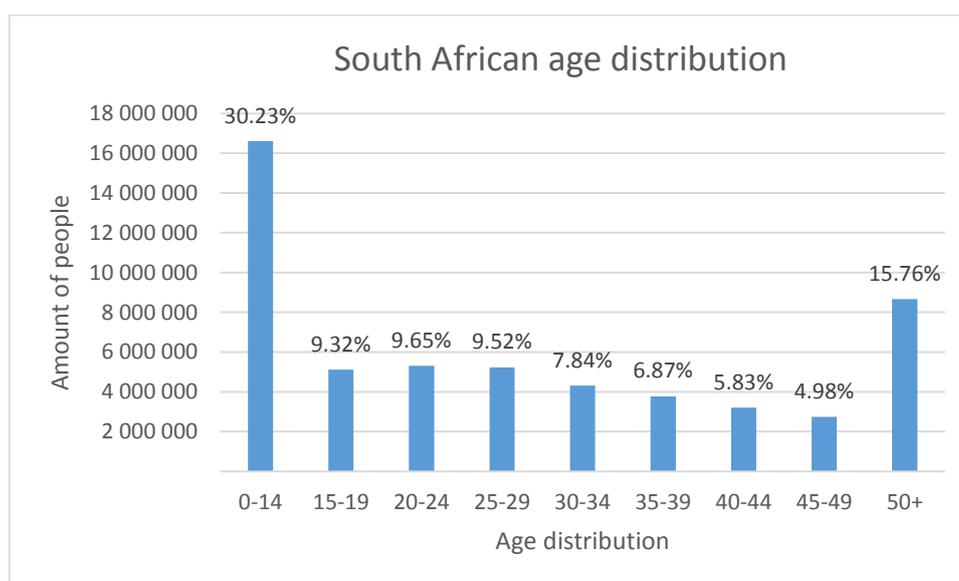
Population group	Male		Female		Total	
	Number	% of male population	Number	% of female population	Number	% of total population
<b>African</b>	21 653 500	80.6	22 574 500	80.4	44 228 000	80.5
<b>Coloured</b>	2 334 800	8.7	2 498 100	8.9	4 832 900	8.8
<b>Indian/Asian</b>	688 100	2.6	673 900	2.4	1 362 000	2.5
<b>White</b>	2 201 900	8.2	2 332 200	8.3	4 534 000	8.3
<b>Total</b>	<b>26 878 300</b>	<b>100.0</b>	<b>28 078 700</b>	<b>100.0</b>	<b>54 956 900</b>	<b>100.0</b>

Gauteng is the largest province in South Africa, accounting for 24 percent of the total South African population. The Western Cape, the location of the experiment, is currently the 4<sup>th</sup> largest province of South Africa with 6 200 100 inhabitants accounting for 11.3 percent of the population (refer to Table 2).

**Table 2:** Mid-year population estimates by province in 2015, adapted from StatsSa (2015)

	<b>Population estimate</b>	<b>% of total population</b>
<b>Eastern Cape</b>	6 916 200	12.6
<b>Free State</b>	2 817 900	5.1
<b>Gauteng</b>	13 200 300	24.0
<b>KwaZulu-Natal</b>	10 919 100	19.9
<b>Limpopo</b>	5 726 800	10.4
<b>Mpumalanga</b>	4 283 900	7.8
<b>Northern Cape</b>	1 185 600	2.2
<b>North West</b>	3 707 000	6.7
<b>Western Cape</b>	6 200 100	11.3
<b>Total</b>	<b>54 956 900</b>	<b>100.0</b>

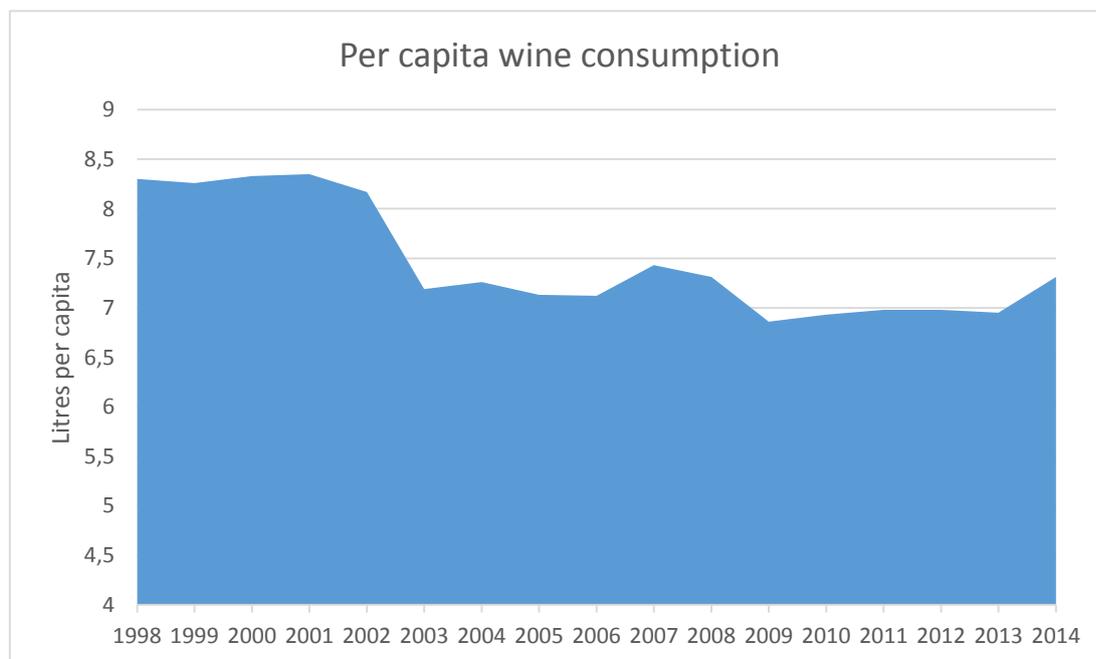
Just over 33 percent of the total South African population or 18 617 114 people is aged between 20 and 39 years old (refer to Figure 1). This segment can be defined as an approximate Generation Y (20 - 38 years old) and is a significant part of the population. In the Western Cape, this segment accounts for 2 049 273 people or almost 33 percent of the total Western Cape population (StatsSa, 2015). Slightly more females are Generation Y than males in the Western Cape, 1 028 230 (50.2 percent) of the Western Cape Millennials population is female and 1 021 043 (49.8 percent) is male.

**Figure 1:** Mid-year population estimates for South Africa by age group in 2015, adapted from StatsSa (2015)

### 1.2.3.2. South African alcohol consumption

South Africa is currently the world's seventh largest wine producer by value according to 2015 International Organisation of Vine and Wine statistics. The country produces slightly less than Australia and about one quarter of France's total value of production, the highest producing country in the world (OIV, 2015). Based on these facts, a logical assumption could be made that South Africa will also rank high in wine consumption. However, the country seems to be the exception as statistics show this is not the case. In 2014, South Africa's per capita consumption for wine was 7.31 litres. The country has one of the lowest rates of per capita wine consumptions in comparison with other wine producing countries. This can be attributed to the shift to free international trade during the 1990's as a result of the end of Apartheid and subsequently a substantial growth of wine exports (Ndanga *et al.*, 2009). Producers have had no need to rely on the domestic market in the past decade and therefore did not focus on domestic consumption and sales.

Consequently, there is currently a lack of wine culture with the country's alcohol consumption being dominated by beer. Furthermore, South African wine consumption per capita has declined from 1998, although there has been a very slight increase more recently (refer to Figure 2). The annual per capita consumption for wine in 2014 was just over 7 litres whereas annual per capita consumption for beer is almost 60 litres. Furthermore, ready-to-drinks (RTDs) also have a small advantage over wine with a per capita consumption of over 8 litres (SAWIS, 2015a).



**Figure 2:** South African wine consumption per capita, 1998 – 2014, adapted from SAWIS (2015a)

### 1.2.3.3. South African Millennials

Research has indicated that wine consumption and quality perception differs across countries (De Magistris *et al.*, 2011; Mueller *et al.*, 2011). However, up until almost no research has been conducted on wine consumption behaviour of South African consumers. Furthermore, generational segmentation is an important segmentation tool for wine marketers. The Millennial generation, also known as Echo Boomers or Generation Y, is currently becoming economically active and are increasingly spending more money (Charters *et al.*, 2011; Henley *et al.*, 2011; BizNews, 2014). This study will follow Nielsen's (2014) age limits of the Millennial generation: a group of people born between 1977 and 1995. In 2015, this generation is thus aged 20 to 38 years old. Furthermore, the term Millennials and Generation Y will be used interchangeably in this thesis. Generation Y has substantial purchasing power and is one of the largest groups in any modern economy. It is therefore important to understand the wants and the needs of this generation. However, little research has been done on Millennials and most research has been conducted in the United States of America. According to the Wine Market Council, the Millennials offer the American wine market growth potential that has not been seen in 30 years (Shultz, 2010). No specific statistics are available for the South African market. However, Mandhlazi *et al.* (2013, p. 161) found that South African Millennials are "quality conscious, brand conscious, novelty seekers, hedonistic, confused by overchoice, habitual, brand loyal and fashion conscious". It will therefore be crucial for wine marketers in South Africa to gain a better understanding of this market segment. Due to the size of the segment, it is possible that the behaviour within this segment differs (Debevec *et al.*, Nielsen 2014). Therefore, the research of the thesis is focused on the younger segment of the Millennials (20-28 years old). Finally, while Pinotage is known as the South Africa grape, almost no research has been done on the consumer liking of Pinotage. It is therefore the aim of this study to investigate the relevance of one specific cue, expert opinions, for young South African Millennials on the perceived quality of Pinotage.

Therefore, the following research question can be set forward:

Can expert opinions be used as an effective marketing tool for Pinotage to target young South African Millennials?

### 1.3. Research objectives

This study investigates the following primary research objectives:

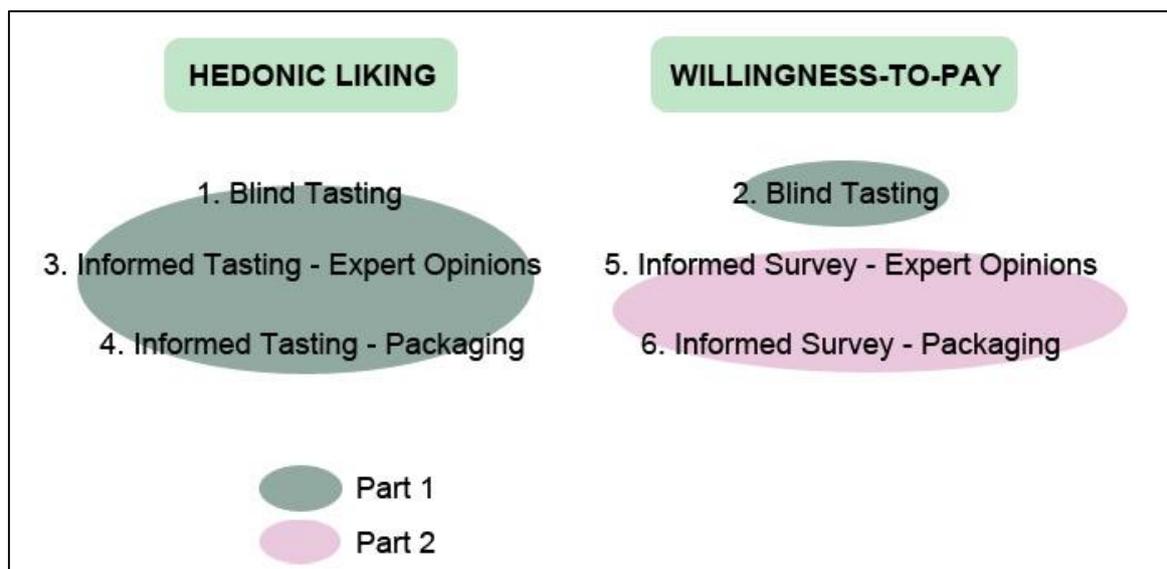
- Whether expert opinions influence the hedonic liking of Pinotage for young South African Millennials
- Whether the relevance of expert opinions differs for young male and female Millennials
- Whether the relevance of expert opinions differs for young Millennials with a high involvement in wine compared to young Millennials with a low involvement in wine

Next to the primary research objectives, the following secondary research objectives were also studied:

- Whether there is an influence of packaging on the hedonic liking of Pinotage for young Millennials
- Whether expert opinions influence young Millennials' willingness-to-pay for Pinotage
- Whether packaging influences young Millennials' willingness-to-pay for Pinotage

#### 1.4. Research method

Figure 3 provides an overview of the experimental design of this study. The study consisted of two parts: a tasting and a follow-up survey. The tasting part consisted of tasting four flights of seven Pinotage wines, while the follow-up survey consisted of indicating willingness-to-pay as a function of the information provided. The information provided was either nothing (blind setting), expert opinions or packaging and was identical for both objectives, i.e. hedonic liking and willingness-to-pay. This way, the effect of the different information sources on hedonic liking and willingness-to-pay could be investigated.



**Figure 3:** Experimental design

## **1.5. Outline of the study**

From here on, the outline of this report will be as follows. Chapter 2 will provide an extensive literature review on key concepts. Furthermore, there will be a review of previously executed studies within the same area as this study. Perceived quality will be analyzed by discussing the Total Food Quality Framework in detail in section 1. Furthermore, the element of expert opinions will also be discussed in this section. Section 2 focuses on segmentation of the market and Generation Y. Finally, section 3 deals with the integration of sensory science and consumer research. Chapter 3 discusses the research design and methodology. Chapter 4 provides an extensive overview and discussion of the results of the study. Finally, chapter 5 presents the conclusions and recommendations based on the results. Furthermore, the limitation of the study will be discussed and some guidelines for further research will be provided.

# CHAPTER 2: LITERATURE REVIEW

## SECTION 1: PERCEIVED QUALITY

### 2.1.1. Introduction

Quality is a difficult concept to define. Researchers tend to distinguish between two quality aspects: the objective product quality aspect and the subjective or perceived product quality aspect (Parasuraman *et al.*, 1985; Dodds and Monroe, 1985; Bredahl, 2003). Objective quality is the measured excellence of a product on some specified standard while perceived quality is a consumer's personal judgment of a product's excellence (Zeithaml, 1988). Both definitions include the element of excellence, however the fundamental difference lies in the "consumer's personal judgment" of the perceived quality definition (Charters and Pettigrew, 2003).

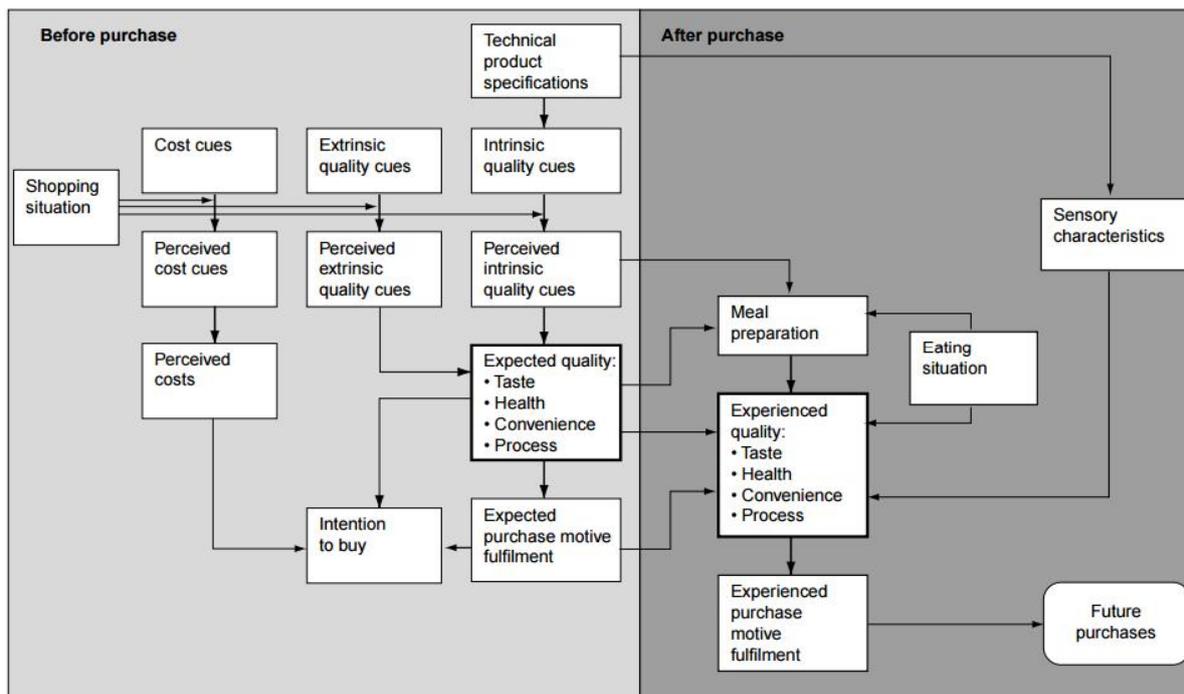
Next to the objective and subjective aspect of quality, economic theory also distinguishes between three types of quality attributes: search, experience and credence (Bech *et al.*, 2001; Brunsø *et al.*, 2002). Search attributes are those that can be ascertained before purchase. Experience attributes are attributes that can only be ascertained after purchase, once the product has actually been experienced. Credence attributes are those that cannot be experienced by a normal consumer even after a long time. Rather, the consumer will need to rely on an expert to ascertain the credence characteristic.

A number of researchers have attempted to provide a framework for perceived quality. Steenkamp in 1990 introduced a conceptual model for the quality perception process which describes how consumers reach an overall perceived quality judgment. The basis of Steenkamp's (1990) framework is acquisition of quality cues in the environment which is in itself based on the cue utilization theory. This theory suggests that consumers use certain quality cues as indicators of product quality (Richardson *et al.*, 1994). These quality cues are stimuli that are identified by the consumer prior to consumption and, according to the consumer, are related to the quality of the product (Steenkamp, 1990). Quality cues can be classified into two types: intrinsic and extrinsic (Olson and Jacoby, 1972). Intrinsic cues are those characteristics that are a permanent part of the product (e.g. alcohol content) and cannot be changed without altering the actual product. In contrast, extrinsic cues are not physically part of the product and can be judged by the consumer before consumption (e.g. designation of origin). In Steenkamp's

framework, the quality cues will then be used to form beliefs about the quality attributes (i.e. search, experience and credence). The relationship between quality cues and attributes is important as quality cues are valued only in the case when consumers believe they indicate information about a quality attribute. Eventually, the overall perceived quality judgment will be based upon the integration of quality attribute beliefs. Another model was introduced by Andersen in 1994, based on Steenkamp's framework. Similar to Steenkamp's model, a buyer will use quality indicators and will form expectations about the individual characteristics. These individual expectations will then be aggregated in a one-dimensional quality perception. In the end, expected quality and experienced quality may be compared for future decision-making. However, these models have received some critique from researchers. Therefore, Grunert *et al.* (1996) introduced a new model based on these observed drawbacks named "The Total Food Quality Model".

### **2.1.2. The Total Food Quality Model**

Grunert *et al.* (1996) criticized previous models for not incorporating all aspects of quality. A main critique was that none of the previous models incorporate determinants of experienced quality. Perceived quality is the result of both expected and experienced quality (Jover *et al.*, 2004). Secondly, they also emphasize sensory characteristics as a determinant of experienced quality. A third concern relates to purchase intention. Expected quality leads to purchase intention of the product. This will lead to experienced quality and can lead to future purchases. Based on these remarks, Grunert *et al.* (1996) introduced the Total Food Quality Model (TFQM) as presented in Figure 4. This model integrates previous approaches to quality as well as incorporates the mentioned critiques.



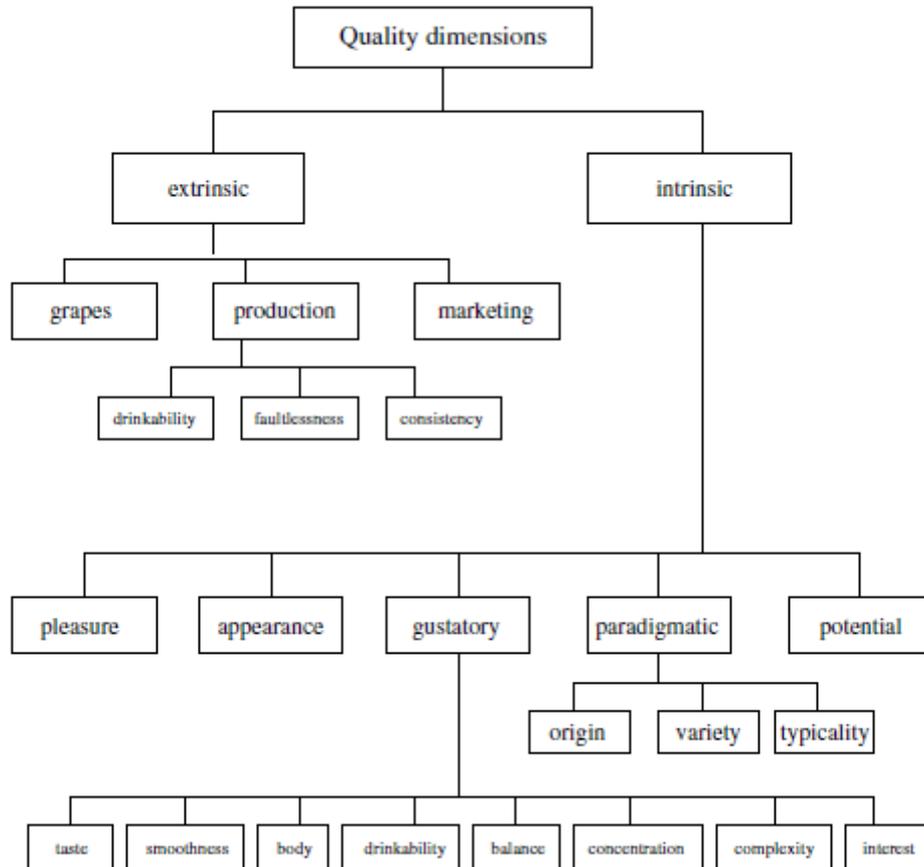
**Figure 4:** The Total Food Quality Model, adapted from Grunert *et al.* (1996)

The TFQM provides an overall framework for consumers' food quality perception (Grunert *et al.*, 1996). The model divides the process into before purchase evaluations which relates to expected quality and after purchase evaluations which relates to experienced quality. A consumer will form quality expectations before a product is purchased while experienced quality can only be determined after buying the product (Brunso *et al.*, 2002). Similar to Steenkamp's framework, expected quality in the before purchase part of the model is determined by the available intrinsic and extrinsic quality cues, as well as cost cues. The importance of these cues will depend on the shopping situation. Consumers will rely on different quality cues when buying a product for a specific situation such as own consumption or dinner with friends. Contrary to other models, Grunert *et al.* (1996) also included the after purchase element which focuses on experienced quality. This part of the quality model is essential for marketers, as the eventual trade-off between expected and experienced quality can eventually lead to future purchases. The experienced food quality is not only determined by the sensory characteristics and expected quality but is influenced by other factors such as the way it has been prepared, situational factors, mood of the consumer and the consumer's previous experiences (Bech *et al.*, 2001).

### **2.1.3. Conceptualizing perceived quality for wine**

Based on the level of expertise of the person judging the wine, wine quality can be expressed in two ways: on the one hand from the viewpoint of wine makers, tasters and experts; on the other hand from the viewpoint of the consumers (Jover *et al.*, 2003). Experts' assessments are mainly based on the technical winemaking processes while consumers' judgments are based on their subjective experience (Saenz-Navajas *et al.*, 2015). Relating this to the two quality aspects, the first viewpoint deals with objective quality whereas the latter focuses on perceived quality. Especially in the case of wine, the concept of perceived quality is crucial as most people consuming wine are not experts. The wine market is characterized by brand chaos due to fragmentation. Therefore, it is important for wine marketers to gain insight into the quality perception process of wine consumers. Nevertheless, defining perceived wine quality is a complex matter due to its aesthetic character and relationship to personal taste (Charters and Pettigrew, 2007).

For wine, quality is a multi-dimensional construct which entails both intrinsic and extrinsic dimensions (Chocarro and Cortinas, 2013; Charters and Pettigrew, 2007). Several researchers have attempted to provide a framework for perceived wine quality, based on these two dimensions. Charters and Pettigrew (2007) introduced a conceptual model of the dimensions of wine quality. Figure 5 outlines the intrinsic and extrinsic dimensions as perceived by wine consumers. Whereas the intrinsic dimension relates to what is experienced when the wine is consumed, the extrinsic dimensions relate to issues beyond physical properties of the wine. Both the intrinsic and the extrinsic dimension are subdivided into individual dimensions and some individual dimensions are further subdivided into sub-dimensions.



**Figure 5:** The dimensions of wine quality, adapted from Charters and Pettigrew (2007)

Another model of wine quality was introduced by Verdu Jover *et al.* (2004). In their research, they constructed a scale for measuring quality focusing on red wines (refer to Table 3). Similar to Charters and Pettigrew's model, this scale again indicates the importance of both extrinsic (i.e. origin, image and presentation) and intrinsic (i.e. age, harvest, sensitivity and acuteness) cues in the quality perception process.

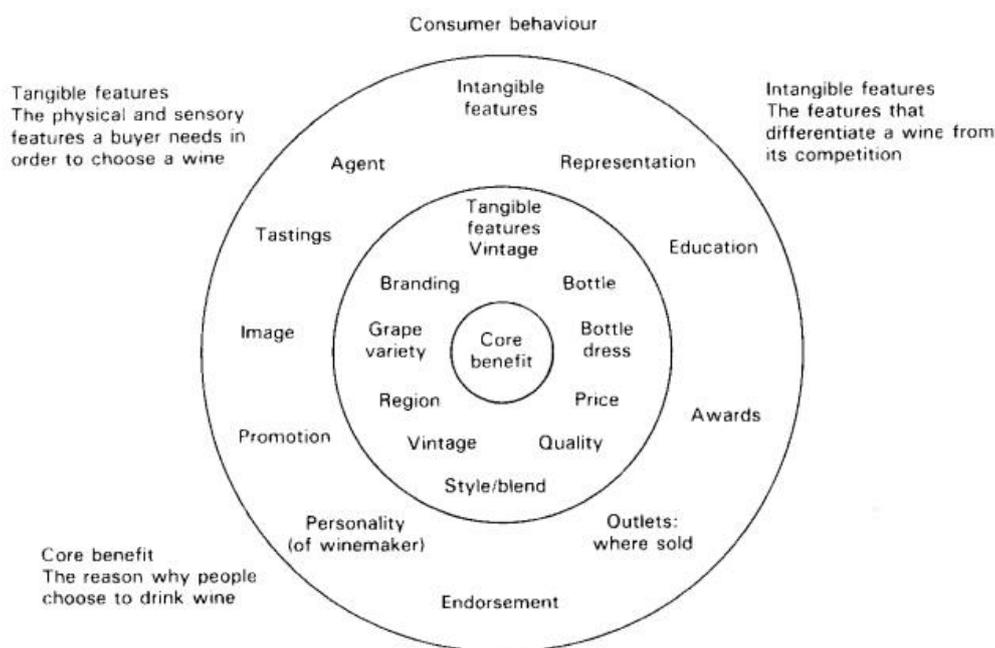
**Table 3:** Quality measuring scale for red wine, adapted from Verdu Jover *et al.* (2004)

Extrinsic attributes		Intrinsic attributes	
<i>Origin</i>	Region of origin's prestige, goodness of the appellation d'origine, winery's fame	<i>Age</i>	Level of wine's ageing, wine's ageing
<i>Image</i>	Wine's fame, press's opinion on wine, friend's or colleagues' references, sommeliers' opinion, experts' opinion	<i>Harvest</i>	Information on harvest, goodness of the harvest, effect of harvest on wine
<i>Presentation</i>	Elegance of bottling and labelling, goodness of bottling and labelling	<i>Sensitivity</i>	Solidness of a wine, balance of flavours, bouquets, balance of bouquets
		<i>Acuteness</i>	Aromatic complexity, intensity of bouquets

Even though models of wine quality include experienced quality (intrinsic dimension), only a limited amount of research actually deals with quality perception after tasting and focuses on both expected quality and experienced quality. Priilaid (2006) was one academic who examined to what degree extrinsic cues such as price and region of origin influences a wine's intrinsic merit (i.e. taste). He argues "[...] upon visual assessments, the brain literally tastes the available extrinsic cues, and ignores the intrinsic merit of the wine." (Priilaid, 2006, p. 18). Henley *et al.* (2011) found in their study focused on Generation Y that quality perception changes when it is a sighted tasting compared to a blind tasting. Mueller *et al.* (2010) combined a discrete choice experiment to test expected quality with an informed sensory tasting to test experienced quality. Their research confirms the link between expected quality, experienced quality and repurchase intentions for wine.

#### 2.1.4. The element of expert opinions

Wine can be identified as a bundle of benefits and attributes, as illustrated in Figure 6 (Spawton, 1991). The core benefit is the reason why a consumer prefers wine over other alcoholic beverages. The tangible features are those that the consumer can touch, see and smell. The intangible features are those that differentiate one wine from another and that will convince a buyer to choose a specific wine. The intangible attributes are essential as these will often convince a consumer to prefer a specific wine.



**Figure 6:** The benefits spectrum for wine, adapted from Spawton (1991)

Spawton (1991) includes awards and image as an intangible feature, therefore making it a factor marketers can use to differentiate their wines. Relating this to Verdu Jover *et al.*'s (2004) quality measuring scale (refer to Table 3), the two features can be combined into one feature “image” including experts’ opinion (including awards), press’ opinion of wine, friends’ or colleagues’ references and sommeliers’ opinion.

The “image” feature can further be divided into “strong-tie” information sources and “weak-tie” information sources. The first relates to opinions of friends and relatives while the latter refers to opinions of experts or critics (Chocarro and Cortinas, 2013). For experience goods, such as wine, mainly “strong-tie” information sources are used to judge the performance aspect of the product. However, the opinion of experts (i.e. “weak-tie” information sources) is a generally acknowledged marketing tool in the wine industry (Gawel, 1997). Due to large information asymmetry between wine producers and wine consumers, expert ratings and competitive awards will often be used to signal wine quality to the end consumer (Stuen *et al.*, 2015). It is a tool to help consumers fill the information gap and facilitate consumer’s choice (Storchmann, 2011). Especially for wine, they are a source of quality reputation for consumers as they can be seen as a measure of objective quality (Aqueveque, 2008). Lockshin *et al.*'s (2006) research showed that gold medal awards influence expected quality and the wine purchasing decisions for low involvement consumers. Furthermore, research also indicates a

correlation between positive expert opinions and experienced quality (Siegrist and Cousin, 2009; Chocarro and Cortinas, 2013). Positive information on the wine, such as high wine ratings, received before tasting positively influences hedonic rating of wine. Furthermore, low involved consumers will be influenced more by expert opinions than high involved consumers (Chocarro and Cortinas, 2013). In context of this, this thesis hypothesizes:

*H<sub>1</sub>: There is an influence of expert opinions for young Millennials on hedonic liking of Pinotage*

Expert opinions are given in many different formats such as competitions, wine magazines and wine blog websites, both local and international. South Africa has several wine magazines that organize private competitions and apply specific rating systems to rate wines (refer to Table 4). Furthermore, international magazines such as Decanter and Wine Spectator also arrange competitions. Many competitions are organized in South Africa, either including all type of wines or focusing on one specific varietal or style (refer to Table 5). Finally, there are also several well-known wine bloggers and writers such as Neil Pendock who are important disseminators of information through their social media channels (refer to Table 6) (Chaney, 2001).

**Table 4:** Selected South African wine magazines in 2015

Magazine title	Publication Form	Competition/Rating
<i>Wine Magazine</i>	Online	100-point rating system
<i>WineLand</i>	Print Publication & Online	5-star rating system
<i>WineStyle</i>	Print Publication & Online	People's Choice Awards*

**Table 5:** Selected South African wine competitions in 2015

Competition title	Judges	Rating system	Publication form
<i>Veritas awards</i>	Wine makers, researchers, academics and merchants	20-point rating system	Colour Medals
<i>John Platter Guide</i>	Wine writers, master of wines, Cape wine masters and wine connoisseurs	5-star rating system	Star Medals and wine guide
<i>Top 100 SA Wine Challenge</i>	Local and international judges	20-point rating system	Top 100 list
<i>Shiraz SA Wine Challenge</i>	7 shiraz judges	n/a	Top 12 list
<i>Old Mutual Trophy Wine Show</i>	7 local and 3 international judges	100-point rating system	Colour Medals

**Table 6:** Selected South African wine writers/bloggers in 2015

Wine writers/bloggers	Website	Twitter followers (on April 22, 2015)
Tim James	<a href="http://grape.co.za/">http://grape.co.za/</a>	2410
Christian Eedes	<a href="http://www.winemag.co.za/">http://www.winemag.co.za/</a> (editor)	4158
Emile Joubert	<a href="http://winegoggle.co.za/">http://winegoggle.co.za/</a>	4674
Neil Pendock	<a href="http://neilpendock.com/">http://neilpendock.com/</a>	5916
Cathy Marston	<a href="http://www.cathymarston.co.za/">http://www.cathymarston.co.za/</a>	6958

There has been some critique on the use and relevance of expert opinions. Quandt (2007), in a very straight-forward paper, blatantly called wine ratings and expert opinions “bullshit”. His reason for this is two-fold: firstly, he states there is no consensus between different wine writers and their quality ratings; secondly, the content of wine writers’ descriptions is according to Quandt not informative but rather filled with useless wine descriptors. The first statement however was critiqued by Stuen *et al.* (2015). Their research showed that there is in general a high consensus between different wine critics, though it is impossible to expect perfect consensus. Another critique is that there is often no consistency in the ratings and opinions of one specific wine connoisseur (Gawel and Godden, 2008; Hodgson, 2008; Ashton, 2012). It can be stated that fewer than 30 percent of expert wine judges are consistent in their ratings, therefore only a small number of proclaimed “experts” are actually experts (Hodgson, 2009).

## SECTION 2: MARKET SEGMENTATION

### 2.2.1. Market segmentation

#### 2.2.1.1. General segmentation

The aim of market segmentation is to identify market segments or “sets of buyers” (Tynan and Drayton, 1987). Once these sets are defined, it is up to the company to decide which ones to target with a certain product.

Segmentation was first introduced by Smith (1959) as an alternative marketing strategy to product differentiation through advertising. Instead of converging individual markets, Smith suggested that product lines and marketing strategy be adapted to satisfy one or more identifiable market segments. Over half a decade later, Smith’s view is still as relevant now as when it was first introduced (Wells *et al.*, 2010). Kotler defines the term as follows: “Market segmentation is the subdividing of a market into distinct subsets of customers, where any subset may conceivably be selected as a market target to be reached with a distinct marketing mix” (Kotler, 1980, p. 195). The reason why segmentation is advantageous is twofold (Barber *et al.*, 2008). First, marketing research is more focused by concentrating on particular needs of one specific consumer segment. Second, due to the focused marketing, marketers will be able to focus marketing efforts on the specific identified needs.

There are four traditional approaches to segment a market: geographic, demographic, psychographic and behavioural segmentation (Goodman, 2012; Kotler, 1980). Geographic segmentation relies on dividing the market on the basis of location. The different groups are positioned in different places, e.g. nations, states and cities (Kotler, 1980). This type of segmentation can be useful as consumers in different regions can have different cultures and resources which can influence consumption behaviour. Demographic segmentation divides the market based on variables such as sex, age and income. This is widely used by businesses as data is readily available and it provides a measurable set of consumers (Wells *et al.*, 2010). However, the use of demographic variables has received some criticism as research has shown that consumers in one demographic group often display very different life styles (Kotler, 1980; Hammond *et al.*, 1996; Simcock *et al.*, 2010). Therefore, psychographic segmentation may be better suitable to divide the market. Psychographic segmentation uses life style or personality differences. A fourth type of segmentation is called behavioural and uses knowledge, attitude, use or response to the actual product as segmentation variables (Kotler, 1980).

### 2.2.1.2. Wine market segmentation

There is only limited research on the segmentation of the wine market and most research on this topic has been executed in Australia. McKinna was one of the frontrunners of wine consumer segmentation research, focusing on segmenting Australian wine consumers (Spawton, 1991; Thach and Olsen, 2006). Based on psychographic variables, McKinna divided the Australian wine market into Wine-Related Lifestyle (WRL) segments. Since McKinna, researchers have expanded on WRL research, mostly focusing on Australia (Spawton, 1991; Bruwer *et al.*, 2002; Bruwer and Li, 2007). Researchers have also used behavioural variables to segment wine markets. One behavioural variable often used to segment wine consumers is consumption occasion (Barber and Almanza, 2006; Aqueveque, 2006; Hirche and Bruwer, 2014). Research shows that consumers base their wine choice on different variables depending on the occasion the wine is bought for. A consumer will choose differently for at home consumption, a dinner party with friends or buying a bottle as a gift. Research on geographic segmentation mostly focuses on consumption behaviour of consumers from different countries (Do *et al.*, 2009; Charters *et al.*, 2011; De Magistris *et al.*, 2011). For example, Lockshin *et al.* (2001) examined the difference in wine shopping behaviour of French and Australian consumers. Mueller *et al.* (2011) studied the consumption behaviour of consumers in the United States, Canada, France, Germany and the United Kingdom. Analysis of the results of these and other studies show there is a general consensus that cross-cultural wine consumption behaviour varies and research in one market cannot be generalized for the global market (Charters *et al.*, 2011). Demographic segmentation has recently received more attention due to one specific tactic: dividing the population in generational cohorts. The focus of this study will be on one generational cohort, Generation Y, combined with behavioural segmentation based on involvement. Therefore, these two variables will be discussed more in depth below.

#### *Generational Cohorts*

Research in marketing has revealed that generational segmentation is successful in identifying consumer groups (Schewe *et al.*, 2000; Schewe and Meredith, 2004; Nowak *et al.*, 2006). A generational cohort is a group of individuals who have experienced similar events and experiences when they were “coming of age”. Due to these experiences, the cohort develops unique values, preferences, attitudes and buying behaviour that remain over a lifetime (Schewe and Meredith, 2004; Eastman and Liu, 2012). There are three principal generational cohorts: the Baby Boomers, Generation X and most recently Generation Y (Gardiner *et al.*, 2013).

Generation Y, often referred to as the Millennial generation or Millennials, is an important target market for wine marketers, as this generation is now becoming economically active (Henley *et al.*, 2011). There is some disagreement about the exact dates of this generation, with the start ranging from 1977 to as late as 1983 and the cut-off year going up to 2004 (Atkin and Thach, 2012). For the purpose of this study, Nielsen's (2014) definition of Generation Y will be adopted. Nielsen identifies Generation Y as the group of people born between 1977 and 1995. This is a large group of consumers ranging from age 20 to 38 in 2015, making it one of the largest demographic groups (van den Bergh and Behrer, 2013). Due to this wide range however, behavior may not be homogeneous for all (Debevec *et al.*, 2013; Nielsen, 2014). Debevec *et al.* (2013) identified some differences between the younger segment of the Generation Y cohort and the older segment. The younger segment is overall more pleasure-seeking than the older segment and they have a larger sense of entitlement. Therefore, the Millennial cohort can further be split into the younger Millennials (20 - 28) and older Millennials (29 - 38). Due to the age limitations of Nielsen's definition, 18 and 19 year olds will not be used in the sample set of this study.

The Generation Y is very unique and their behaviour differs considerably from the previous generations. Generation Y children grew up with one central notion, that of individual empowerment, making them very critical and cynical (van den Bergh and Behrer, 2013). Furthermore, technology plays a key role in every aspect of their lives and is fundamental in fueling this generation's motivations. They are very internet-savvy and make abundant use of social media (Nowak *et al.*, 2006). Three specific motivations are ranked highly by Generation Y: "commune", or the need for connection and to belong; "justice", or the need to do what is right; and "authenticity", or the need to see things as they are (McCann, 2011).

In the past there has been little academic research on the wine consumption behaviour of Generation Y. However, as the importance of this generation is becoming clear to the wine industry, more academics have been focusing on consumption patterns of the Millennial generation (Charters *et al.*, 2011; Fountain and Lamb, 2011; Atkin and Thach, 2012). Millennials act in a similar way to older wine consumers as their quality perception and wine choice is greatly influenced by label design (Lunardo and Guerin, 2009; Mueller and Szolnoki, 2010; Henley *et al.*, 2011). Furthermore, research conducted in Australia showed that the Australian Generation Y drink wines less frequently than the older generation and are willing to pay slightly more than the older generation (Teagle *et al.*, 2010). However, these findings could be attributed to the difference in age rather than the difference in generation.

Other findings mention that Millennial wine consumers in the United States of America attach more importance to wine attributes such as “someone recommended it” and attractiveness of the label compared to older generations which rely more on grape variety and knowledge about the wine (Chrysochou *et al.*, 2010).

However, the results cannot be generalized at a global level as Millennial behaviour can differ across countries (Teagle *et al.*, 2010). Therefore, it is important to understand the behaviour of Millennials in each specific country. Cross-cultural research has indicated some differences in wine consumption behaviour of Millennials in different countries (Charters *et al.*, 2011; de Magistris *et al.*, 2011). Charters *et al.* (2011) examined the differences between American (“New World”) Millennials and Spanish (“Old World”) Millennials. Their main findings demonstrated that taste is very important for “New World” Millennials in their wine choice, while “Old World” Millennials rely mostly on designation of origin.

#### *Behavioural segmentation*

As stated previously, behavioural segmentation uses knowledge, attitude, use or response to the actual product as segmentation variables (Kotler, 1980). Behavioural segmentation has become a key segmentation tool as traditional segmentation techniques such as geographic and demographic segmentation may not provide sufficient information on the behaviour of the consumer (Hollywood *et al.*, 2007). Over the years there has been a growing consensus to segment wine consumers based on behavioural segmentation. More specifically, involvement is often used to segment wine consumers. Involvement can be conceptualized as the interest, enthusiasm, and excitement shown by a consumer toward a product category (Lockshin and Hall, 2003). It expresses a consumer’s relationship to the product category.

The level of product involvement influences the consumer’s search behavior, information processing and decision making process (Laurent and Kapferer, 1985). Involved consumers respond differently to a product category than non-involved consumers as quality cues affect them differently. Highly involved consumers will consciously spend more time and effort considering their product choice than lowly involved consumers. Lowly involved consumers will simplify the wine choice through risk-reduction strategies (Barber *et al.*, 2008). In the wine category, there are three specific types of risk involved: psychological, functional and economic risk (Spawton, 1991). Psychological risk is the risk that a wrong choice can damage the buyer’s self-esteem. Functional risk arises when a consumer cannot determine faults in the wine or the wine is not suitable for the occasion or for pairing with a specific meal. Economic risk is the inability to judge if the perceived value of the wine is relative to the price. Strategies to reduce

these perceived risks include purchasing known brands, relying on recommendations from wine connoisseurs and making use of external cues such as the label (Spawton, 1991; Lacey *et al.*, 2009; Parsons and Thompson, 2009). Using a simulated choice experiment, Lockshin *et al.* (2006) measured consumers' sensitivity to brand, region, price and awards. They demonstrated that low involvement consumers prefer to use price and awards to reduce perceived risk and make a decision whereas high involvement consumers rely mainly on region. Furthermore, highly involved wine consumers also consume more wine than those less involved and tend to spend more money on a bottle of wine (Charters and Pettigrew, 2007).

In the following chapter, the South African Generation Y as an upcoming attractive target market will be discussed. In this study, demographic segmentation will be combined with behavioural segmentation, more specifically segmentation by age as well as by level of involvement will be adopted. In the context of this, this thesis hypothesizes the following:

*H<sub>2</sub>: Hedonic liking is influenced by involvement level*

*H<sub>3</sub>: Hedonic liking is influenced by gender*

### **2.2.2. South African Generation Y**

VinIntell (2013) has identified South Africa's Millennial generation as important emerging wine consumers. South Africa's Generation Y, renamed Afrillennials by Student Village (2015a), makes up about 33 percent of the total South African population and this is expected to grow in the next years (VinIntell, 2013). However, little is known about South Africa's Generation Y and empirical research on this generation group in South Africa is rare (Mandhlazi *et al.*, 2013). Most research on this group has been carried out in developed countries, mostly the United States. Roney Aires, CEO of Student Village, a youth marketing company, has recently stated about South African Millennials: "Millennials continue to play an influential role in South Africa's GDP and remain a demographic cohort influencing brand planning and ultimately success." (Aires, 2015). It is South Africa's largest economically empowered population which will dominate every industry over the next 10 years (VinIntell, 2013).

A survey carried out in South Africa was completed by over 3400 respondents and was aimed at gaining a better understanding of the Generation Y (BizNews, 2014). Data from the survey indicate that South African Millennials are in line with the global trends of this generation. Following is a summary of the most important findings of the survey.

- 79 percent live in the key economic centres: 36 percent live in Gauteng, 25 percent live in Western Cape and 18 percent live in KwaZulu Natal
- 78 percent are employed, and therefore economically active
- 96 percent have a bank account
- 62 percent have bought something that was out of their budget
- 62 percent are saving for something

Millennial students are increasingly spending more money as well as spending more than the average South African individual. Even though the survey's statistics show 62 percent of the Millennials are saving, this is often for the next big purchase and not long-term in contrast to America's Generation Y (Student Village, 2015b).

The cultural difference between black and white South African Millennials is becoming less important as global influences brings together their interests, despite local differences (ConsultaPanel, 2014). However, there is still a difference in spending habits between ethnic groups within the younger segment of South Africa's Generation Y (i.e. students). While coloured students spend most money on clothing, software and computer games, white students spend most of their budget on contraception, music and toiletries and black students on alcohol, petrol and "bling" (Student Village, 2015b). Technology has also played an important role for South Africa's Generation Y. In McCann's 2011 survey, young people mentioned social networking technology as a key in unleashing the true spirit of Ubuntu, meaning a sense of community and togetherness. Moreover, they are often characterized as culturally tolerant and open-minded (Jordaan *et al.*, 2011). Regarding products and brands, South African Millennials are quality conscious, brand conscious, novelty seekers, hedonistic, confused by overchoice, habitual, brand loyal and fashion conscious (Mandhlazi *et al.*, 2013, p. 161).

Very little is known about the alcohol and wine consumption behaviour of South African Millennials. Their alcohol consumption is dominated by beer, ciders and RTDs. Furthermore, on average male Millennials spend more on alcoholic beverages such as wine and beer compared to female Millennials. Moreover, Generation Y provides a potential market share of 3.5 billion Rand for the alcoholic beverages industry (Student Village, 2015b).

Based on these facts, it is clear that Millennials in South Africa are an important consumer market for all industries and more specifically for the wine industry. Seeing that Millennial alcohol consumption is dominated by drinks other than wine, wine producers will need to focus on targeting this consumer group to attempt to change consumption behaviour and subsequently

tap into the potential of this economically active group. Thus, it will be important for future research to study the underlying motivation for their consumption behaviour.

## **SECTION 3: SENSORY SCIENCE AND CONSUMER RESEARCH – THE RELEVANCE FOR WINE MARKETING**

### **2.3.1. Introduction**

It is important to make a distinction between sensory evaluation tests and market research tests in food evaluation. Both tests are often seen as identical; however, there are some important differences that need to be mentioned (Lawless and Heymann, 2010). In sensory evaluation tests, the products are tasted blind with minimal conceptual information to isolate the sensory properties of the product. In contrast, explicit conceptual claims or information is provided in market research tests to measure the conceptual appeal of a product. Both tests are important to reach a full understanding of the evaluation of food products. Sensory evaluation provides insight into consumers' perception of product characteristics. However, in actual purchase decisions and consumption consumers seldom experience a product without encountering any other stimuli. Therefore, it is of great significance to bridge the gap between sensory evaluation and market research (Meiselman, 1994).

Consumer market researchers are mainly interested in the purchase intent and perceived liking of food products while sensory scientists are focused on the liking of sensory characteristics of the food product. For marketers, both will have an enormous influence on the final marketing planning of a product or brand. Wine marketers especially need to take both consumer research and sensory studies into account. Wine is characterized by a large amount of extrinsic and intrinsic cues influencing the purchase intent of the wine. However, due to the complex nature of wine, these cues can also influence the sensory liking of a wine, especially for novice wine consumers. Therefore, it is important to combine both areas of research to explore consumption behaviour of wine consumers.

### **2.3.2. Discrete choice experiments versus sensory hedonic testing**

There are different ways to test the acceptance of food products for consumers. Consumer research often uses discrete choice experiments (DCE) to investigate purchase intent and the effect of branding on perceived liking of a product while sensory scientists use sensory testing to test the acceptance and liking of a product based on its sensory characteristics (Lawless and

Heymann, 2010). DCEs elicit the utility of alternative products, based on the perception of intrinsic and extrinsic attributes (Agnoli *et al.*, 2011). These experiments are often preferred as they force respondents to make a choice based on attributes of a product (Mueller *et al.*, 2010). For wine, there is ample research using DCEs to measure consumers' sensitivity to different wine attributes (Lockshin *et al.*, 2006; Mueller *et al.*, 2010; Agnoli *et al.*, 2011). However, DCEs do not incorporate sensory liking of a product. Even though DCEs might predict a first time purchase of a food product that cannot be tasted prior to purchase, they may not predict a repeat purchase as repeat purchase will also be a function of the perceived sensory liking of the product. Therefore, it is important to conduct sensory hedonic testing to measure consumers' sensory acceptance and preference for food products. Sensory hedonic testing is interested in the blind liking or preference of different products. These experiments use unbranded, coded products to investigate the sensory characteristics. Thus, it is important for marketers to incorporate both consumer research and sensory science. The success of a product will be dependent on the combination of a high hedonic liking and marketing factors such as price, image and packaging (Lawless and Heymann, 2010). Therefore, the following hypothesis can be set forward:

*H<sub>4</sub>: There is an influence of packaging for young Millennials on hedonic liking of Pinotage*

### **2.3.3. Sensory evaluation methods**

In the past, the quality of foods was often tested by one expert. The judgment of one expert however was not always reliable and did not always reflect consumers' needs (Lawless and Heymann, 2010). Therefore, there are currently three main research methods that are used to acquire sensory data: difference testing, descriptive testing and affective testing.

#### **2.3.3.1. Difference testing**

Difference testing, also called discrimination testing, is used to measure any perceptible difference between two products. Panel members are asked if they perceive any differences in presented samples of a product. Difference testing is mostly used for recruiting capable assessors for a sensory panel or for analyzing product substitutability (Næs, 2010). The most commonly used difference test is the "triangle test" (Lawless and Heymann, 2010). In this test, panel judges are asked to point out the odd sample from three samples of which two are the same and one is different. Other variations of difference tests are A-Not A, Paired Comparison

and Duo-Trio tests (Piggott *et al.*, 1998). Panels used for this sensory testing method can be trained or untrained.

### **2.3.3.2. Descriptive analyses**

Descriptive analyses, also called sensory profiling, is used to identify, quantify and describe sensory characteristics perceived. Thus, if there is a difference perceived in the discrimination testing, descriptive methods can be used to help identify the specific perceived sensory differences as well as the intensity of these differences (Piggott *et al.*, 1998). This form of testing requires training a panel to enable them to characterize all flavors and the intensity of these flavors (Lawless and Heymann, 2010).

Descriptive sensory tests are the most inclusive evaluation tool as they aid in characterizing individual attributes of flavor in a wide variety of food products (Lawless and Heymann, 2010). Furthermore, the panel quantifies sensory characteristics in a language related to consumer's perception, contrary to most chemical analytics methods (Næs, 2010). This is crucial for further consumer-related research.

### **2.3.3.3. Affective testing**

A third class of sensory testing is affective testing, also called hedonic testing. These type of tests try to quantify the degree of liking or disliking of a product (Lawless and Heymann, 2010). Diverse scaling methods have been developed by different researchers to measure hedonic liking, e.g. unstructured line scales, "smiley face" scales, simple ranking and ranking by elimination (Rosas-Nexticape *et al.*, 2005). However, the most frequently used method to measure liking and preference is the 9-point scale for liking developed at the U.S. Army Food and Container Institute in 1949. It was initially developed to measure food preferences of soldiers but in later stages researchers used the scaling method on the general consumer population. The scale provides 9 balanced categories ranging from "like extremely" to "dislike extremely" with a centered neutral category and equal intervals (Lawless and Heymann, 2010). Peryam, "the father of sensory science", summarizes the main advantages of the 9-point hedonic scale as follows: "The essential features of successful application are: (1) definition of the continuum as one of affectivity, rather than judgment; (2) structuring the scale with like and dislike terms, that are easily understood and meaningful; and (3) the policy of not "tampering" with the subjects but encouraging free, uninhibited expression" (Peryam and Pilgrim, 1957, p. 16-17). Furthermore, ease to use and implement are important advantages of the scale; it has proven to be useful in studying liking of foods, beverages and non-products.

Critics of the use of hedonic scaling mention that environmental conditions change hedonic rating of a product. However, research has shown that environmental conditions influence all samples in a similar way therefore absolute magnitude of liking may change but preference remains the same (Peryam and Pilgrim, 1957). Researchers have indicated some drawbacks in implementing the 9-point scale in hedonic testing. More specifically interval spacing, lack of freedom due to defined response categories and central tendency could lead to unreliable results (Hein *et al.*, 2008). Moreover, with every type of scale subjects have the tendency to avoid the end categories of the scale which reduces the effective number of categories by two (Jaeger and Cardello, 2009). This means that the 9-point scale is actually reduced to a 7-point scale. However, a 7-point scale still allows for reliable statistical analysis (Lawless and Heymann, 2010).

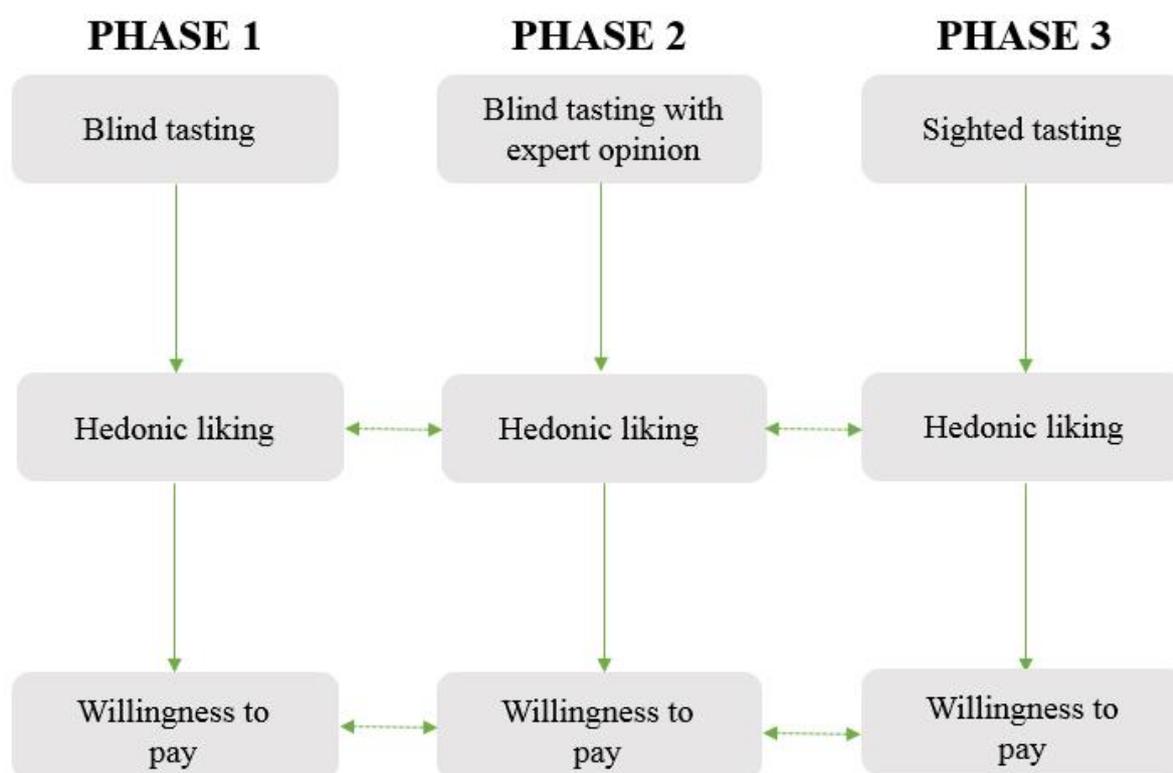
Even though DCEs have often been used in studies similar to this, sensory hedonic testing is preferred in this study due to its apparent advantages for marketers. Therefore, affective testing is chosen to measure the hedonic liking of different Pinotage wines. This study is not interested in any perceived sensory differences between the different wines or in the perceived sensory characteristics, therefore difference testing and acceptance testing will not be applied. However, the degree of liking of different Pinotage wines as a result of the provided information will be measured using the 9-point hedonic liking scale.

# CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

## 3.1. Introduction

As stated in the first chapter, the main purpose of this study is to determine the relevance of expert opinions and packaging on the perceived liking of Pinotage wines for young South African Millennial wine consumers. Furthermore, the secondary objective is to explore young Millennial consumers' willingness-to-pay as a result of expert opinions and packaging. The term Millennials is used in this section to indicate the younger segment of the Millennials.

In order to achieve these objectives, a laboratory experiment was conducted consisting of blind and informed sensory testing paired with a survey approach in a three stage experiment (Figure 7).



**Figure 7:** Research model

The following sections will elaborate on sampling and sample size of the experiment, the sensory experiment and on the questionnaire design.

## **3.2. Sensory hedonic testing**

### **3.2.1. Introduction**

A consumer's acceptance or rejection of a food product is influenced by many factors. Food characteristics such as chemical and nutritional composition, consumer characteristics such as age and environmental characteristics such as price and convenience can all have a significant impact on the acceptance or liking of food (Barrios and Costell, 2004). Nevertheless, research on food acceptance predominantly explores the influence of one specific characteristic, disregarding the others. Consumer behaviour research mostly emphasizes marketing related issues such as the processes before or during purchase (Grunert, 2003). As a marketer's main concern is selling a product, the focus of marketing research is mainly a consumer's purchase decision while consumption and sensory liking after the purchase decision is often disregarded. In contrast, sensory scientists focus on sensory liking of products but are mainly interested in evaluation of food products by experts to obtain objective facts about the products. Only limited sensory research is done to investigate the liking of a food product by regular consumers. Furthermore, the limited amount of sensory studies that are focussed on consumers are mainly uninterested in the purchase intent, effect of branding, and/or cost factors (Lawless and Heymann, 2010). Therefore, as marketing factors can evidently influence the consumers' perception of the sensorial quality of a product, it is important to incorporate sensory science in the study of consumer behaviour.

Particularly, studies focussing on wine frequently use a discrete choice experiment approach to explore the importance of extrinsic cues in visual liking and preference of wines (Lockshin *et al.*, 2006; Mueller *et al.*, 2010). These experiments concentrate on the effect of extrinsic attributes on purchase decision. However, it is also necessary to examine to what degree extrinsic cues influence a wine's intrinsic merit as this can influence future purchase decisions. Sensory hedonic testing combines marketing factors and sensory science and explores the sensory liking of food products by consumers.

### **3.2.2. Wine samples and presentation of samples**

For the purpose of this study, seven different Pinotage wines were sourced from around South Africa. Similar studies presented a range of four to eight wines in their sensory consumer study (Charters *et al.*, 1991; Chocarro and Cortinas, 2013; Mueller *et al.*, 2009; Mueller, *et al.* 2010). Therefore, the use of seven wines is acceptable. All wines were donated by the South African Pinotage Association.

All wines were produced in main wine producing areas in the Western Cape and are 100 % Pinotage. Retail price per bottle ranged from R 27.50 to R 155, indicating some quality difference in the wines. The wines included in this study are listed in Addendum A. However, for anonymity all wines will be coded for future reference.

All wines were stored at 15 °C from delivery to use. Before each tasting, four sets of seven 30ml samples were poured in ISO tasting glasses and covered with petri-dishes for each participant. Each glass was coded with a three-digit label and each set was randomized for every participant using the William's design to control for order and carry-over effects (Lawless and Heymann, 2010).

To keep the wines in perfect condition after a day of tasting, left-over wine was stored in smaller glass bottles that had been rinsed with an ethanol solution before use. The bottles were filled to overflow, to prevent detrimental oxygen damage such as reduction of quality, loss of fruit character and browning (Jacobsen, 2006).

### **3.2.3. Panel**

The panel consisted of 126 Millennial South African consumers. Of the participants, 44.5 % were male and 55.5 % were female. They were recruited through e-mails sent to all Stellenbosch University staff and students and panellists were selected on a first-come first-serve basis. As an incentive to join, all participants had the chance of winning one of three cases of wine. The group of participants did not receive any training prior to participating in the tasting and consisted of both wine connoisseurs and non-connoisseurs.

### **3.3. Sampling**

Sampling is an integral part of research as the sample in a study must be representative of the population to which the results will be generalized (Lawless and Heymann, 2010). There are two types of sampling: probability sampling and non-probability sampling. In probability sampling, every person in the population has the chance to be represented in the sample. In non-probability sampling, this is not the case (Leedy and Ormrod, 2013). Probability sampling is often preferred as a sampling technique as this assures a high representativeness for the population. However, this method is only feasible when the population size is precisely known. The population studied in this research are the young South African Millennials who are aged 20 to 28 years old. As mentioned in section 1.2.3.1., only an approximate population size can be defined. There is no precise data on the population size of this specific age bracket. Therefore, probability sampling is impossible to apply. Furthermore, probability sampling

requires extensive operational costs and is relatively time intensive. The time span and financial limitations of this study did not allow for probability sampling.

Therefore for the purpose of this research, convenience sampling of students and members of the University of Stellenbosch staff, was used as the sampling technique. Convenience sampling is a type of non-probability sampling and was utilized because of its cost-effectiveness and readily available participants. Important to note is that university students have been used in previous studies as a representative sample for the Generation Y consumers (Jordaan *et al.*, 2011; Jordaan and Ehlers, 2009; Nowak *et al.*, 2006). However, as with most survey type studies, caution should be used when generalizing the results of this convenience sample to the South African Millennial population. This mainly due to the misrepresentation of the different population groups. While 80 % of the South African population is African, the majority of the participants in this study were white.

### **3.4. Questionnaire design**

#### **3.4.1. Acceptance testing**

There are two main approaches to measuring consumer sensory evaluation and food choice: preference testing and acceptance testing. In preference testing, such as paired preference testing, the consumer has to make a choice between two or more different products. In acceptance testing, the consumer has to rate the liking of one or more products on a hedonic scale (Lawless and Heymann, 2010). Both methods have several advantages as well as some reported disadvantages. Researchers favouring preference testing argue that even when a consumer gives equal hedonic scores to two products in an acceptance test, they might still prefer one over the other (Villegas-Ruiz *et al.*, 2008). However, on the other hand, preference testing only elicits relative information rather than absolute information on the overall appeal of a product as a product that is preferred in a choice test might still be unappealing to the consumer (Lawless and Heymann, 2010). Furthermore, superiority of a product in an acceptance test can indicate preference and hedonic scales can be converted to paired preference or rank data (Rohm and Raaber, 1991). For this reason, acceptance testing is often the preferred method of sensory testing. Data from acceptance scales is derived from a person's hedonic continuum, which can be referred to as utility in economic literature (Ennis and Ennis, 2013). Therefore, the scale does not allow for spatial representation of products but it allows researchers to quantify the degree of liking and conduct comparative statistical tests.

Different scales have been used to test the acceptability of foods. Lawless *et al.* (2010, p. 54) argue: “using scales with high discriminative power, good reliability and some predictive value for correlating with food habits is a goal of sensory evaluation”. Frequently used scales are the labelled affective magnitude scales, line scales and just-about-right scales. However, the most common and widely used acceptance scale in the food industry is the 9-point hedonic scale.

The 9-point hedonic scale comprises of nine verbal categories ranging from dislike extremely at the lower end to like extremely at the upper end with a neither like nor dislike centre point. The scale helps a consumer to describe his/her feeling towards a product. Research on the reliability and validity of the 9-point hedonic scale compared to other scales has demonstrated that the 9-point scale performs as effectively as others in discriminating the consumers’ liking for products (Lawless *et al.*, 2010; Lawless *et al.*, 2010; Cordonnier and Delwiche, 2008). The 9-point scale is often favoured because of its simplicity in use and its reproducibility of reliable results with both large and small groups (Stankus, 2008). Moreover, research has shown that results from the 9-point hedonic scale can accurately predict purchase intention (Rosas-Nexticapa *et al.*, 2005).

### **3.4.2. Willingness-to-pay**

As a secondary research objective, Millennials’ willingness-to-pay (WTP) for Pinotage was also investigated in this study. WTP is the maximum price that a consumer is willing to pay and is driven by products’ perceived value (Lewis and Zalan, 2014). It plays an important role in many marketing areas such as pricing decisions and product development. Goods are valued by consumers as their attributes generate utility. For wine, a consumers’ willingness-to-pay is mainly dependent on extrinsic attributes such as packaging, producer reputation and vintage as the sensory quality of a wine cannot be know before it is bought (Schamel and Anderson, 2003). Furthermore, consumers often struggle to indicate the monetary worth of sensory cues of wine (Costanigro *et al.*, 2007). Therefore, it is important to study the influence of extrinsic wine attributes on willingness-to-pay and whether these attributes appear to be adequate indicators of the monetary worth of the perceived sensory quality. Thus, this thesis sets the following hypotheses forward:

*H<sub>5</sub>: Expert opinions influence young Millennials’ WTP*

*H<sub>6</sub>: Packaging influences young Millennials’ WTP*

*H<sub>7</sub>: Involvement level influences the main effect of expert opinions and packaging on WTP*

*H<sub>8</sub>: Gender influences the main effect of expert opinions and packaging on WTP*

Willingness-to-pay can be measured through several methods. One of the most used methods is the use of auctions of which the Vickrey auction is the most widely used in WTP measurement. During a Vickrey auction, participants need to submit a bid containing how much they would be willing to pay for a product. The participant with the highest bid wins the auction but only has to pay the price of second highest bid (Breidert *et al.*, 2006). This way, respondents are incentivized to reveal their true valuation. However, due to time and monetary restrictions, this study used a direct customer survey technique to measure WTP where respondents were directly asked to indicate the price they would pay for a product.

Important to note is that this analysis is only preliminary as direct customer surveys have several drawbacks. The most important are summarized by Breidert *et al.* (2006, p. 14). Firstly, when directly asking people to indicate their willingness-to-pay an unnatural focus is put on price which can override the importance of other attributes. Secondly, because of prestige effects or to not appear stingy respondents may overstate their prices. Furthermore, for complex products such as wine, indicating willingness-to-pay is a cognitively challenging task. This could lead to overstating or understating the true valuation. Finally, for infrequently bought products the perceived valuation might not be stable. Therefore, due to these distorting effects, results from direct survey techniques need to be analysed and interpreted with caution. Despite the drawbacks however, direct customer surveys can provide preliminary WTP results and can provide a reliable basis for further research.

### **3.4.3. Reliability and validity**

In questionnaire design, it is important to establish reliability and validity of the questionnaire and its questions. Barrios and Costell (2004, p. 365-366) mention six steps to ensure reliability and validity of quantitative methods.

*(1) setting the target of the study clearly, defining the type and features of the data to be collected;*

*(2) selecting the population to be investigated;*

*(3) the selection of a representative sample from the target population;*

*(4) the design of the questionnaire;*

*(5) the selection of the data collection system;*

(6) *the analysis of each block of answers with the most appropriate statistical method*

Steps one to three has already been discussed. The following steps will be discussed in the following chapters.

Within a research project, it is important to ensure both method and measurement validity. Whereas measurement validity focusses on the measurement instruments, method validity emphasizes the research project as a whole. Two types of method validity exist: internal method validity and external method validity. Internal validity is the extent to which a questionnaire design and its results allows the researcher to draw accurate conclusions about the cause-and-effect relationship within the data. External validity is the extent to which the results can be generalized to situations beyond the study (Leedy and Ormrod, 2013). To ensure internal validity of this study, a controlled laboratory setting was used so that external influences could be regulated. External validity can be safeguarded by employing a representative sample set of the population studied. Due to the random sampling technique used in this study, external validity is relatively low but still acceptable as a result of sampling university students as a representative sample of Generation Y, similar to previous studies.

Measurement validity can be defined as “the extent to which any measuring instrument measures what it is intended to measure” (Carmines and Zeller, 1979, p. 17). Measurement validity can be evaluated through three different approaches: criterion-related validity, content validity and construct validity (Leedy and Ormrod, 2013). Criterion-related validity, or predictive validity, is the extent to which a measuring instrument’s results correlates with another related measure. Content validity is the extent to which a measure represents all facets of a specific domain of content. Construct validity is the extent to which an instrument accurately measures a characteristic or construct that is assumed to exist but cannot be observed directly such as motivation or involvement. The 9-point hedonic scale has been a widely used tool in research to investigate hedonic liking of products. Furthermore, comparison to other scales has proven the predictive validity of the scale (Lawless *et al.*, 2010; Lawless *et al.*, 2010; Cordonnier and Delwiche, 2008). To ensure content validity of the study, experienced colleagues tested the questionnaire and gave feedback on the questions. Construct validity in this study refers to the measurement of the characteristic of wine involvement. The scale used to measure involvement, as discussed in section three of the final contents discussion (see 3.4.4.) has a Cronbach  $\alpha$  of 0.93, ensuring the construct validity of the measurement instrument.

In addition to validity, reliability of a research project needs to be taken into account. Reliability is concerned with the consistency of a measure and the extent to which the measure yields consistent results on repeated trials (Carmines and Zeller, 1979). To increase reliability, experienced colleagues were asked for feedback and suggestions on the questionnaire. Furthermore, related literature and research was consulted and well known effective measurement techniques were used as a basis for this study. In this regard, research has shown that the placement of overall assessment questions affect a consumer's scoring (Bastian *et al.*, 2015). The further the assessment question in the questionnaire, the greater the carry-over effect of prior questions. Therefore, to ensure the reliability of the 9-point hedonic scale in this study, the overall acceptance questions of the questionnaire were asked first.

#### **3.4.4. Final contents**

##### *Section 1: Tasting*

The first section of the study aimed to determine the liking of several Pinotage wines. Consumers were asked to taste 4 sets of 7 Pinotage wines of which each set contained the same 7 wines though participants were not aware of this. Each set was randomized using the William's design. After each set, respondents were asked to take a 5 minute break before starting with a new set. They were also asked not to discuss the sensory evaluation with fellow tasters.

The first set of wines were tasted blind and could only be identified through their three-digit label. Respondents were asked to rate each wine on a 9-point hedonic scale. The categories were presented as follows: *1 = Dislike extremely, 2 = Dislike very much, 3 = Dislike moderately, 4 = Dislike slightly, 5 = Neither like nor dislike, 6 = Like slightly, 7 = Like moderately, 8 = Like very much, 9 = Like extremely.* Once a liking had been indicated for a wine, it was impossible for people to go back and adapt previous likings of previously tasted wines.

The second set of wines were again tasted blind. However, this time the aim was to discover respondents' willingness-to-pay for each wine. This order was chosen to decrease the influence of the available information of following treatments on the willingness-to-pay when the wines are tasted blind. Participants were able to indicate their willingness-to-pay of a wine by choosing one of seven price classes (refer to Table 7). Again, it was impossible to go back to a previous wine to change a price class.

**Table 7:** Willingness-to-pay price classes

Price classes						
R0 - R50	R51 - R100	R101 - R150	R151 - R200	R201 - R250	R251 - R300	R300 +

In the third tasting set, each wine was paired with an expert rating. Table 8 shows the expert ratings used for each wine. Due to the young age of the wines, real expert opinions could not be found for the Pinotage wines in this study. Therefore, expert opinions on previous vintages were used to represent the vintages used. The expert opinions used in this study are from several national and international wine competitions. Wine 1 received a spot in the top 20 South African Pinotage wines as part of the SA Wine Classification. This classification tracks wines over 10 years and highlights the best 20 Pinotage wines in South Africa. The International Wine and Spirit Competition employs international judges who are selected for their knowledge and experience to rate international wines from nearly 90 countries worldwide. Wine 2 received a silver medal from the IWSC, which translates to a fine example and excellent quality. Wine 3 received a written wine rating from Wine Enthusiast Magazine, a magazine which tastes, rates and reviews wines and other alcoholic drinks. The rating uses negative terms such as rubber and wet forest floor, therefore it can be seen as a negative rating. The Michelangelo International Wine and Spirits Awards judges wines based on the international 100 point system and awards medals accordingly. The Gold medal received by wine 4 is the 3<sup>rd</sup> highest medal a wine can receive, followed by a silver medal. The Veritas awards are a local South African competition and gives recognition to wines of exceptional quality. The panel of tasters consists of winemakers, researchers, academics and merchants and wines are tasted blind. A gold medal as received by wine 5 is seen as very good quality Wine 6 received a RECM Best Value Pinotage Award. The RECM panel score and value each wine and its purpose is to quantify wines in terms that can be of use to the consumer. Finally, Simon Woods who reviewed wine 7 is a renowned wine writer from the United Kingdom and reviews wines from all over the world. The review consists of relatively positive terms such as not unpleasant and enjoyable, making it fairly neutral. The positive/negative column indicates how positive or negative the rating is intended to be. On the computer screen, respondents could see and/or read the expert opinion about the wine they were tasting. Only the information in the expert opinion column provided in Table 8 was shown to the participants. When the expert opinion included a medal, the medal was displayed on the screen. Respondents were then asked again to rate the wine on a 9-point hedonic scale.

**Table 8:** Expert ratings

Wine	Vintage	Expert opinion	Positive/ negative	Price/ bottle*
W1	2014	In 2015, this wine was one of the Top 20 South African Pinotage wines as part of the SA Wine Classification	++	R 155,00
W2	2013	This Pinotage has won a Silver Medal in the International Wine and Spirit Competition 	+	R 90,00
W3	2014	Wine Enthusiast Magazine writes about this Pinotage: "Red plum & cherry aromas struggle to overcome notes of rubber and wet forest floor. Light weight with soft tannins and a short finish." - 84 points	--	R 60,00
W4	2014	This Pinotage has won a Gold Medal in the Michelangelo International Wine and Spirits awards 	++	R 124,00
W5	2013	This Pinotage has won a Gold Medal in the Veritas Awards 	++	R 29,00
W6	2013	This Pinotage has received the RECM Best Value Pinotage Award 	+	R 46,00
W7	2014	Simon Woods writes about this Pinotage: "Classic Pinotage characters of spice-infused berries and bananas, along with notes of chocolate. There's also a savoury tomato note in there too, alongside some (not unpleasant) rusting iron-like notes. Very enjoyable stuff, with a brawny, earthy honesty." - 87 points	-/+	R 90,00

The fourth and final set of wines that respondents had to taste included the total packaging of the wine. For each wine, the complete bottle was shown on the computer screen. The wines that received an award in the expert ratings, also had the award sticker on the bottle. Consequently, only in the fourth set did participants know which wines they were tasting.

### Section 2: Demographics

During the second part of the study, respondents had to complete several demographic questions. The first set of questions included gender, age and profession. Furthermore, respondents were also asked to indicate how often they drink wine as well as how much they usually spend on a bottle of red wine.

### Section 3: Wine involvement

Involvement can be defined as “a person’s perceived relevance of the object based on inherent needs, values, and interests” (Zaichkowsky, 1985, p. 342). In the case of wine, research has shown that the level of wine involvement influences a consumer’s decision making process (Barber *et al.*, 2008; Charters and Pettigrew, 2007; Laurent and Kapferer, 1985). Therefore, it is important to take into account the level of involvement.

To measure the participants’ involvement with wine, the revised Personal Involvement Inventory (PII) was used. The original PII, a context-free 20 semantic differential items scale, was introduced by Zaichkowsky in 1985. All items are scored on a 7-point scale. The 20-item scale was very successful as it met the criteria for internal reliability, reliability over time, content validity, criterion-related validity and construct validity. In 1994, Zaichkowsky reliably revised the 20-item scale to a 10-item scale due to some of the 20 items being redundant (refer to Figure 8). The revised scale’s reliability and validity remains acceptable for success. Therefore, it was decided to use the revised scale in this study.

<b>Revised Personal Involvement Inventory</b>			
To me (object to be judged) is:			
1.	important	_____	unimportant*
2.	boring	_____	interesting
3.	relevant	_____	irrelevant*
4.	exciting	_____	unexciting*
5.	means nothing	_____	means a lot to me
6.	appealing	_____	unappealing*
7.	fascinating	_____	mundane*
8.	worthless	_____	valuable
9.	involving	_____	uninvolving*
10.	not needed	_____	needed

\* indicates item is reverse scored.

**Figure 8:** The revised Personal Inventory Index adapted from Zaichkowsky (1994).

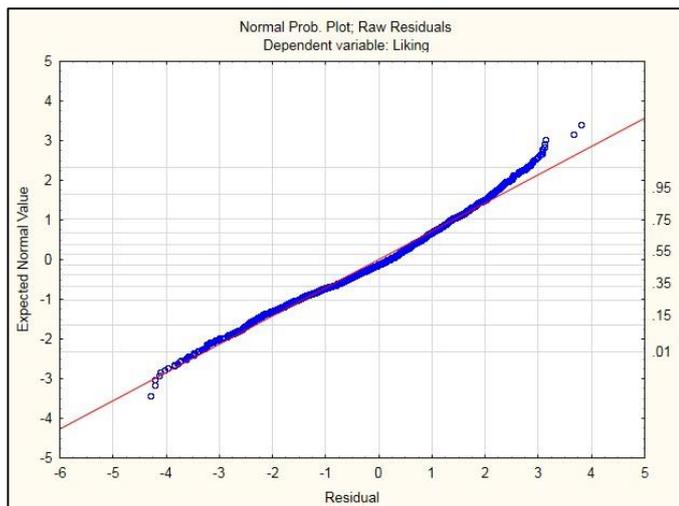
*Section 4: Willingness-to-pay*

Once respondents had completed the involvement question, they were asked for contact details to e-mail them a follow-up questionnaire in a week's time and participants could leave the sensory lab. The follow-up questionnaire contained the questions regarding willingness-to-pay when expert opinions are shown and when packaging was shown. This one week break was implemented to reduce the influence of hedonic liking scores on the willingness-to-pay. The follow-up questionnaire had to be completed at home, therefore respondents were not asked to taste the wine but had to indicate how much they would be willing to pay for the wine with the information provided. Again, respondents had to indicate their willingness-to-pay by choosing one of seven price classes (refer to Table 7). After indicating the willingness-to-pay in the expert opinion treatment, a five minute break was imposed before respondents were able to proceed with the packaging setting.

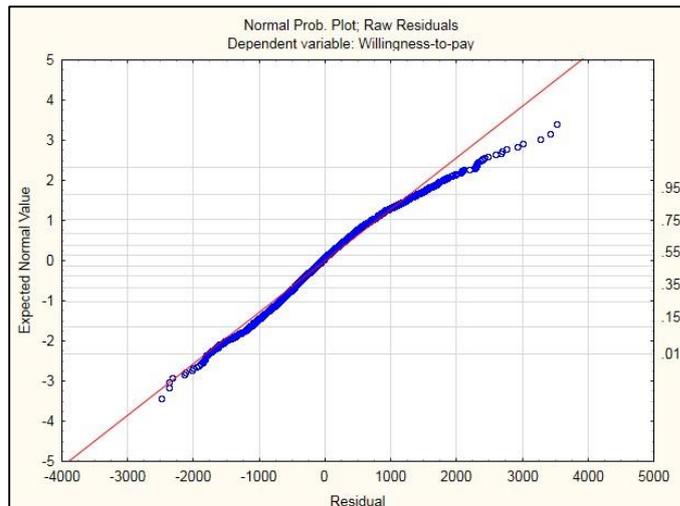
# CHAPTER 4: RESULTS AND DISCUSSION

## 4.1. Introduction

All acceptance research data for this study was captured over a series of four days and ten one-hour tasting sessions in the sensory lab of the Department of Viticulture and Oenology at Stellenbosch University in order to accommodate all participants. A secondary questionnaire was sent to all participants a week after participating to capture willingness-to-pay data. This was done to reduce the influence of the respondents' memory of hedonic liking of a wine on their indication of willingness-to-pay. The secondary questionnaire had to be filled in at home to complete the study. Research data was captured with *Compusense 2015*® and analysed with *StatSoft STATISTICA 12*®. Descriptive statistics were used to describe the sample profile and summarize the data. Inferential statistics were used to test the statistical hypotheses. The possible influences of expert opinions and packaging on hedonic liking and willingness-to-pay were investigated using analysis of variance (ANOVA) and least significant means analysis (LS Means). Furthermore, multiple comparison tests were conducted to compare willingness-to-pay means. Normality of the data was checked and all analyses were performed at a 5 % significance level. Normal probability plots of the raw residuals of the data were used to investigate the normality of the sample set data. Normality is observed by an overall straight line for both normal probability plots (refer to Figure 9 and Figure 10). A total of 126 Millennial consumers took part in the one-hour tasting sessions. However, due to incomplete or incorrectly completed datasets, a total of 101 complete datasets were eventually used. As stated by Lim (2011), a sample size of 101 responses is enough to approximate normality in order to make valid statistical inferences.



**Figure 9:** Normal probability plot for hedonic liking data (obtained from *StatSoft STATISTICA 12®*).

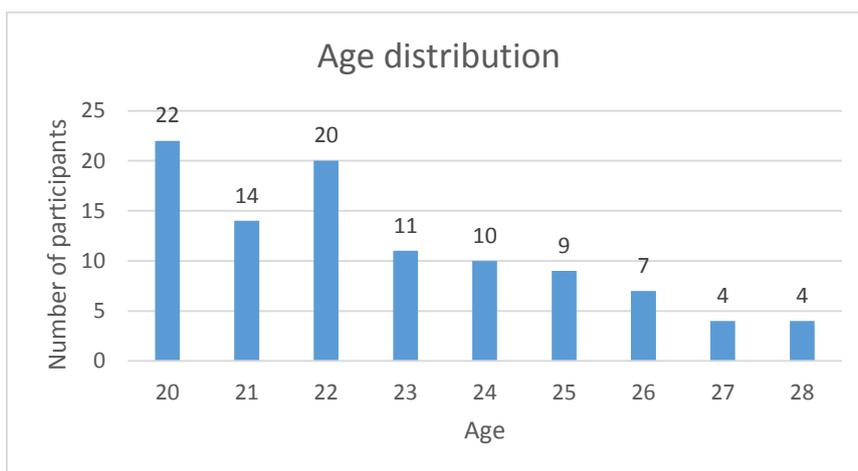


**Figure 10:** Normal probability plot for willingness-to-pay data (obtained from *StatSoft STATISTICA 12®*).

## 4.2. Sample profile

### 4.2.1. Demographic profile of sample

Of the 101 participants in this study, 44.5% were male and 55.5% female. All were aged 20 to 28 years old with 55.4% aged 20 to 22 years old (refer to Figure 11). With the exception of a couple of respondents, the majority of the participants were students.

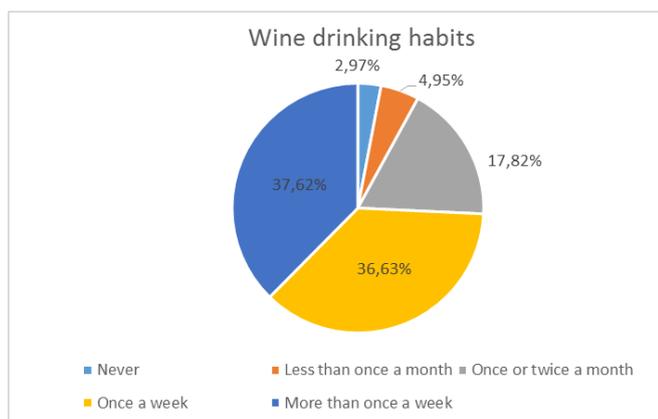


**Figure 11:** Age distribution of study participants

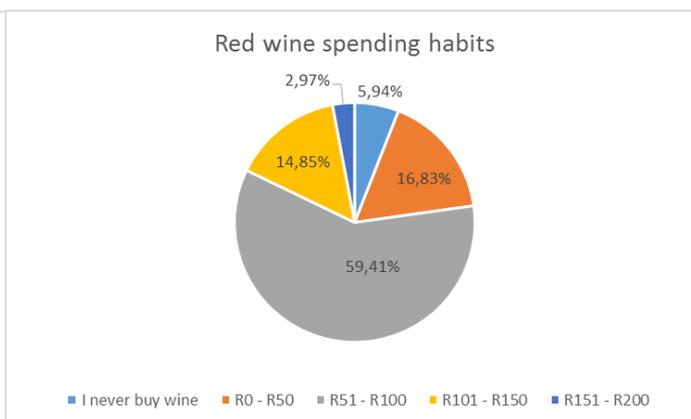
### 4.2.2. Wine consumption and purchasing habits

Participants were asked to state how often they drank wine. The highest percentage of respondents, 37.62 %, consumed wine more than once a week. This was closely followed by

36.63 % stating they consumed wine once a week (refer to Figure 12). This high level of consumption of the majority of participants was expected as wine consumers will be more inclined to participate in a wine tasting study. Only a small percentage (2.97%) stated they never drank wine.



**Figure 12:** Wine drinking habits of study participants



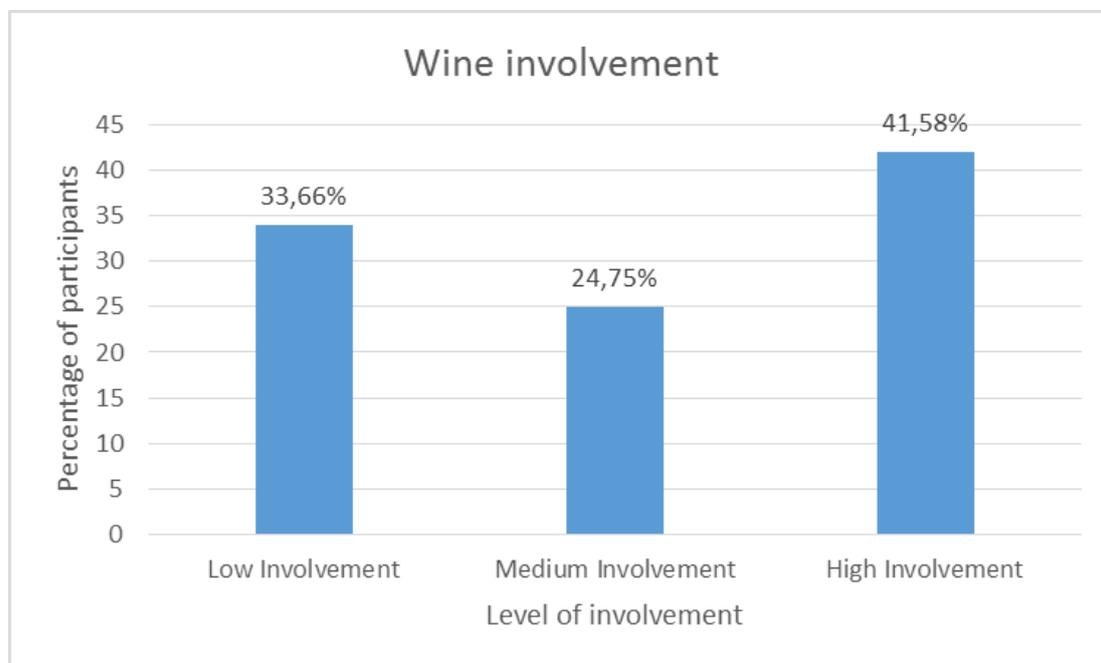
**Figure 13:** Wine spending habits of study participants

Furthermore, participants were asked to state how much they spend on average on a bottle of red wine. The question specifically stated red wine as willingness-to-pay for red and white wine may differ. Important to note is that respondents had the option of indicating price categories up to more than R300; however no one stated they generally spend over R200 on a bottle of red wine. The majority of people generally spend between R51 and R100 on a bottle of red wine. Figure 13 provides an overview of the participants' wine spending habits.

#### 4.2.3. Wine involvement

As stated in chapter 3, participants' wine involvement was measured with Zaichkowsky's (1994) Personal Inventory Index. This scale measures each respondent's relevance of wine based on their own needs, values and interests. The Cronbach  $\alpha$  of the scale in this study is 0.93 ( $> 0.9$ ) meaning the scale is reliable and valid. Therefore, the items in the scale measure the intended construct of wine involvement. The scale is made up of 10 semantic differential items which respondents needed to score on a 7-point scale (Bearden *et al.*, 2011). Figure 8 shows that some items in the scale are negatively reverse scored, this to reduce the effect of boredom and acquiescence during the study. The scores for these items were positively reversed during the analysis. To form an overall measure of involvement, the scores of all items were aggregated and averaged. Respondents who on average scored less than 5 were categorized as low involvement consumers. A score between 5 and 6 was categorized as medium involvement.

High involvement was categorized as a mean of 6 or more. Figure 14 shows 33.66 % of participants have a low interest in wine, 24.75 % a medium involvement and 41.58 % are highly involved with wine.

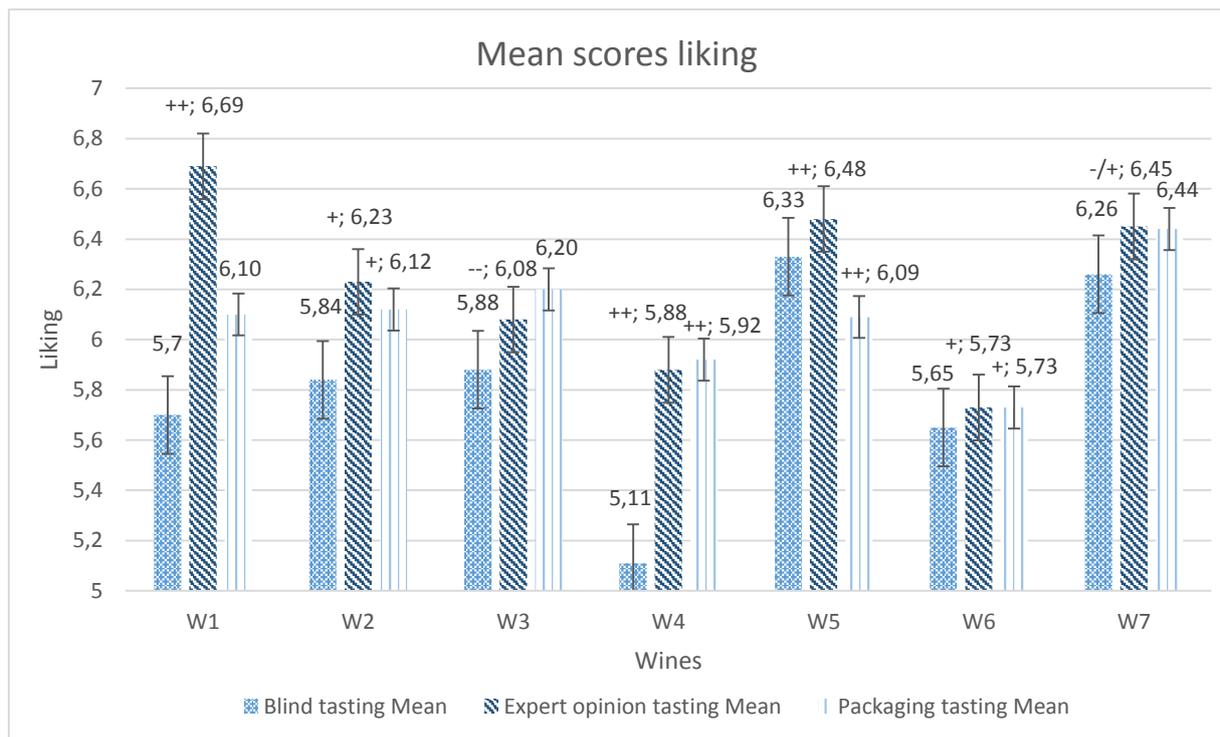


**Figure 14:** Participants' wine involvement level

### **4.3. The influence of expert opinion and packaging on Millennials' hedonic liking of Pinotage**

#### **4.3.1. Introduction**

The main purpose of this study is to investigate the effect of expert opinions on hedonic liking of Pinotage. Furthermore, the effect of packaging was also researched in this study. Figure 15 provides an overview of the mean scores of each wine in each tasting session with regards to hedonic liking. The average hedonic liking scores for each wine range from 5.11 to 6.69. This spread demonstrates the general tendency for participants to avoid using extreme categories in the 9-point hedonic scale (Hein *et al.*, 2008; Lawless and Heymann, 2010). On average, the wines were liked slightly.



**Figure 15:** Average liking on a 9-point hedonic scale from the three tasting sessions with vertical error bars denoting variability.

A preliminary analysis on the mean liking scores of the blind tasting session was conducted. On average, the wines were liked slightly with the average hedonic liking in the blind tasting ranging from 5.11 to 6.33. Results show that the mean liking score of wine 4 is significantly lower than the liking scores of the other wines ( $p \leq 0.05$ ) in the blind tasting. Thus, wine 4 was the least liked wine. Furthermore, wine 5 was liked significantly more than wine 1 ( $p = 0.008 \leq 0.05$ ), wine 2 ( $p = 0.038 \leq 0.05$ ), wine 4 ( $p \leq 0.01$ ) and wine 6 ( $p \leq 0.01$ ). However, wine 5 did not differ significantly from wine 3 ( $p = 0.057$ ) and wine 7 ( $p = 0.766$ ).

This preliminary analysis on the average liking scores in the blind tasting confirms the findings of Goldstein *et al.* (2008) that average wine drinkers in blind tastings prefer less expensive wines over more expensive wines. The average price for a bottle of wine 4 in South African retail stores is R 124, making it the 2<sup>nd</sup> most expensive wine in this set of Pinotage wines. Wine 5 on the other hand is the cheapest wine in the collection with an average retail price of R 29. Wine 3 and wine 7 had average retail prices of R 60 and R 90 respectively. As wine is an experience good, price is often relied on as a quality indicator for the average wine consumer (Ashton, 2014). However, results prove price may not be an accurate indicator for quality.

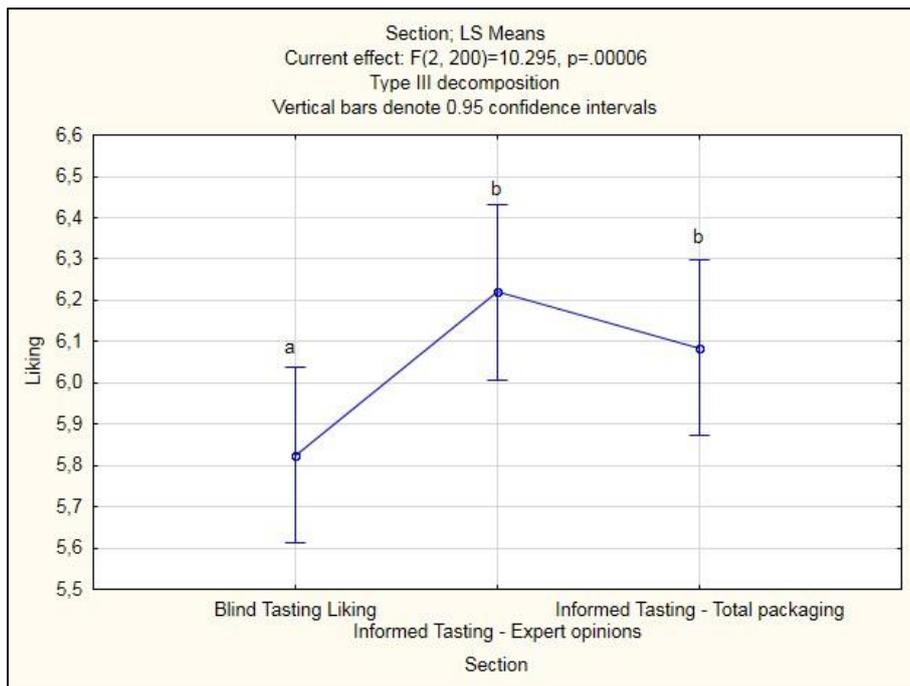
Table 9 shows some variation in the average standard deviations for the different wine samples but reasonably equal average standard deviations for the three tasting sessions. In general, wine 5 has the lowest standard deviation and wine 4 the highest.

**Table 9:** Standard deviations for the mean liking scores from the three tasting sessions

<b>Wine</b>	<b>Blind</b>	<b>Expert Opinion</b>	<b>Packaging</b>	<b>Average</b>
W1	2,08	1,79	1,76	1,88
W2	1,91	1,65	2,01	1,86
W3	1,75	1,8	1,66	1,74
W4	2,31	2,33	2,31	2,32
W5	1,64	1,58	1,64	1,62
W6	1,91	1,88	1,81	1,87
W7	1,96	1,57	1,77	1,77
<b>Average</b>	1,94	1,80	1,85	

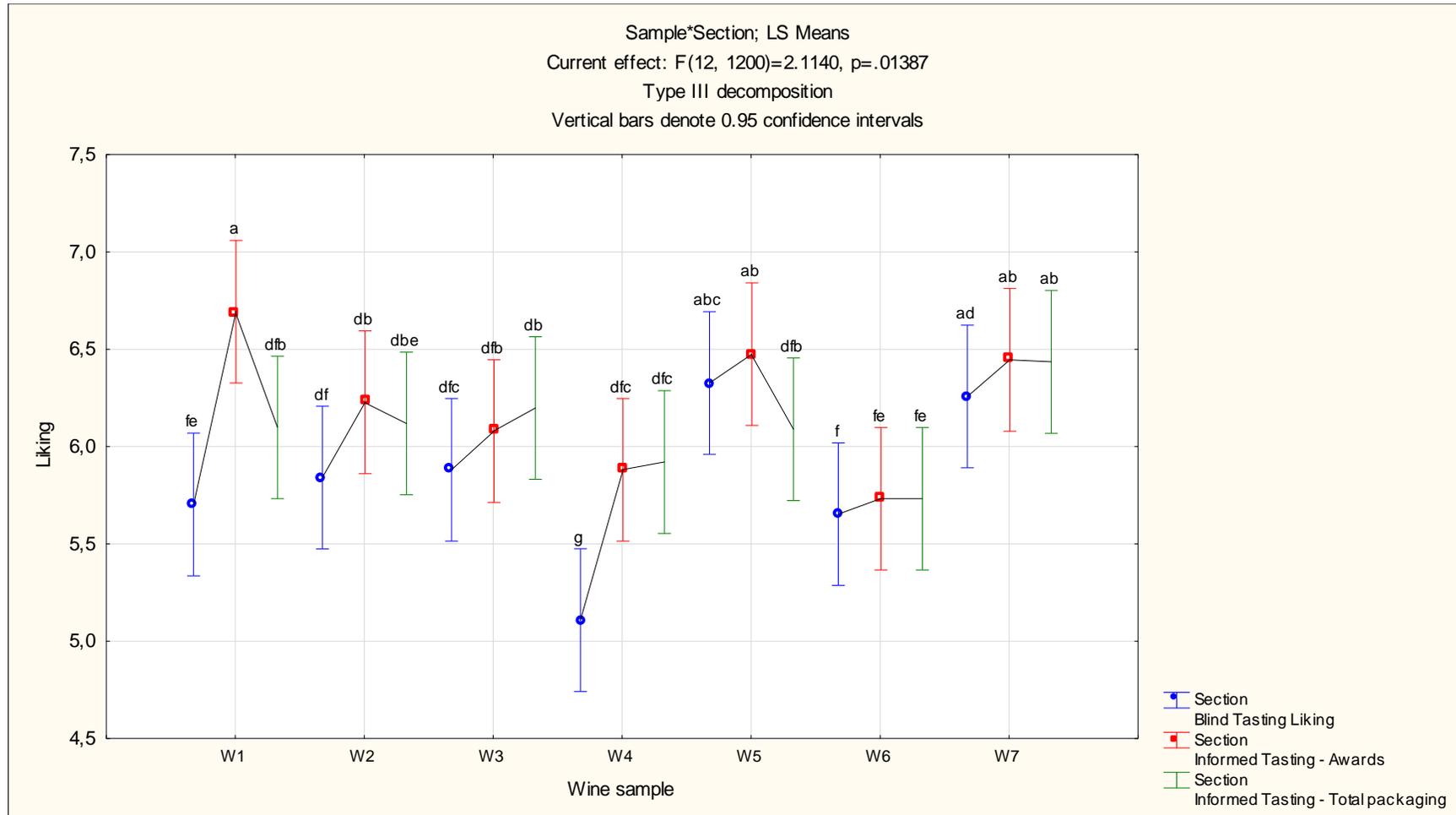
#### 4.3.2. Two-way repeated measures ANOVA for hedonic liking

Two-way repeated measures ANOVA analyses were used to determine the differences between the liking scores of the wines in the blind tasting and the liking in the informed expert opinion tasting, between the liking in the expert opinion section and the informed packaging section and between the liking in the blind tasting and the liking in the information packaging session. In general, participants tended to rate the wines significantly higher when there was information available on the wine, regardless of the information provided. Both the provided expert opinions ( $p \leq 0.01$ ) in the second tasting treatment and the provided packaging ( $p \leq 0.01$ ) in the third tasting treatment resulted in generally higher liking scores (Figure 16).



**Figure 16:** Least squares liking means per tasting sessions. Data points with different alphabetical letters differ significantly from each other (obtained from *StatSoft STATISTICA 12®*).

Figure 17 provides an overview of the two-way repeated measures ANOVA. Data points with different alphabetical letters differ significantly from each other on a 0.95 confidence level. The following sections provide detailed analyses of the two-way repeated measures ANOVA.



**Figure 17:** Least squares liking means for each wine in each section. Data points with different alphabetical letters differ significantly from each other (obtained from *StatSoft STATISTICA 12*®).

### 4.3.3. Influence of expert opinions on hedonic liking of Pinotage wine

To investigate the influence of expert opinions on hedonic liking of Pinotage, the following null hypothesis and alternative hypothesis are assumed:

*H<sub>01</sub>: There is no influence of expert opinions for Millennials on hedonic liking of Pinotage*

*H<sub>A1</sub>: There is an influence of expert opinions for Millennials on hedonic liking of Pinotage*

Results from the two-way repeated measures ANOVA show a significant difference in the liking of two wines. Therefore, null hypothesis *H<sub>01</sub>* is rejected. Table 10 provides an overview of the p-values of the ANOVA as well as the provided expert opinions for each wine. The liking of wine 1 ( $p \leq 0.01$ ) and wine 4 ( $p \leq 0.01$ ) differ significantly on a 5 % significance level in the informed expert opinion tasting from the blind tasting. Therefore, expert opinions had an influence on the hedonic liking for these wines.

**Table 10:** Two-way repeated measures ANOVA overview - blind versus informed expert opinion

Wine	P values (blind and expert opinions comparison)	Expert opinion*	Blind means	Expert opinion means
<b>W1</b>	<b>0,000</b>	<b>++</b>	<b>5,70</b>	<b>6,69</b>
W2	0,076	+	5,84	6,23
W3	0,363	--	5,88	6,08
<b>W4</b>	<b>0,000</b>	<b>++</b>	<b>5,11</b>	<b>5,88</b>
W5	0,495	++	6,33	6,48
W6	0,716	+	5,65	5,73
W7	0,388	-/+	6,26	6,45

\* -- = Negative expert opinion  
 -/+ = Neutral expert opinion  
 + = Good expert opinion  
 ++ = Very good expert opinion

Wine 1 and wine 4 received a significantly higher rating when a very positive expert opinion was paired with it. Both wines received a relatively negative scoring in the blind tasting. Wine 4 was the least liked significantly while wine 1 was rated significantly lower than wine 5 ( $p = 0.008 \leq 0.05$ ) and wine 7 ( $p = 0.018 \leq 0.05$ ) in the blind tasting. Therefore wine 1 was not

preferred. In the expert opinion tasting, wine 4 was again rated significantly lower than wine 1 ( $p \leq 0.01$ ), wine 5 ( $p = 0.011 \leq 0.05$ ) and wine 7 ( $p = 0.016 \leq 0.05$ ). However, the hedonic liking of wine 4 did not differ significantly from the other wines ( $p > 0.05$ ). The perceived quality of wine 4 increased to a similar level of perceived quality as the other wines due to its expert opinion. Wine 1 in the expert opinion tasting received a similar rating ( $p \geq 0.05$ ) as wine 5 and wine 7 but was liked significantly more than the other wines ( $p \leq 0.05$ ). Again, due to its very positive expert opinion, wine 1 became one of the three most preferred wines. The ANOVA did not show significant results for the other wines. This suggests that expert opinions will positively influence the hedonic liking of Pinotage when the expert opinion is very positive and the wine is not preferred when tasted blind. These results confirm previous research in demonstrating the ability of expert opinions to influence perceived quality of wines (Veale, 2008).

#### **4.3.4. Influence of packaging on hedonic liking of Pinotage wine**

The following null hypothesis was tested for the influence of packaging on hedonic liking of Pinotage:

*H<sub>04</sub>: There is no influence of packaging for Millennials on hedonic liking of Pinotage*

Rejection of the null hypothesis will lead to the acceptance of the alternative hypothesis:

*H<sub>A4</sub>: There is an influence of packaging for Millennials on hedonic liking of Pinotage*

Analysis of the results of the packaging tasting sessions only provides significant results for wine 4. Wine 4 ( $p \leq 0.01$ ) received a significantly higher liking score when the packaging was shown compared to the blind tasting (refer to Table 11). This suggests that packaging only has a limited influence on hedonic liking of Pinotage and the null hypothesis  $H_{02}$  can only be partially rejected. As wine 4 was the least liked wine when tasted blind, it can be stated from these results that packaging will only influence hedonic liking of Pinotage when the wine is disliked and the bottle shows a very positive expert opinion. Furthermore, the effect of brand perception could also influence hedonic liking of Pinotage.

**Table 11:** Two-way repeated measures ANOVA overview - blind versus informed packaging

Wine	P values (blind and packaging comparison)	Expert opinion*	Blind means	Packaging means	Medal**
W1	0,069	++	5,70	6,10	No
W2	0,203	+	5,84	6,12	Yes
W3	0,146	--	5,88	6,20	No
<b>W4</b>	<b>0,000</b>	<b>++</b>	<b>5,11</b>	<b>5,92</b>	<b>Yes</b>
W5	0,275	++	6,33	6,09	Yes
W6	0,716	+	5,65	5,73	Yes
W7	0,413	-/+	6,26	6,44	No

\* -- = Negative expert opinion

-/+ = Neutral expert opinion

+ = Good expert opinion

++ = Very good expert opinion

\*\* If the wine was paired with a medal in the expert opinion section, the medal was shown on the bottle. Other expert opinions were not shown in the packaging section

#### 4.3.5. The interaction effect of involvement and gender on Millennials' hedonic liking of Pinotage

Next to the main effect of expert opinions and packaging on liking, the interaction effect of involvement and gender was also analysed. Previous studies have demonstrated that involvement and gender can influence wine consumer behaviour (Lockshin *et al.* 2006; Forbes, 2012; Aqueveque, 2015). The null hypothesis states there is no interaction effect of involvement and no interaction effect of gender on Millennials' hedonic liking of Pinotage. The alternative hypotheses specifies that involvement level and gender influence the main effect of expert opinions and packaging on Millennials' hedonic liking of Pinotage.

*H<sub>02</sub>: Hedonic liking is not influenced by involvement level*

*H<sub>A2</sub>: Hedonic liking is influenced by involvement level*

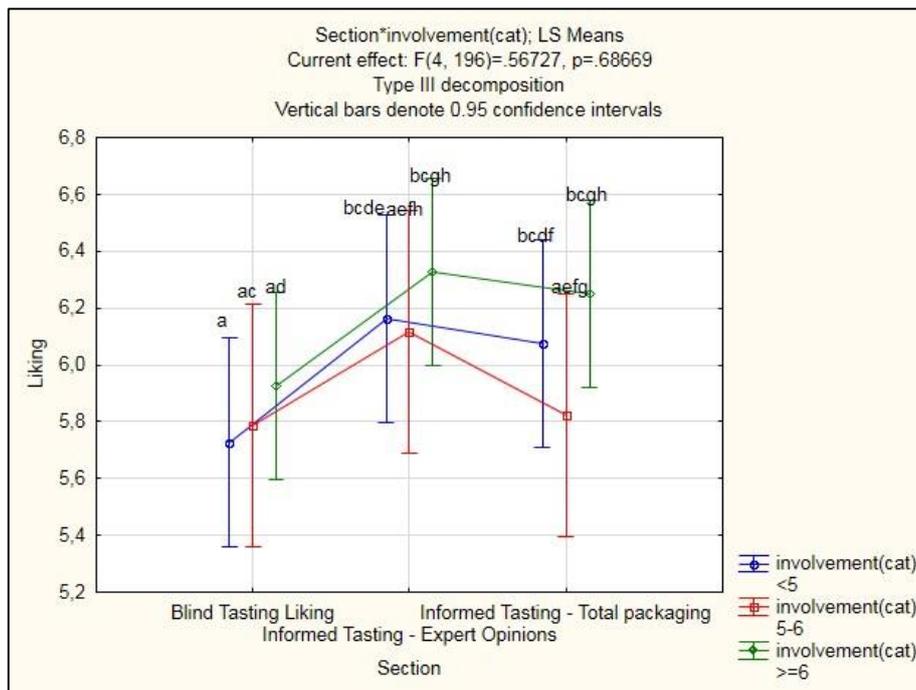
*H<sub>03</sub>: Hedonic liking is not influenced by gender*

*H<sub>A3</sub>: Hedonic liking is influenced by gender*

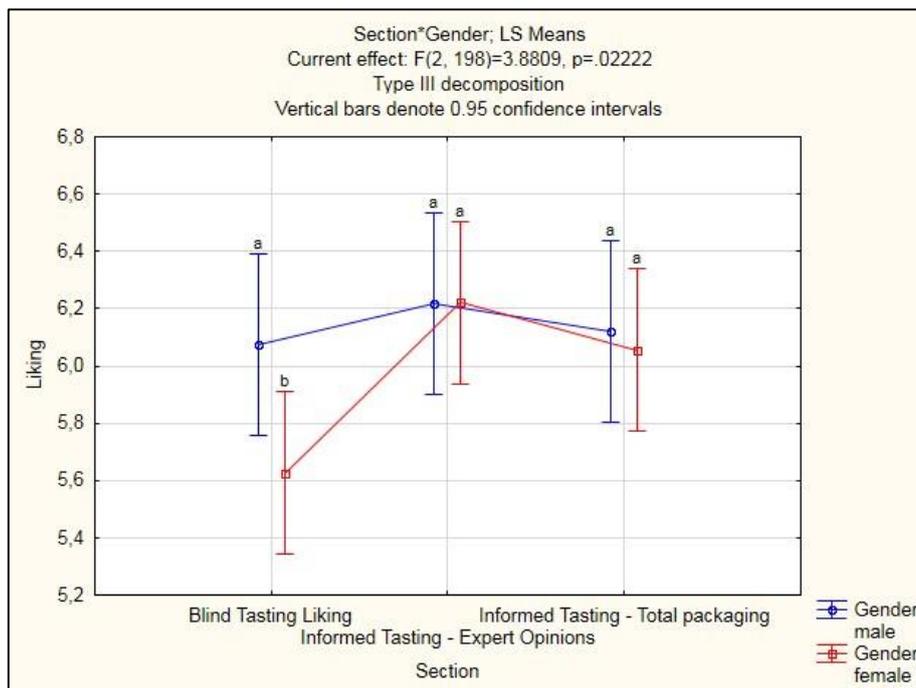
In general, results suggest no significant differences between the three involvement levels in each tasting session (refer to Figure 18). However, while low and high involved Millennials appear to significantly increase their liking scores in general when information is available compared to tasting Pinotage blind ( $p \leq 0.05$ ), medium involved respondents do not seem to be influenced by expert opinions or packaging ( $p > 0.05$ ). Analysis of each wine only shows a

significant difference between medium involved ( $M = 5.20$ ,  $SD = 2.33$ ) and high involved ( $M = 6.29$ ,  $SD = 2.23$ ) respondents' liking for wine 4 in the expert opinion tasting sessions ( $p = 0.022 \leq 0.05$ ). In the packaging session, a significant difference was found for wine 4 between low involved ( $M = 6.21$ ,  $SD = 2.21$ ) and medium involved ( $M = 5.12$ ,  $SD = 2.28$ ) Millennials ( $p = 0.028 \leq 0.05$ ) and medium involved and high involved ( $M = 6.17$ ,  $SD = 2.34$ ) Millennials ( $p = 0.027 \leq 0.05$ ). No other differences were found between the different involvement levels.

Therefore, there is strong evidence that there is little interaction effect of involvement on the influence of expert opinions and packaging on Millennials' hedonic liking of Pinotage. Only when a wine is disliked blindly, will high involved and low involved Millennials be influenced more positively than medium involved Millennials by a very positive expert opinion. Aqueveque (2015) found similar results regarding high involved wine consumers when investigating the influence of experts' positive word-of-mouth on a wine's perceived quality. Highly involved consumers seemed to be influenced more by positive word-of-mouth than lower involved consumers when a wine was low-priced. As stated before, price is often used as an indicator of quality when there are few other cues available (Mitchell and Greatorex, 1989). Therefore, similar to the results of this study, expert's positive word-of-mouth will influence liking of wines for high involved consumers when the wine is disliked. However, the difference in consumer behaviour between low and high involved wine consumers as demonstrated by previous studies cannot be confirmed with regards to South African Millennials in this study (Barber, Almanza and Dodd, 2008; Charters and Pettigrew, 2007; Chocarro and Cortinas, 2013; Lockshin *et al.*, 2006). Based on the results, hypothesis  $H_{A3}$  can only be partially accepted.



**Figure 18:** Degree of liking for each involvement level in each section. Data points with different alphabetical letters differ significantly from each other (obtained from *StatSoft STATISTICA 12*®).



**Figure 19:** Degree of liking for male and female Millennials in each section. Data points with different alphabetical letters differ significantly from each other (obtained from *StatSoft STATISTICA 12*®).

Contrarily, gender seems to influence the main effect of expert opinions and packaging. Preliminary analysis of the data demonstrates a significant difference between male and female Millennials' hedonic liking of Pinotage in the blind tasting ( $p = 0.039 \leq 0.05$ ) (refer to Figure 19). In general, female Millennials rate the liking of the wines significantly lower than male Millennials in the blind tasting. Furthermore, in general female Millennials appear to significantly increase their liking score when information is available while male Millennials do not. Results from a previous study executed in Australia revealed that females favour white wine more than their male counterparts (Bruwer *et al.*, 2011). According to this study, younger women also seem to prefer a sweeter wine style. Furthermore, it has been stated that women are able to pick up more subtleties in wine compared to men (Atkin *et al.*, 2007; Bruwer *et al.*, 2011). Therefore, women often prefer subtle white wines over red wines with dry tannin astringency and bitterness. This could explain the tendency for female Millennials to rate Pinotage significantly lower than male Millennials when tasting blind in this study.

Male Millennials only significantly increased ( $p = 0.011 \leq 0.05$ ) hedonic liking for wine 4 when information was available (refer to Table 12). Interesting to note is that for male Millennials wine 4 was not significantly liked less than all the other wines in the blind tasting, contrary to the general results. However, wine 4 was the only wine that was liked significantly less than wine 5 ( $p = 0.022 \leq 0.05$ ) and wine 7 ( $p \leq 0.01$ ) while the other wines were only liked significantly less than wine 7. No other significant differences were found at a 5 % significance level for male Millennials.

**Table 12:** Two-way repeated measures ANOVA overview – interaction effect of gender – male Millennials

MEN / Wine	P values (blind and expert opinions comparison)	P values (blind and packaging comparison)	Expert opinion*	Blind means	Expert opinion means	Packaging means
W1	0,100	0,452	++	6,09	6,62	5,84
W2	0,784	0,494	+	6,08	6,18	6,31
W3	0,784	0,133	--	5,82	5,91	6,31
<b>W4</b>	<b>0,011</b>	<b>0,006</b>	<b>++</b>	<b>5,44</b>	<b>6,27</b>	<b>6,33</b>
W5	0,338	0,273	++	6,24	6,56	5,89
W6	0,132	0,338	+	6,04	5,56	5,73
W7	0,274	0,274	-/+	6,78	6,42	6,42

Remarkably more significant differences were found for female Millennials. Table 5 provides an overview of the significant differences. Wine 1 ( $p \leq 0.01$ ), wine 2 ( $p = 0.032 \leq 0.05$ ), wine 4 ( $p = 0.012 \leq 0.05$ ) and wine 7 ( $p = 0.032 \leq 0.05$ ) were rated significantly higher when the expert opinions were shown. All wines were paired with a generally positive expert opinion. In the packaging tasting, female Millennials rated wine 1 ( $p \leq 0.01$ ), wine 4 ( $p \leq 0.01$ ) and wine 7 ( $p = 0.037 \leq 0.05$ ) significantly higher compared to the blind tasting. Expert opinions and packaging appear to impact hedonic liking of Pinotage considerably more for female Millennials than male Millennials. These results are supported by previous research on gender-related differences in perception of quality and product selection (Pezoldt *et al.*, 2014). While men appear to process information in a more analytical way, women rely more on visual cues (Holbrook, 1986). Atkin *et al.* (2007) found that women will rely more on labels, shelf tags and awards when making a wine selection. Hypothesis  $H_{04}$  can be rejected and its alternative hypotheses  $H_{A4}$  can be accepted.

**Table 13:** Two-way repeated measures ANOVA overview – interaction effect of gender – female Millennials

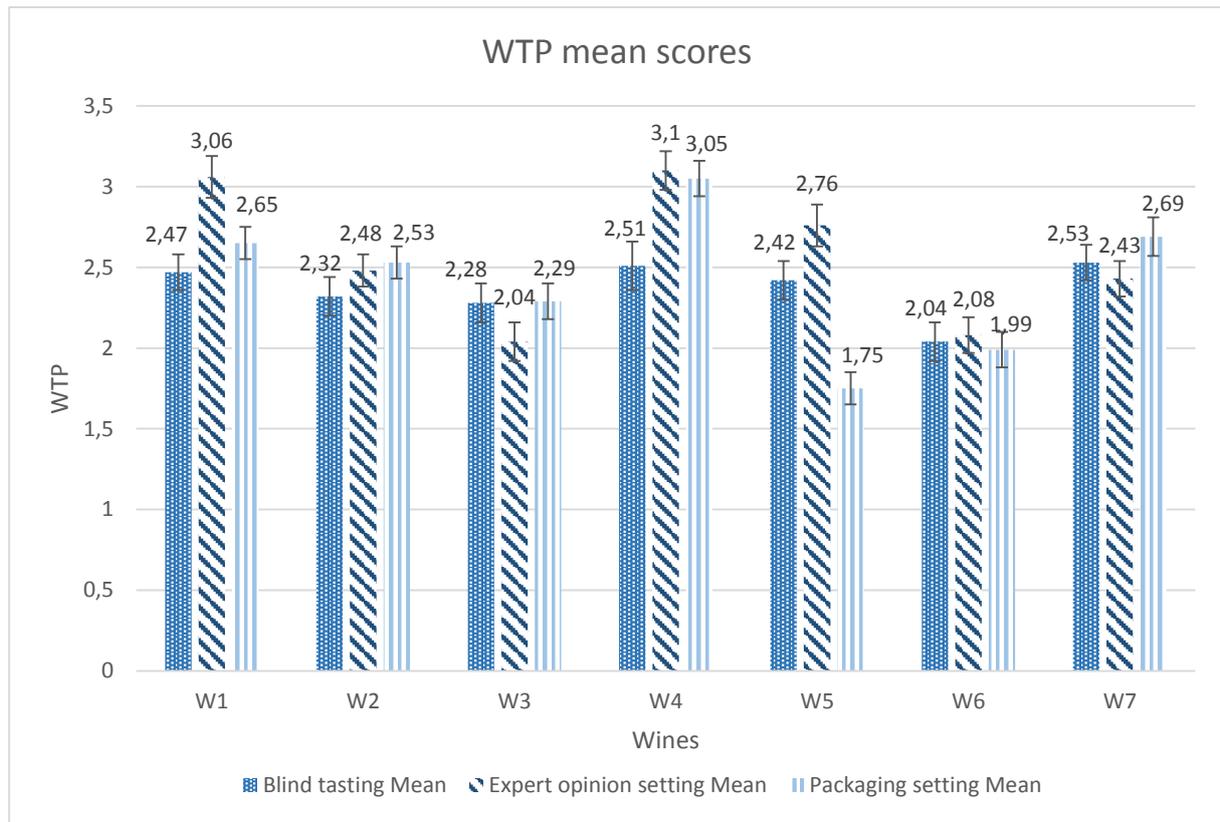
WOMEN/ Wine	P values (blind and expert opinions comparison)	P values (blind and packaging comparison)	Expert opinion*	Blind means	Expert opinion means	Packaging means
W1	<b>0,000</b>	<b>0,002</b>	++	<b>5,39</b>	<b>6,75</b>	<b>6,3</b>
W2	<b>0,032</b>	0,270	+	<b>5,64</b>	<b>6,27</b>	5,96
W3	0,327	0,540	--	5,93	6,21	6,11
W4	<b>0,012</b>	<b>0,010</b>	++	<b>4,84</b>	<b>5,57</b>	<b>5,59</b>
W5	0,951	0,624	++	6,39	6,41	6,25
W6	0,066	0,178	+	5,34	5,88	5,73
W7	<b>0,032</b>	<b>0,037</b>	-/+	<b>5,84</b>	<b>6,46</b>	<b>6,45</b>

#### 4.4. The influence of expert opinions and packaging on Millennials' willingness-to-pay of Pinotage

##### 4.4.1. Introduction

Next to the hedonic liking of Pinotage, willingness-to-pay (WTP) of Pinotage was also studied. As stated in chapter 3, due to time and monetary constraints WTP was measured using a direct customer survey technique which has several drawbacks. Furthermore, while WTP in the blind sessions was measured while tasting, the measurement of WTP for the expert opinions and packaging did not include tasting the wine. Therefore, these results might be misleading and

cannot be generalized for the population. However, the results offer a preliminary analysis of Millennials' WTP of Pinotage and can be used as a basis for further research.



**Figure 20:** Average WTP scores from the three sessions with error bars. 1 = R0-R50, 2=R51-R100, 3=R101-R150, 4=R151-R200

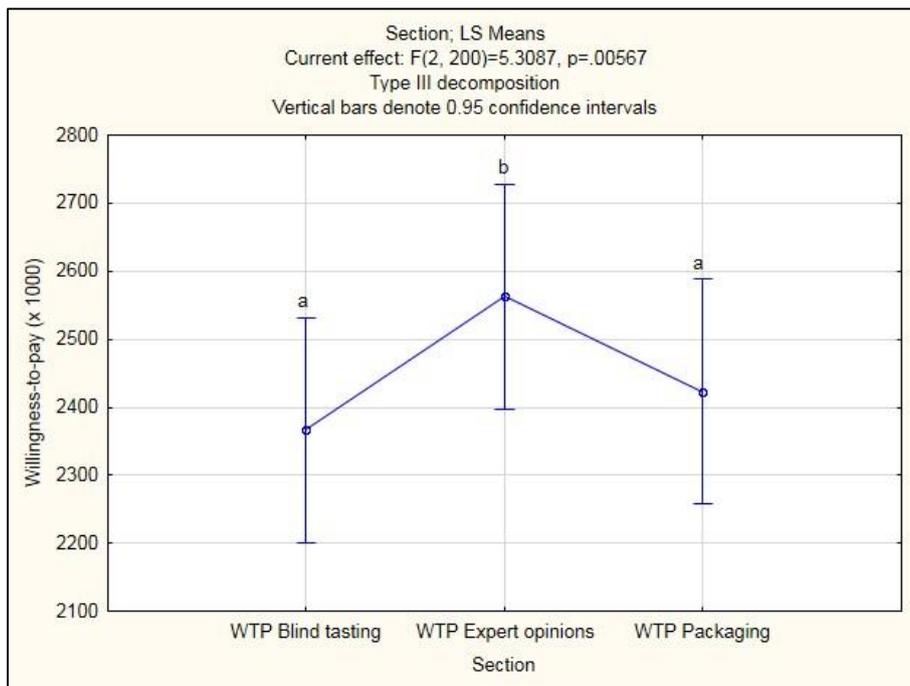
Figure 20 provides an overview of the average WTP scores for the three different sessions. Results from the blind tasting range from an average of 2.04 to 2.53, thus the WTP for all the wines was on average between R51 and R 100. These results are in line with the average amount the respondents indicated they normally spend on a bottle of red wine. Analysis shows that WTP for wine 6 was significantly lower than WTP for wine 1 ( $p \leq 0.01$ ), wine 2 ( $p = 0.024 \leq 0.05$ ), wine 4 ( $p \leq 0.01$ ), wine 5 ( $p \leq 0.01$ ) and wine 7 ( $p \leq 0.01$ ). However, WTP for wine 6 did not differ significantly from wine 3 ( $p = 0.053$ ). Furthermore, while liking for wine 4 was significantly lower than all the other wines WTP for wine 4 did not differ significantly from the other wines, except for wine 6. Table 14 shows little variation in the average standard deviations for the different wine samples and average standard deviations for the three sessions. In general, wine 2 has the lowest standard deviation and wine 4 the highest.

**Table 14:** Standard deviations for the mean WTP scores from the three tasting sessions

<b>Wine</b>	<b>Blind</b>	<b>Expert Opinion</b>	<b>Packaging</b>	<b>Average</b>
W1	1,13	1,33	1,05	<i>1,17</i>
W2	1,17	1,05	1,04	<i>1,09</i>
W3	1,17	1,15	1,12	<i>1,15</i>
W4	1,49	1,25	1,15	<i>1,30</i>
W5	1,24	1,27	1,00	<i>1,17</i>
W6	1,22	1,13	1,08	<i>1,14</i>
W7	1,07	1,06	1,20	<i>1,11</i>
<b>Average</b>	<i>1,21</i>	<i>1,18</i>	<i>1,09</i>	

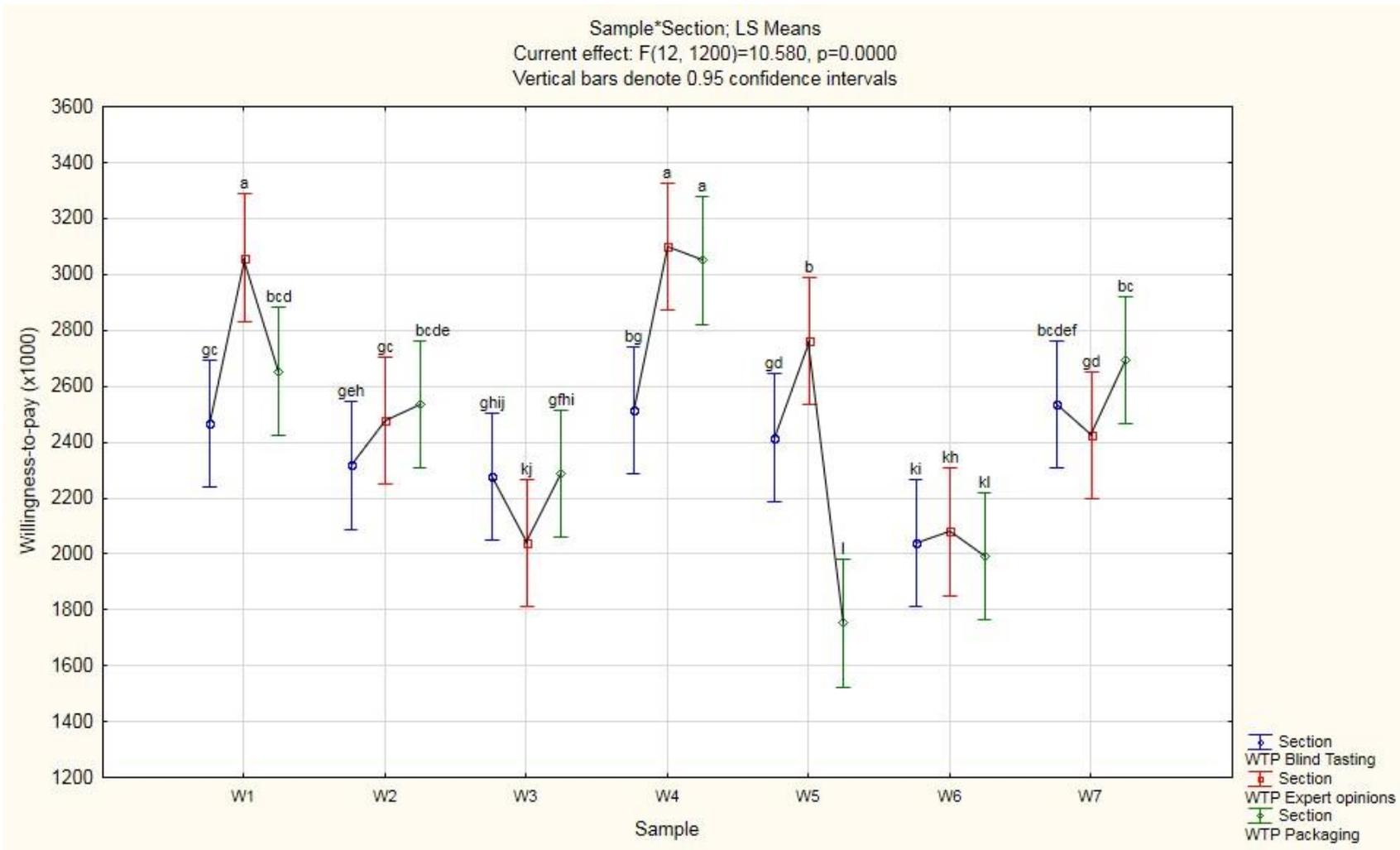
#### 4.4.2. Two-way repeated measures ANOVA for willingness-to-pay

Two-way repeated measures ANOVA analyses were used to analyse the results of WTP. In general, Millennials were willing to pay significantly more for a wine when only an expert opinion was available ( $p = 0.025 \leq 0.05$ ) than for a wine where the full packaging was available (Figure 21). No significant differences were found between the blind tasting and the packaging setting, which could indicate that for Millennials packaging is an adequate indicator of a Pinotage's monetary worth. As the wines were not tasted in the expert opinion and the packaging settings, a focus will be put on the pairwise comparison of the WTP of the wines in the expert opinions setting and the packaging setting.



**Figure 21:** Least squares WTP means per session. Data points with different alphabetical letters differ significantly from each other (obtained from *StatSoft STATISTICA 12®*).

Figure 22 provides an overview of the two-way repeated measures ANOVA. Data points with different alphabetical letters differ significantly from each other on a 0.95 confidence level. The following sections provide detailed analyses of the two-way repeated measures ANOVA.



**Figure 22:** Least squares WTP means for each wine in each section. Data points with different alphabetical letters differ significantly from each other (obtained from *StatSoft STATISTICA 12*®).

#### 4.4.3 The influence of expert opinions on Millennials' willingness-to-pay of Pinotage

For the purpose of studying the influence of expert opinions on Millennials' WTP of Pinotage, the following null hypothesis and alternative hypothesis are presented:

*H<sub>05</sub>: Expert opinions do not influence Millennials' willingness-to-pay of Pinotage*

*H<sub>A5</sub>: Expert opinions influence Millennials' willingness-to-pay of Pinotage*

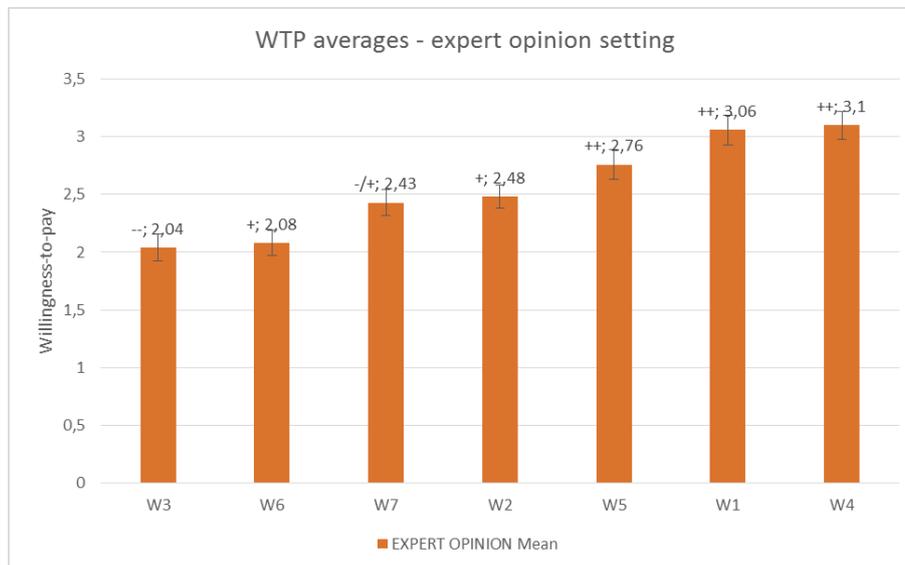
The average WTP of each wine in the expert opinion setting ranged from 2.04 to 3.10, indicating a bigger spread than the blind tasting. To examine the influence of expert opinions on Millennials' willingness-to-pay of Pinotage, a pairwise comparison of the average WTP of each wine in the expert opinions setting was conducted (refer to Table 15). Results reveal that WTP for wine 1 (M = 3.06, S D = 1.33) and wine 4 (M = 3.10, SD = 1.25) does not differ significantly from each other at a 5 % significance level but WTP for both wines is significantly higher than WTP for the other wines ( $p \leq 0.05$ ). For both wines respondents were willing to pay on average between R 101 and R 150, significantly more than the other wines. WTP for wine 5 (M = 2.76, SD = 1.27) is significantly lower than wine 1 and 4 but is significantly higher than the remaining wines. Furthermore, WTP for wine 2 (M = 2.48, SD = 1.05) and wine 7 (M = 2.43, SD = 1.06) does not differ significantly but is significantly lower than wine 1, wine 4 and 5 and significantly higher than wine 3 and wine 6. Finally, wine 3 (M = 2.04, SD = 1.15) and wine 6 (M = 2.08, SD = 1.13) do not differ in average WTP but WTP of both wines is significantly lower than the other wines.

**Table 15:** P values of the pairwise comparison of each wine's average WTP in the expert opinion setting

P values	W1	W2	W3	W4	W5	W6	W7
W1		0,000	0,000	0,747	0,016	0,000	0,000
W2	0,000		0,000	0,000	0,019	0,001	0,687
W3	0,000	0,000		0,000	0,000	0,747	0,002
W4	0,747	0,000	0,000		0,001	0,000	0,000
W5	0,016	0,019	0,000	0,006		0,000	0,006
W6	0,000	0,001	0,747	0,000	0,000		0,005
W7	0,000	0,687	0,002	0,000	0,006	0,005	

Figure 23 provides an overview of the results of the expert opinion setting, including the strength of each expert opinions. From these results, a conclusion can be made that Millennials progressively will increase their willingness-to-pay for Pinotage for a good to very good expert opinion. These results confirm previous studies regarding the effect of expert opinions on

perceived value of wine (Aqueveque, 2008). The null hypothesis  $H_{05}$  can be rejected and the alternative hypothesis  $H_{A5}$  can be accepted.



**Figure 23:** Overview of the WTP average scores for each wine in the expert opinion setting and the respective strengths of each expert opinion.

#### 4.4.4. The influence of packaging on Millennials' willingness-to-pay of Pinotage

To evaluate the influence of packaging on WTP of Pinotage, a pairwise comparison was performed for each of the wines' average WTP in the packaging setting. The following null hypothesis and alternative hypothesis were tested:

$H_{06}$ : Packaging does not influence Millennials' willingness-to-pay of Pinotage

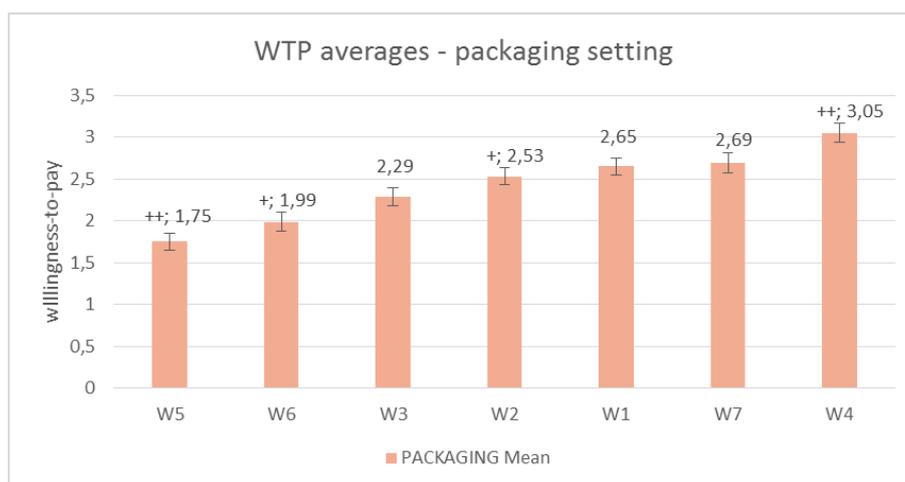
$H_{A6}$ : Packaging influences Millennials' willingness-to-pay of Pinotage

Results of the packaging setting again shows wine 4 ( $M = 3.05$ ,  $SD = 1.15$ ) to have received a significantly higher average WTP than the other wines at a 5 % significance level. Wine 1 ( $M = 2.65$ ,  $SD = 1.05$ ), wine 7 ( $M = 2.69$ ,  $SD = 1.20$ ) and wine 2 ( $M = 2.53$ ,  $SD = 1.04$ ) did not differ significantly in WTP from each other but received a significantly higher WTP than the remaining wines. Wine 3 ( $M = 2.29$ ,  $SD = 1.04$ ) received a significantly lower WTP score than wine 1, wine 2, wine 4 and wine 7 but received a significantly higher WTP score than wine 5 and wine 6. Finally, wine 5 ( $M = 1.75$ ,  $SD = 1.00$ ) and wine 6 ( $M = 1.99$ ,  $SD = 1.08$ ) received a significantly lower WTP score than the other wines.

**Table 16:** P values of the pairwise comparison of each wine’s average WTP in the packaging setting

P values	W1	W2	W3	W4	W5	W6	W7
W1		0,333	0,003	0,001	0,000	0,000	0,747
W2	0,333		0,044	0,000	0,000	0,000	0,197
W3	0,003	0,044		0,000	0,000	0,016	0,001
W4	0,001	0,000	0,000		0,000	0,000	0,004
W5	0,000	0,000	0,000	0,000		0,053	0,000
W6	0,000	0,000	0,016	0,000	0,053		0,000
W7	0,747	0,197	0,001	0,004	0,000	0,000	

Figure 24 provides an overview of the results of the packaging setting, including the strength of each expert opinion. Wines without an indication of expert opinion strength in the graph did not receive a medal expert opinion, therefore this did not show on the packaging. This graph demonstrates the influence of packaging on WTP. While certain wines paired with a very positive medal on the packaging received a significantly high WTP, similar to the expert opinions setting, other wines also paired with a very positive medal in the packaging setting received a significantly low WTP. Interesting to note is that the wine 5, wine 6 and wine 3 had a screw cap closure compared to the other wines which had a cork closure. This validates the cheap perception of a bottle with a screw cap closure as demonstrated by Marin *et al.* (2007). Therefore, null hypothesis  $H_{06}$  can be rejected and alternative hypothesis  $H_{A6}$  can be accepted.



**Figure 24:** Overview of the WTP average scores for each wine in the packaging setting and the respective strengths of each expert opinions.

Moreover, comparing WTP of each wine in the expert opinions setting and packaging setting confirms the powerful influence of expert opinions. Wine 1 ( $p \leq 0.01$ ), wine 3 ( $p = 0.049 \leq$

0.05) and wine 7 ( $p = 0.033 \leq 0.05$ ) received significantly different WTP scores in the packaging setting compared to the expert opinions setting due to no expert opinion being visible in the packaging setting. The negative and neutral expert opinions of wine 3 and wine 7 originally influences the WTP negatively in the expert opinion setting while the wine was perceived as being worth significantly more in the packaging setting. Conversely, the very positive expert opinion of wine 1 initially influenced Millennials to be willing to pay significantly more. However, the wine was perceived to be worth significantly less in the packaging session. Furthermore, the influence of packaging becomes clear when comparing wine 3 in both settings. While wine 3 received a relatively high WTP in the expert opinion setting as it was paired with a very expert opinions, it received a significantly lower WTP in the packaging setting ( $p \leq 0.01$ ) regardless of the very positive medal that was visible on the bottle. This is in line with the effect of two inconsistent contradictory cues as stated by Miyazaki *et al.* (2005). When two cues are contradictory, the negative cue will outweigh the positive cue in the evaluation. Wine 3 seemed to have a negative brand perception which outweighed the positive expert opinion of the wine. However, the same result could not be found for the hedonic liking of Pinotage.

#### **4.4.5 The interaction effect of involvement and gender on Millennials' willingness-to-pay of Pinotage**

Similar to the hedonic liking analysis, the interaction effect of involvement and gender on willingness-to-pay is also evaluated. The following null hypotheses and alternative hypotheses are tested:

*H<sub>07</sub>: Involvement level does not influence the main effect of expert opinions and packaging on willingness-to-pay*

*H<sub>A7</sub>: Involvement level influences the main effect of expert opinions and packaging on willingness-to-pay*

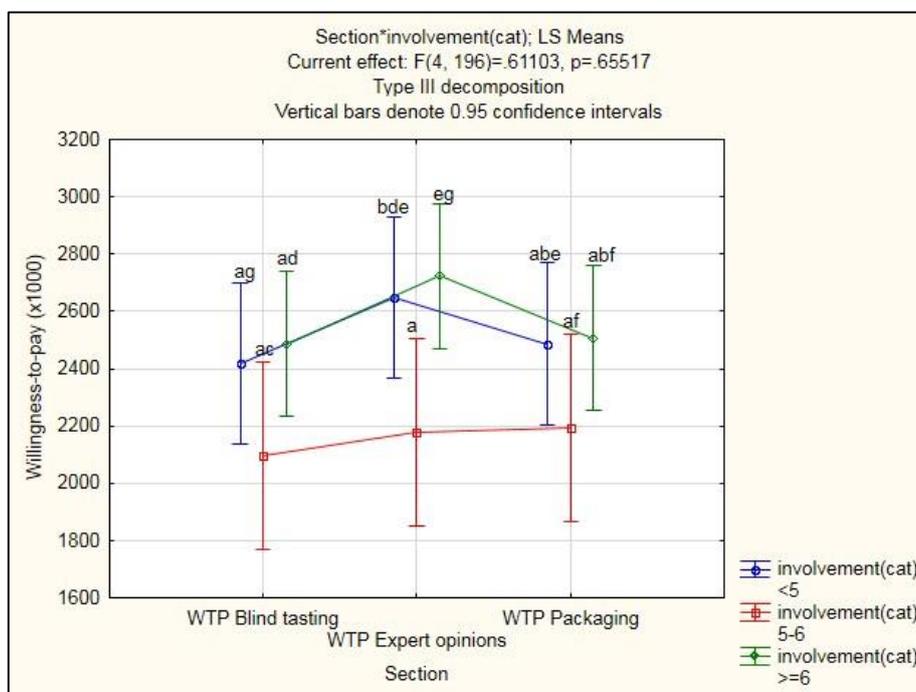
*H<sub>08</sub>: Gender does not influence the main effect of expert opinions and packaging on willingness-to-pay*

*H<sub>A8</sub>: Gender influences the main effect of expert opinions and packaging on willingness-to-pay*

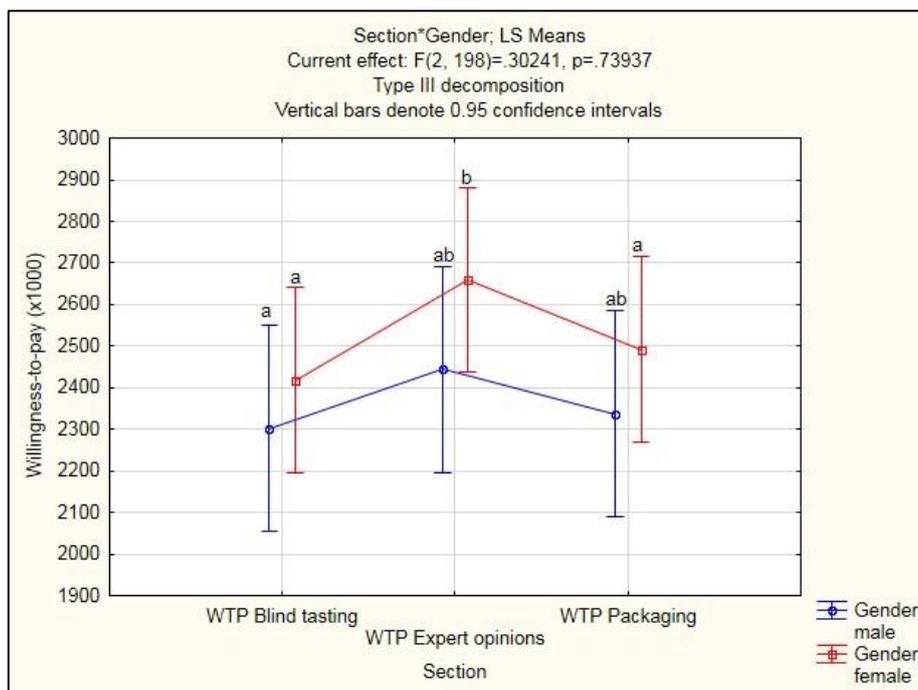
In general, low involved ( $p = 0.033 \leq 0.05$ ) and high involved ( $p \leq 0.01$ ) Millennials appear to be willing to pay significantly more than medium involved Millennials when expert opinions are available (Figure 25). Furthermore, similar to the liking findings of involvement, low ( $p =$

$0.033 \leq 0.05$ ) and high involved ( $p = 0.015 \leq 0.05$ ) consumers significantly increase their WTP when expert opinions are available, while medium involved consumers do not ( $p = 0.524 \geq 0.05$ ).

While low involved Millennials are willing to pay significantly more than medium involved Millennials for wine 2 ( $p = 0.043 \leq 0.05$ ) and wine 5 ( $p = 0.030 \leq 0.05$ ) in the expert opinion setting, high involved Millennials are willing to pay significantly more than medium involved Millennials for wine 1 ( $p = 0.034 \leq 0.05$ ), wine 2 ( $p = 0.028 \leq 0.05$ ), wine 5 ( $p \leq 0.01$ ) and wine 6 ( $p = 0.039 \leq 0.05$ ). Reason for this could be that high involved Millennials have a better understanding of the meaning and strength of the different expert opinions than lower involved Millennials. In the packaging setting, no significant differences were found in WTP for each wine between the three involvement levels. Thus, hypothesis  $H_{A7}$  can only be partially accepted.



**Figure 25:** Average WTP score for each involvement level in each section. Data points with different alphabetical letters differ significantly from each other (obtained from *StatSoft STATISTICA 12*®).



**Figure 26:** Average WTP score for male and female Millennials in each section. Data points with different alphabetical letters differ significantly from each other (obtained from StatSoft STATISTICA 12®).

While female Millennials rated the hedonic liking of the wines in the blind tasting session significantly lower than male Millennials, WTP did not differ significantly ( $p = 0.489 \geq 0.05$ ) between female and male Millennials in the blind tasting session. Figure 26 shows no significant differences in WTP between men and women in each of the information settings. However, female Millennials seem to be willing to pay significantly more when expert opinions are available compared to the blind tasting session ( $p \leq 0.01$ ) and the packaging setting ( $p = 0.049 \leq 0.05$ ). In the expert opinion setting, female Millennials are willing to pay significantly more on a 5 % significance level for wine 1 ( $M = 3.27$ ,  $SD = 1.52$ ), wine 4 ( $M = 3.21$ ,  $SD = 1.32$ ) and wine 5 ( $M = 2.95$ ,  $SD = 1.42$ ). These wines were all paired with a very positive expert opinion. For wine 3, the only wine which received a very negative expert opinion, female Millennials were willing-to-pay significantly less ( $p \leq 0.05$ ) than the other wines ( $M = 2.00$ ,  $SD = 1.25$ ). Male Millennials show a similar pattern, however not as significantly distinct as female Millennials.

In the packaging setting, female Millennials are willing to pay significantly more for wine 4 ( $M = 3.05$ ,  $SD = 1.27$ ) and wine 7 ( $M = 2.79$ ,  $SD = 1.22$ ) compared to the other wines ( $p \leq 0.05$ ). Male Millennials also perceived wine 4 to be worth more than the other wines, however WTP for wine 7 ( $M = 2.78$ ,  $SD = 1.18$ ) was significantly lower than wine 4 ( $M = 3.04$ ,  $SD = 0.99$ ) and similar to wine 1 ( $M = 2.60$ ,  $SD = 1.07$ ) and wine 2 ( $M = 2.47$ ,  $SD = 0.99$ ). For both male

and female Millennials, WTP for wine 5 was significantly lower than the other wines except for wine 6 even though both wines had a positive medal in the packaging setting. This could mean that very positive expert opinions will not positively increase WTP for Pinotage wines with a cheap brand perception. Again, both wines had a screw cap closure.

# CHAPTER 5: GENERAL DISCUSSION AND CONCLUSIONS

## 5.1. Introduction

The purpose of this study was to investigate the effect of expert opinions on South African Millennials' perceived quality of Pinotage. Furthermore, the combined effect of award medals and packaging was investigated. A preliminary analysis of the effect of expert opinions and packaging on willingness-to-pay was also conducted. Results from the experimental design showed an influence of both expert opinions and packaging on perceived quality and willingness-to-pay of Pinotage. Due to convenience sampling of study participants, some caution is due when generalizing the results to the South African Millennial population. However, University students have been used in previous studies as a representative sample of a Generation Y population. Therefore, the results originating from the hedonic liking tests can be used as a basis for marketing purposes. The results from the willingness-to-pay tests should not be generalized to the entire population due to the measurement technique used in this study. However, the results can be used as basis for further research on this topic.

## 5.2. Conclusions, limitations and recommendations

This study has some limitations due to time and monetary constraints. Therefore, generalizing the results of the study should be done with caution. First of all, the sample for the taste test eventually consisted of 101 usable data sets. While this is a relatively small sample that can lead to a sampling error, the size of the data set is sufficiently large to execute reliable statistical analysis.

This study has confirmed expert opinions as an effective marketing tool to market Pinotage to South African Millennials. While positive expert opinions did not reinforce perceived quality for already generally liked wines, they increased perceived quality for wines that were not liked in general. Future research should focus on the credibility of different expert opinions to increase the effective use of this marketing tool. Moreover, this study focuses solely on how perceived quality is influenced by expert opinions and packaging. This was done in a closed research environment and might not be representative of real life. Future research should investigate to what extent young Millennials will actually depend on these factors and if these factors will influence a purchasing or repurchasing decision. Previous research shows that technology plays an important part in a Millennial's life and social media is one of their main communication channels. Expert opinions and medals can be marketed through these social

media outlets to reach the Millennial consumer quicker and more efficiently. Furthermore, packaging can slightly offset the influence of a positive expert opinion on the perceived quality of Pinotage. However, this effect is limited and does not seem to invalidate the positive influence of expert opinions. In this study, it is not clear if the effect of packaging is related to the packaging itself or the brand perception of this wine. Future research should investigate this further.

An important limitation concerning the willingness-to-pay results of this study is the method used to measure WTP. A direct survey method was used to measure willingness-to-pay, which can put an unnatural focus on price, and hence can override the importance of other attributes. Furthermore, for a complex product such as wine, indicating willingness-to-pay is a cognitively challenging task which could lead to overstating or understating the true valuation. Therefore, due to these distortionary effects, results from direct survey techniques need to be analysed and interpreted with caution and should not be generalized to the entire population. However, the results of this study can provide preliminary WTP results and can provide a reliable basis for further research.

Millennials seem to be willing to pay more for positive expert opinions. However, contrary to hedonic liking, packaging can completely offset the positive effect of expert opinions on the willingness-to-pay. While certain wines with a very positive medal on the packaging received a significantly high WTP, similar to the positive effect of expert opinions on WTP, other wines paired with a very positive medal in the packaging setting received a significantly low WTP. This is in line with the effect of two inconsistent contradictory cues as stated by Miyazaki *et al.*, (2005). When two cues are contradictory, the negative cue will outweigh the positive cue in the evaluation. Therefore, the WTP of a wine with a negatively perceived packaging will not benefit from a positive expert opinion. Even more, the negative effect of the packaging will exceed the positive effect of the expert opinion. Therefore, it is recommended for each Pinotage producer to conduct market research on the value perception of their brand. This way, producers will gain a better insight into their brand perception and can adjust their brand accordingly or rebrand completely. Furthermore, the perceived value of Pinotage wines with a screw cap was significantly lower than those with a cork closure. This validates previous research demonstrating the negative perception of a wine bottle with a screw cap.

Seeing that this study did not confirm the difference in consumer behaviour between low and high involved wine consumers, it is recommended to repeat the study with a bigger focus on level of involvement.

Female Millennials specifically seem to be influenced by expert opinions and packaging. Results show a relative dislike for Pinotage compared to male Millennials when tasting Pinotage blind. However, expert opinions and packaging increased liking significantly for women. These findings are in line with previous research (Pezoldt *et al.*, 2014; Atkin *et al.*, 2007), thus reinforcing the relevance of these findings for the industry. A recommendation could be made to educate female Millennials on red wine and specifically Pinotage. Furthermore, female Millennials should be targeted with extrinsic cues such as expert opinions and packaging. Further research should investigate the strength of the influence of each type of expert opinion for female Millennials in order to increase the effectiveness of the marketing tool.

Finally, as mentioned in the literature review, the results of this thesis cannot be generalized to other countries or other products. However, it is suggested for future research to apply the methodology used in this study to investigate perceived quality of wine and other food products in different countries. Furthermore, replicating this study in other countries could provide interesting results to gain a better understanding of consumption behaviour of Millennial consumers cross-culturally.

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**ADDENDA**

Addendum A: The seven Pinotage wines used in the study

Altydgedacht Pinotage 2014	Beyerskloof Pinotage 2014	La Cave Pinotage 2014
		
Neethlingshof Pinotage 2014	Riebeek Cellars Pinotage 2013	Stellenbosch Vineyards Bushvine Pinotage 2013
		
Namaqua Pinotage 2013		
		

## Addendum B: Research questionnaire

Progress...

### Welcome to the Sensory lab!

You are welcome to ask the facilitator or assistants for guidance at any time.

Please do not communicate with fellow tasters.

Click the *next* button to begin

Progress...

Judge number

Please enter your judge number

116

Next

Progress...

**PLEASE READ BEFORE PROCEEDING!**

This experiment consists of two parts.

For the **first part** of the experiment, you will be tasting four sets of wines where you will be asked to answer some questions about each wine you taste. You will also need to fill in a short questionnaire regarding demographics. This is the part you will be completing now.

The **second part** of the experiment consists of a short questionnaire you have to fill in at home in a week's time. You will be sent the link to the questionnaire by e-mail. It is important you complete this second questionnaire as you will only be able to win a case of wine if you have completed both parts!

You may now start the first part of this experiment.

Click the **next** button to begin



Blind tasting – Liking: The 7 samples were presented as follows

Progress...

You will be given several servings of wine.  
Please indicate how much you **like** each wine.

**Sample: 187**

**Liking**

Dislike Extremely	Dislike Very Much	Dislike Moderately	Dislike Slightly	Neither Like nor Dislike	Like Slightly	Like Moderately	Like Very Much	Like Extremely
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>



Progress...

**You have completed set one of four!**

**Please take a 5 minute break before starting with the next set.**

**Please do not discuss the sensory evaluation with fellow tasters during the break.**

**Click the *next* button to resume**

Next

Blind tasting – Willingness-to-pay: The 7 samples were presented as follows

Progress...

**Sample: 259**

Please indicate how much you would pay for each wine by choosing a price class.

- R0 - R50
- R51 - R100
- R101 - R150
- R151 - R200
- R201 - R250
- R251 - R300
- R300+

Next

Progress...

**You have completed set one of four!**

**Please take a 5 minute break before starting with the next set.**

**Please do not discuss the sensory evaluation with fellow tasters during the break.**

**Click the *next* button to resume**

Informed tasting – Expert opinions: The 7 samples were presented as follows

Progress...

You will be given several servings of wine and a description of each wine.  
Please indicate how much you **like** each wine.

**Sample: 792**

This Pinotage received the RECM Best Value Pinotage Award.



**Liking**

Dislike Extremely	Dislike Very Much	Dislike Moderately	Dislike Slightly	Neither Like nor Dislike	Like Slightly	Like Moderately	Like Very Much	Like Extremely
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Progress...

**You have completed set three of four!**

**Please take a 5 minute break before starting with the next set.**

**Please do not discuss the sensory evaluation with fellow tasters during the break.**

**Click the *next* button to resume**



Informed Tasting – Packaging: The 7 samples were presented as follows:



**Liking**

Dislike Extremely	Dislike Very Much	Dislike Moderately	Dislike Slightly	Neither Like nor Dislike	Like Slightly	Like Moderately	Like Very Much	Like Extremely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

Progress...

**You have completed all the sets!**

**Please fill in the questionnaire that will follow.**

**Click the *next* button to resume**

Next

Progress...

Please indicate your gender

<input type="radio"/> Male	<input type="radio"/> Female
----------------------------	------------------------------

How old are you?

<input type="radio"/> 20	<input type="radio"/> 21	<input type="radio"/> 22
<input type="radio"/> 23	<input type="radio"/> 24	<input type="radio"/> 25
<input type="radio"/> 26	<input type="radio"/> 27	<input type="radio"/> 28

What is your profession?

<input type="radio"/> Student	<input type="radio"/> Self-employed	<input type="radio"/> Employed	<input type="radio"/> Unemployed
-------------------------------	-------------------------------------	--------------------------------	----------------------------------

Other profession:

Other profession:

How often do you drink wine?

- More than once a week
- Once a week
- Once or Twice a month
- Less than once a month
- Never

How often do you drink wine?

- More than once a week
- Once a week
- Once or Twice a month
- Less than once a month
- Never

How much do you usually spend on a bottle of red wine?

- I never buy wine
- R0 - R50
- R51 - R100
- R101 - R150
- R151 - R200
- R201 - 250
- R251 - R300
- R300+

Next

Progress...

**Wine involvement**

The purpose of this question is to measure a person's **involvement** or interest in wine.

To take this measure, we need you to **judge wine** against a series of descriptive scales according to how **you** perceive wine.

Please indicate each time how close you relate to one or the other words at the end of the scale.

To me, wine is:

Important							Unimportant
1	2	3	4	5	6	7	

Boring							Interesting
1	2	3	4	5	6	7	

Relevant							Irrelevant
1	2	3	4	5	6	7	

Exciting							Unexciting
1	2	3	4	5	6	7	

Means nothing							Means a lot to me
1	2	3	4	5	6	7	

Appealing							Unappealing
1	2	3	4	5	6	7	

Fascinating							Mundane
1	2	3	4	5	6	7	

Worthless							Valuable
1	2	3	4	5	6	7	

Involving							Uninvolving
1	2	3	4	5	6	7	

Not needed							Needed
1	2	3	4	5	6	7	

Next

Progress...

Please provide us with your personal contact details in order for us to send you your login name and password for the second part of the test that you will complete at home in a weeks time

Name and surname

e-mail address

Next

The second part of the questionnaire consisted of two sessions regarding willingness-to-pay, which respondents had to complete at home.

Informed session, expert opinions – willingness-to-pay: the 7 samples were presented as follows

Progress...

**Sample: 586**

You will be given descriptions of several wines. Please indicate how much you would **pay** for each wine by choosing a price class.

This Pinotage received the RECM Best Value Pinotage Award.



- R0 - R50
- R51 - R100
- R101 - R150
- R151 - R200
- R201 - R250
- R251 - R300
- R300+

Next

Informed session, packaging – willingness-to-pay: the 7 samples were presented as follows

**Sample: 746**

You will be given images of several wines. Please indicate how much you would **pay** for each wine by choosing a price class.



- R0 - R50
  - R51 - R100
  - R101 - R150
  - R151 - R200
  - R201 - R250
  - R251 - R300
  - R300+
-