

# **ACCESSING CONSUMER MEMORY FOR WINE MARKETING RESEARCH (REFEREED)**

*Damien Wilson, University of South Australia, Australia  
Larry Lockshin, University of South Australia, Australia  
Cam Rungie, University of South Australia, Australia  
[Damien.Wilson@unisa.edu.au](mailto:Damien.Wilson@unisa.edu.au)*

## *Abstract*

The consumer's capacity to recall their brand purchasing behaviour over time is unreliable (Guest 1964; Romaniuk and Sharp 1997). Consequently, market researchers often overlook the potential of recalling information from a consumer's memory as a marketing tool. However, much of the literature on recalling information from memory suggests that behavioural information can be recalled reliably when conditions are favourable. This paper reviews the literature on memory recall and suggests guidelines for developing research tools for accessing valuable information on the behaviour of the wine market. This information would be an invaluable resource for identifying patterns of wine consumption behaviour.

## Conceptual Framework

This paper discusses the proposition that wine marketers can generate useful information on patterns of behaviour by asking respondents to recall behaviour from memory. The prospect of accessing consumer memory is often overlooked due to a perception that respondent memories are difficult to elicit. Further, when respondents are asked to recall information from memory, the data is often unreliable or invalid (Guest 1964; Gardial and Biehal 1985; Schuman and Scott 1989; Alpert and Kamins 1995; White 1998). However, the assertion made in this paper is that much of the existing research on accessing memories seeks specific information, which is difficult to recall from memory, unless the memory was originally committed to long-term memory due to the respondent's interest in the topic elicited (Raaijmakers and Shiffrin 1981; Burke, Heuer and Reisberg 1992). The assertion in this paper is that consumers can reliably recall information from memory if the respondent is interested in the topic and the information sought is less specific.

Research has shown that consumers can recall brands they've used, but not consistently nor reliably. Further, consumers change their brand purchasing behaviour, even when they exhibit positive attitudes towards any particular brand

(Guest 1964; Castleberry, Barnard, Barwise, Ehrenberg and Dall'Olmo Riley 1994; Romaniuk and Sharp 1997; Dall'Olmo Riley, Ehrenberg and Barnard 1998). However, the perpetuation of behaviour at the category level is not widely known. The concept developed in this paper is that patterns of wine consumption can be identified through the development of a method that elicits information from respondents memories of their categories of wine consumed over time. Consequently, this paper reviews some of the marketing literature on accessing consumer memory and suggests guidelines for increasing the reliability of consumer recall when compared to previous research in this field.

### ***Identifying Consumption Patterns***

Quester and Smart have conducted research on the varying levels of consumer involvement as wine consumers mature (Quester and Smart 1996). They found that consumers increase their involvement in wine until the age of 50, where involvement begins to decline (Quester and Smart 1996). Ideally, this sort of knowledge, based on identified patterns of wine consumption over time, would be ideal. With that sort of knowledge, producers could more effectively forecast demand for their product and design their planting, harvesting and wine-making regime around forecasts of demand for successive years. However, information on the wine consumption patterns of consumers is scant, despite isolated publications of findings from cross-sectional samples of different populations around the world (Hansman and Schutjens 1993; Kerr, Greenfield, Bond, Ye and Rehm 2004).

The difficulty is developing the right method to identify patterns of consumption. Despite the merit in cross-sectional studies on population-representative samples of wine consumption (Stanford 2000), identifying changes in behaviour can only be conducted with panel data (Henry 1994). Prospective recording of consumption has the potential for the highest degree of accuracy. However, with an absence of time and money, a retrospective sample could provide the information sought on changes in each consumer's style and variety of wine consumed over time.

These changes can be identified through surveys on behaviours of a sample of consumers. Each time a consumer is asked to recall information about their behaviour or attitude, information is sought from the respondent's memory. Consequently, what information is recalled from memory given it is a difficult and complex task (Heuer and Reisberg 1990; Burke *et al.* 1992)? Does an inability by a

researcher to identify the recollection of a specific moment in memory indicate that an event did not happen for a respondent? In order to answer these questions research on memory recall must consider the way the brain encodes memories.

### ***The Operation of Memory***

The method in which we encode memories has a significant influence on our ability to recall or recognise something. Superficial encoding forms a weak memory, deep encoding forms a strong memory (Cameron 1999). There is a common misconception that memories are stored and retrieved in the same way. Memory is encoded into our minds with triggers, keys and impulses in order to facilitate easy reference when required. Encoding memory also involves the various meanings, senses and emotions attached to each specific memory. Recalling specific events and conceptual information relies on different types of memory and different systems and processes within the brain (Cameron 1999).

Identifying the processes involved in memory has been an issue of importance to marketers as the implications are relevant to the respondent's capacity to recall information presented to the consumer. The depth of processing memory is one of the key determinants as to whether a memory will be encoded in the mind as strong or weak ( Craik and Tulving 1975).

A key finding was that when positive associations are attributed to a memory, higher levels of retention are associated with deeper levels of encoding. However, recall of more deeply encoded memories takes longer than 'shallow' or weakly encoded memories (Craik and Lockhart 1972; Craik and Tulving 1975). An important finding of Craik's later study was that retention of a memory (indicated by the respondent's capacity to recall that memory) is critically dependent on the quality of encoding associated with the memory (Craik and Tulving 1975). Hence, strong memories are more likely to have been encoded because of a resemblance to existing memories.

Craik and Tulving's research exposed respondents to phrases requiring simple, intermediate and complex encoding for memory retrieval. They found that it is the operations carried out on the experiences committed to memory, specifically the exposure, linkages to existing memories and location of storage, that determines the capacity to recall a memory (Craik and Tulving 1975). Secondly, the differences in

retention of memory reflect the effects of different coding operations rather than the length of time or quality of exposure.

However, their findings also illustrated that subsequent exposure to the same research instrument improved recall ( Craik and Tulving 1975).

The main advance that Craik and Tulving identified over Craik and Lockhart, and subsequently endorsed in a later study (Raaijmakers and Shiffrin 1981), was that the retention of a memory is directly proportionate to the degrees of stimulus rather than just the notion that deeper encoding related to greater recall potential (Craik and Tulving 1975). In other words, the more the new memory has in common with the respondent's existing memories, the higher the likelihood that the respondent can recall the new memory.

The degree to which a memory is encoded depends on the experience and our pre-existing knowledge of the phenomenon to which we are exposed. For example, handing a respondent a crying baby and then offering them a glass of 'x' brand's wine is not likely to result in a strong memory. However, if the respondent thoroughly enjoys the same brand of wine at a dinner with close friends, the brand of wine is more likely to be encoded as a strong memory (Cameron 1999).

The premise for encoding strong memories is dependent on the respondent's interest, or involvement, in the phenomenon experienced. Cameron also illustrated Schacter's example from his book on recalling from memory. The example showed that respondents can recall the colour of a coin they use but few respondents could remember the icon on a coin despite the fact that the coin was probably handled every day (Schacter 1996) in (Cameron 1999).

Logic suggests that we encode superficially for menial experiences that occur every day. To strongly encode these experiences would use excessive memory and time, which is hardly required for superficial and frequent experiences. This does not mean we do not remember the experience, it merely means that appropriate retrieval cues must be utilised to recall them (Cameron 1999).

### ***Storing Memories***

Terminology in memory literature refers to the congruence between new and existing memories. A congruous encoding yields superior memory performance because the

new memory is integrated with a higher number of interconnected linkages, improving the potential to recall the experience from memory at a later date ( Craik and Tulving 1975). But, the process of memory recovery is considered to be noisy and imperfect (Raaijmakers and Shiffrin 1981).

The reliability of short-term memory (STS) is determined by its capacity. The capacity of STS differs among respondents, but is defined as 'r'. When STS is exposed to a new experience and the capacity of STS reaches 'r', each new experience replaces one of the existing experiences present (Raaijmakers and Shiffrin 1981). Excess memories in STS become inaccessible unless the memory is transferred to long-term memory (LTS). Enduring memories are those that are transferred from short-term memory to LTS.

LTS contains all information that has been stored for enduring purposes. However, there are significant and notable problems accessing information from LTS despite the benefit of retaining long-term memories. LTS has a large capacity and limited perishability of experiences committed to long-term storage. Some researchers on this topic claim that LTS retains memories permanently, it is just that accessing this section of memory is difficult (Raaijmakers and Shiffrin 1981).

The key finding was in relation to the retrieval of information from LTS. The process of retrieving information from memory is a series of discrete steps. Each step involves a probe of LTS by one or more cues, which results in a briefly activated set of information, followed by evaluation and if judged appropriate, subsequently selected from the set of images available (Raaijmakers and Shiffrin 1981).

### ***Categorising Memory***

Memory research covers a number of different characteristics about the operation and structure of the mind in forming memories. Concept formation research stipulates that well-defined categories are those where any given object or event may be unambiguously and non-arbitrarily classified as a member or non-member of a category (McCloskey and Glucksberg 1978). Other researchers in concept formation suggest that category membership is not as distinct as membership or non-membership. The alternate concept is of a continuum of category membership from high to low.

Respondents provide greater validity in their results when allowed free elicitation of brands rather than through methods of prompting (Finlay 1996). The explanation for this finding was that when respondents are given prompts on brands and alternatives, if unfamiliar with the brand, the respondent may be forced to categorise or make assumptions on a brand that they know nothing about. This experience forces the respondent to unnaturally group a brand, therefore interfering with the systematic grouping arranged in the respondent's mind (Finlay 1996).

The theory that congruence increases likelihood of recall was extended further with the concept of association by Raaijmakers and Shiffrin (1981) in their search using associative memories (Raaijmakers and Shiffrin 1981). The concept of short-term storage [STS] of information, and the linkages with memory for long-term storage [LTS] was discussed. In simplistic terms, STS is a more reliable store for memory, but very limited in capacity and perishability (Raaijmakers and Shiffrin 1981).

However, the findings from Craik and Tulving, (1975) and (Raaijmakers and Shiffrin 1981), suggested that stronger retrieval capacity of a sampled image is attributed to further experience, improving the likelihood of recalling with greater detail and accuracy than the recall for simple experiences. Thus the likelihood of an experience being recalled can be more readily estimated by measuring the experience in context with existing memories (Craik and Tulving 1975). In wine marketing literature, the congruence of new stimulus [wine-related] with existing memories [wine-related] is known as involvement (Lockshin, Spawton and Macintosh 1997; Lockshin 1998).

Although earlier researchers believed that information can be retrieved successfully from the LTS, findings indicate limited and contradictory results when accessing information from LTS with related cues and prompts. However, previous researchers failed to consider that the process of recalling information from the LTS could involve a random search for linkages to the memories of interest (Raaijmakers and Shiffrin 1981). As such, memories of specific interest in the LTS may not be retrieved because of limitations in encoded linkages to the specific memories sought, not because the memories do not exist.

Further, the search of associative memory incorporates the principle that there is a cost involved with the retrieval of information. The search through associated memories considers that a 'stopping rule' is applied due to time constraints, strength of association and redundancy effects (Raaijmakers and Shiffrin 1981). These

issues can restrict the recall of specific information from LTS and help to explain some of the reasons that LTS can be fallible and/or an unreliable tool for research.

### ***Frequency and Recall***

Respondent capacity to recall behaviour was topical in marketing research in the late 60s. Parfitt produced some seminal findings on the reliability and applicability of using diary panels to record purchasing behaviour (Parfitt 1967). At this time, the marketing wisdom was that self-reporting would exaggerate the frequency of the behaviour under investigation, while over-simplifying purchasing behaviour (Parfitt 1967). Despite findings that diary panels had recorded behaviours that were validated by comparing with industry production, this finding was not generalised over a wide band of industries (Parfitt 1967). Symbolically, Parfitt exaggerated the applicability of his findings by asserting that there would be differences in reported values from actual behaviours [for some, unidentified products] without validating or generalising his assertions.

Attempts to measure incidents from memory are improved when the respondent is asked to recall a typical object, or familiarity with a frequently occurring behaviour (Malt and Smith 1982). Respondents are more capable of indicating typicality based on their knowledge and experience, rather than being asked to familiarise oneself with a concept or experience that is atypical (Malt and Smith 1982). The implications of this find are that any research conducted on a respondent's wine consumption behaviour should be limited to behaviours that are typical to the respondent, rather than attempting to investigate the depth of detail that can be elicited from a respondent.

The key findings from Parfitt's (1967) work were that when recalling the incidence of purchase, products with low purchase frequencies were often recalled with exaggerated purchase rates. However, when recalling frequent purchasing behaviour, the respondent's capacity to recall behaviours accurately is repeatedly similar to actual purchasing habits (Parfitt 1967).

### ***Shortcomings of Investigating Memory Recall***

One of the drawbacks of these early studies into memory recollection was the samples used for these studies. Often a convenience sample of University students

was used for these studies. University students with higher intelligence than the general population have conceivably different memory operations to the general population of consumers. As such, the applications of many of these studies have dubious external validity. Parfitt's study was a notable exception. His work on the recall of simple but frequent behaviours on a sample of house-wives provided a preliminary example of how members of the general population can recall memories reliably.

Memory recollection literature also highlighted that positive associations improve the reaction time of recalling exposures, and that encoding determined the capacity of a memory to be recalled. These findings were indisputably an advance in studies of the operation of memory. Further, where unambiguous, strongly defined categories exist, respondents are more capable of selecting memories of membership to those categories.

Further muddling the waters of memory research is the concept of hidden memories. Cameron found that respondents who could not recall seeing selected advertisements could still rate an advertisement as memorable or distinctive. And if the respondent rated this advertisement as memorable or distinctive, there was greater likelihood of increasing sales for the product. Cameron referred to the concept as revealing 'hidden' memories (Cameron 1999). Clearly, the capacity to recall information from memory is important, so what do we know about influences affecting the respondent's access to memory?

#### Influences on Memory Recall

The process of recalling information from memory has been shown to be difficult but possible if the respondent is queried on regular behaviours of interest to the respondent. However, the respondent's capacity to recall memories reliably can also be influenced by a number of other issues, detailed forthwith.

#### ***Emotion's effect on Memory***

A respondent's mood has been well documented for the impact it has on recalling information from memory. A study comparing a convenience sample of respondents' evaluations of product performance showed a significant positive influence on the



evaluations when respondents were in a good mood (Isen, Clark, Shalke and Karp 1978). The conclusion being that a respondent's mood plays a role in what information comes to mind most readily (Isen *et al.* 1978).

Research found that thoughts associated with a good mood serve to cue material of that category that had previously been learned. This phenomenon of good mood prompting results has been termed the cognitive loop (Isen *et al.* 1978). The term refers to the fact that good moods provoke positive recall, which adds to the good mood (Isen *et al.* 1978). As such, research on a respondent's memory should ideally be conducted on topics of interest to the respondent, at a time when the respondent is in a good mood and more receptive to queries on their topic of interest.

The concept of recalling events is further muddled when considering the impact of emotional events, not just a respondent's positive mood. Emotional events are likely to be remembered with clarity and detail (Burke *et al.* 1992). However, this assertion is controversial in much of the previous literature on this topic, specifically from the genesis of the idea of 'narrowing' of attention from the Easterbrook hypothesis (Easterbrook 1959). The stirring of emotion during an event has shown both a narrowing of remembered detail and an improvement in recalling detail (Burke *et al.* 1992).

Comparing the findings of various researchers, the inclusion of emotional influences on memory supports the notion that respondents can recall more detail from the emotional component of an experience as opposed to recalling central detail from a story (Burke *et al.* 1992). However, this finding was tenuous, and was only consistent for subjects who were asked to recall information linked to the central detail of the exposure (Burke *et al.* 1992).

The findings of Burke *et al.* (1992)'s work also supported the concept that the respondent narrows his/her focus of attention during emotional events (Heuer and Reisberg 1990; Burke *et al.* 1992). This hypothesis is also supported in the findings of previous researchers on the topic of 'weapon focus', as experienced by victims of personal attacks. The concept of including emotional influences during exposure to a treatment will affect the respondent's capacity to recall the exposure (Burke *et al.* 1992). However, despite the congruency in researchers' views that respondents will narrow their focus on other informational priorities, the recalling capacities of the

respondent will vary from pre-exposure. In which direction, and to what magnitude, it is difficult to tell.

Part of the problem associated with recalling information from memory is the concept that adding memories contributes to forgetting existing memories. There are two basic reasons why a memory may be retrieved more effectively at time A rather than time B. The cues at one time may be more closely associated with the memory of interest at one time than another due to experiences and memories learned between the two periods (Raaijmakers and Shiffrin 1981). Secondly, the number of cues for the memory of interest may differ between the two periods of time. As such, it is a consequence that existing memories may become less accessible, or even forgotten, if the cues used for retrieval at one time do not apply in another instance (Raaijmakers and Shiffrin 1981).

### ***Improving Recall through Repetition***

Anderson *et al* (1994) investigated the interactions between recalling an event, and the impact that remembering had on forgetting. The authors tested the impact of competing memories from the same cues, the strength-dependent capacity of memories to be recalled and the retrieval-based learning theory that recalling memories reinforced their capacity to be recalled (Anderson, Bjork and Bjork 1994). Previous research found that where respondents are exposed to successive exposures, each exposure's likelihood of recall declines linearly as a function of the exposure's position in the testing sequence (Anderson *et al.* 1994).

Although the act of recalling a memory increases the potential to recall that memory at a later stage, previous research was conflicting, with some suggesting that other items associated with the same cues can be 'blocked' from recall, due to the strength of dependence of a more strongly associated memory. However, Dapolito (1966), Blaxton and Neely (1983) in (Anderson *et al.* 1994) found that strengthening of memory through recall can improve the recall of other memories triggered with the same cues. Anderson *et al* (1994)'s findings supported the assertion that repeatedly recalling information can impair the recollection of related information. Further, the findings also found that impairment of recalling related information can persist beyond the testing period, which was the original limitation of previous authors' works.

The findings indicate that where memory recall depended on the strength of competing memories to be recalled, retrieval-based learning increased the probability of a strong memory being recalled at the expense of competing strongly associated memories. The more frequently the same strong memory was recalled, the more readily that memory could subsequently be recalled (Anderson *et al.* 1994). However, the exception to these findings was with weakly related memories. Where weak associations with a memory cue were identified, retrieval-based learning had no negative effect (in some cases a positive effect) on the probability of recalling other memories (Anderson *et al.* 1994).

Psychologists refer to this concept of consolidating memory. Consolidating memory is the act of reinforcing a memory due to being exposed to the experience repeatedly. However, despite the fact that a memory may be consolidated, consolidation and forgetting are inextricably linked (Cameron 1999). Logically, when we are frequently exposed to the same experience, more minute details of the experience are not required to be memorised, as we make an unconscious decision to omit specific details, as the greater frequency of exposure communicates the message that the experience is readily available, should we require more specific details than the capacity to merely recognise the experience.

However, it must be noted that the mind has limited capacity to store numerical information. In all but the most consistent consumption patterns, the respondent's capacity to recall numerous consumption experiences over an extended period is likely to be fraught with inaccuracies. Ehrenberg illustrated this problem most succinctly in his 1977 article in the *Bulletin of Psychological science* (Ehrenberg 1977). In order to make the calculation and communication of numerical data easier, the mind rounds longer values to two numbers of the unit under calculation.

### ***Positive First Impressions and the Value of Brand Loyals***

Alpert and Kamins' article on consumer memory illustrates the importance of establishing a positive affect for the first experience a consumer has with a new category (Alpert and Kamins 1995). The authors found that when a consumer has a positive memory of a pioneer brand, the relationship with subsequent brands in the same category prompt recollection of the pioneer brand (Alpert and Kamins 1995).

The experience of notable events in our lives can often have a significant impact and permanent effect on our memories (Schuman and Scott 1989). Formative events and changes that we are assumed to have experienced, are expected to influence and be recalled at some point in the present or future (Schuman and Scott 1989).

This finding supports research into the reliability of recalling behaviours by loyal customers. For loyal brand users, it was found that recall is focussed on the loyal brand, i.e. the regular behaviour (Finlay 1996). Finlay (1996) analysed knowledge content and structure about purchasing behaviour and the way the concepts are arranged or configured in memory. The researchers hypothesised that the constructs of memory may not be stable over time due to the acquisition of new knowledge (Finlay 1996).

Three different methods were used to investigate respondents' skills at recalling brands from memory. Despite mixed results, the consistent finding across methods was that brand loyal consumers have greater validity and reliability to recall brands of soft drink than non-brand loyal consumers. The pattern of convergent and discriminant validity establishes support for construct validity for loyal brand users of soft drinks (Finlay 1996). It is logical to conclude that consumers who retain loyalty to a brand can more reliably recall their use of that product over time. Clearly to develop brand loyalty, the experiences that a consumer has with a brand must be positive.

A respondent is more likely to recall an experience if it is a strong memory. A strong memory is one in which there is frequency of exposure and meaningfulness to the respondent. As such, any research requiring a respondent to recall information from memory should sample from a population of respondents who attach a degree of meaningfulness to the topic of interest. Therefore, in order to reduce adverse influences on research into alcohol consumption a researcher should ideally sample respondents in a positive mood; have had positive initial experiences with the product under investigation; repeat their behaviour regularly and have tendencies to brand (or product) loyalty. If these criteria can be satisfied, the potential to recall valid and reliable memories is increased.

Methods for Eliciting Behavioural Information from Memory

One of the problems associated with researching consumer recall is that consumers poorly estimate frequency when asked to recall over an extended period (Brennan, Chan, Hini and Esslemont 1996). The situation can be ameliorated if the time-line of interest is extended beyond the borders of time sought for the test, or where a landmark event can be identified to offer a 'benchmark' for respondents to compare against (Brennan *et al.* 1996).

### **Recording Processes**

Two processes for recording behaviour over a retrospective period were compared by Michael Hilton in his study comparing the recording of alcohol consumption over time (Hilton 1989). Contradictory findings existed between researchers, for reliable methods of alcohol consumption reporting. The two methods considered were the prospective diary technique and summary recall methods (Hilton 1989). Both methods required respondents to recall and summarise their alcohol consumption over a retrospective period. Consequently, there are three potential sources of error in these methods: Primarily, there is deliberate deception. This issue is very difficult to resolve in any study, and as such must always be considered as a possible consequence of conducting the study. Secondly, there is the possibility that respondents will not recall their consumption accurately. Thirdly, summary recall requires the respondent to abstract his/her behaviour rather than reporting it directly as it happens (Hilton 1989).

One of the major criticisms that should be exposed in this field of alcohol reporting is the assumption that the technique that yields the largest volume of alcohol reported is typically accepted as the correct one. Despite the wealth of literature supporting respondents' tendencies to under-report consumption, many of the articles used for supporting this assertion were taken from samples of the population affected by alcoholism, or that the samples were otherwise non-generalisable samples of the population, and as such cannot be logically applied to the population at large.

The 70s and 80s witnessed a multitude of researchers address this topic. Researchers in the 1970s found that in order to return valid responses on alcohol consumption, alcoholics should not be used in the sample as their responses were inconsistent (Summers 1970; Miller, Crawford and Taylor 1979). The realities of studying past behaviour is that unless a respondent's consumption can be monitored

and recorded electronically through some form of video, the recording of a respondent's alcohol consumption requires the recall of information from memory.

### ***Modelling Alcohol Consumption***

In the early 80s, Alanko's taxonomy on the problems experienced when trying to assemble data on alcohol consumption, highlighted the key areas of interest for researchers aiming to gather information in this field (Alanko 1984). The drinking behaviour of individuals is characterised by randomness (Alanko 1984). Attempts to identify consistent patterns of behaviour over short periods of time often find overlapping patterns or frequent changes in these patterns over short periods (Alanko 1984). However, in this inherent randomness, Elkholtm (1968) in (Alanko 1984) found that the poisson mathematical distribution effectively modelled approximately 85% of respondents' drinking patterns.

For the remaining 15% of consumers, typical deviations from the *Poisson* distribution were from consumers who drink as part of a drinking spree [commonly referred to as binge-drinking (Smart 1989; Engs 2001)]. The difficulties in modelling these respondents' patterns are attributed to the respondents' variable frequency of consumption despite the consistent pattern that consumption typically occurs during weekends. Further, the amount of alcohol consumed by these respondents also varies between spree-drinking episodes (Alanko 1984). The difficulty in capturing this pattern of consumption could be resolved by extending the duration of time used to record consumption patterns. However, to do so would overlap the existing patterns identified for the complement of the sample.

The measurement of customary drinking habits is a method used where the respondent evaluates his/her drinking patterns and estimate typical consumption over a pre-set period of time (Alanko 1984; Sobell, Sobell, Leo and Cancilla 1988; Hilton 1989; Giovannucci, Colditz, Stampfer, Rimm, Litin, Sampson and Willett 1991). The measurement instruments typical involve the use of a quantity-frequency (Q-F) model, and may or may not include a value for variability in the estimates. Alanko's criticisms of these methods stem from the fact that Q-F models fail to consider total alcohol consumed, and attempts to discuss the distribution of alcohol consumed around the Q-F are fraught with difficulties (Alanko 1984).

Earlier research in the field of self-reporting of alcohol consumption by Summers (1970) and Sobell et al. (1982) suggested that self-reporting of alcohol consumption can be an unreliable method of research (Summers 1970; Sobell, Cellucci, Nirenberg and Sobell 1982). The time-line method of reporting was tested for validity across different samples of consumers by Sobell *et al.* (1988). Although differences were evident in the reliability of reporting for different samples, the reliability for normal drinkers within the female and male population was high (Sobell *et al.* 1988).

Sobell *et al.* (1988)'s study also discovered that the time-line method of recording consumption over three months is a more reliable method of recording alcohol consumption. The authors also found there was little difference in reliability between the reporting of alcohol consumption between University students and the normal population (Sobell *et al.* 1988).

Summers' (1970) article on the validity of alcoholics' self-reporting validity, through to Miller's (1979) study using significant others to validate the reporting of alcohol consumption highlighted the problems associated with reporting alcohol consumption from a sample of consumers who deliberately misrepresent the volume of alcohol they consume.

An alternative method is reporting based on actual consumption. Two main approaches are used here; the 'when last' approach, which requests a respondent to indicate when they last consumed alcohol and how much they consumed at that time. A number of recent periods of consumption may be requested, and when extended periods of time are elicited, the approach is referred to as a 'time line' method of reporting (Sobell *et al.* 1988). The problems associated with the 'when last' approach are the inherent variance in alcohol consumption, particularly when considering the use of two or few more occasions to model typical consumption behaviour (Alanko 1984). The method is therefore considered unsatisfactory on theoretical grounds. Further it is expected to falsely estimate alcohol consumption to be higher than actual consumption (Alanko 1984).

Another alternative is the survey period approach, where a respondent is asked to record their consumption over a predetermined period, typically 1 week. The benefit of this survey method is that the period of recording is the same for each respondent. However, problems are evident for infrequent consumers who happen to have not consumed during the survey period. This issue has been dealt with in Mäkelä

(1971), by instructing respondents to choose their response period, allowing those respondents who consume alcohol infrequently to complete the survey with extended timelines. Despite the ever-present concern of response error in this instrument, as in all others, response errors are very difficult to identify or analyse (Alanko 1984). Due to the perceived reduction in shortcomings of this method, the survey period approach is preferred for survey work by Alanko.

For a topic that reveals so many defects, sources of bias and unreliability in research data, it is easy to sympathise with Duffy's question of 'why are surveys performed at all [on alcohol consumption]?' Although the comment may have come out of desperation at the imprecise data available on the topic, the fact that there is currently no better way of monitoring the alcohol consumption patterns of a population, research on this matter appears to be the best conclusion on this issue.

Although response problems are a concern for researchers into alcohol consumption, typical response concerns involve the deliberate or accidental omission of alcohol consumed by volume (Summers 1970; Miller *et al.* 1979; Sobell *et al.* 1988; Hilton 1989; Giovannucci *et al.* 1991). Clearly, the easiest way to resolve this issue is to restrict research on alcohol consumption to broad categories of consumption with a relatively modest amount consumed as the upper category of consumption, or to indicate binary categories of 'yes' and 'no' to a predetermined nominal amount of alcohol consumed. Admittedly, these suggestions limit the amount of detail available to researchers, but the clear advantage is that the improved validity to responses obtained from the sample.

## Conclusions and Applications for Wine Marketing

In light of the overwhelming number of different brands available to the consumer, it would appear as if asking the respondent to recall their wine consumption experiences by brand would be a waste of time. However, in a market of significant and regular change, there are constants worth investigating. Consumers may change between brands, but there is no suggestion that brand-loyal consumers do not exist. It may just be that Jacoby and Chestnut's theory that 80% of consumption (Jacoby and Chestnut 1978) would be from one brand may require adjustment for an industry where between 100 and 10,000 different brands may be available for the respondent to choose at any one shopping experience.



Further, despite the consumer's tendency to consume from a repertoire of different wine brands, there is little evidence on the respondent's behaviour with regard to variety or type of wine. Investigating how respondents' consumption patterns change by style or variety presents the opportunity for the wine industry to identify how and when patterns change for respondents over their lifetime. Recognising patterns of perpetuated consumption would assist budgeting and demand forecasting for new plantings of grape varieties, as well as helping producers to identify changes in consumption behaviour, or to predict upcoming changes due to natural attrition, or rapid increases in new consumers.

In conclusion, it appears that surveying regular wine consumption behaviour over a retrospective period is possible. The amount of detail that can be provided by this research method is unknown, but various authors suggest that if wine consumption behaviour began with a positive experience and that their wine consumption is frequent or regular, the potential to recall information on their consumption behaviour over time is possible. To assist the possibility of recalling valid data, the sample would ideally be respondents who are classified as wine-involved. Ideally, when responding to questions on their wine consumption, volume consumed would have to be a binary response (ie. Regular or not), respondents would ideally need to be in a positive frame of mind and the period of time under investigation would have to stretch beyond the time the respondent first consumed wine.

Under these provisos, there is the potential for researchers to investigate wine consumption retrospectively. The benefits of this method are that wine consumption patterns could be identified, along with measures of consistency in wine consuming behaviour, or consistency across the sample for when any changes in behaviour occur. For the benefit of the wine industry, we should investigate the existence of consistent patterns of wine consumption.

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