

Outcomes of the analysis of the Flinders VGS report

Following on from the literature analysis and conceptual development, the next step was to analyse the report concerning the VGS from the Flinders Technologies group.

Analysis of the Flinders report

The Flinders report outlines an integrated research program in which the VGS was developed. Our critique of the report centres on the areas nominated in the project brief and also De Vellis' tool development protocol as previously described.

The first stages of the work reported by the Flinders group involved detailed analysis of the problem gambling research measurement literature, and consultations. Focus groups were conducted with a range of participants including community members, participants in a gambling treatment program, and regular gamblers from a variety of cultural backgrounds and locations. This work proceeded well.

Based on these investigations, a draft version of the VGS questionnaire was developed and administered to 138 respondents by face-to-face, and computer-assisted telephone interview methods. Item and scale analysis techniques were used to select the items that made up the pilot version of the VGS.

The pilot version of the VGS was administered to 239 gambling respondents in the survey who were solicited from the following sources:

- 71 from a door-to-door random survey;
- 79 from a survey undertaken at the exits from gaming venues;
- 22 from problem gambling treatment settings; and
- 67 from 'miscellaneous' sources.

A pilot validation exercise involved expert panel judgments in which 71 of the research study survey participants were categorised into 'Non-problem', 'Borderline Problem' or 'Problem gamblers', based on case data. The participants were also given a diagnosis of pathological gambling according to the DSM-IV criteria as well as completing the SOGS. The correlation between the VGS and SOGS scores was found to be $r = 0.87$. This is quite high, as 1.0 is the maximum possible value. The pilot validation exercise was methodologically strong and innovative.

The final version of the VGS has three sub-scales derived from summations of various items:

- Harm to Self;
- Harm to Partner; and
- Enjoyment of Gambling.

The Harm to Self sub-scale is central to the identification of problem gamblers. Indeed one of the issues with the final version of the VGS is whether it is necessary to include the Enjoyment of Gambling material. The Enjoyment of Gambling material fits into the 'propensity to gamble' component of our conceptual model of problem gambling. Presumably, if one reports a high level of enjoyment then this is consistent with a high propensity to gamble. At first glance, these items may appear to be inconsistent with a measure of problem gambling, but they in fact tap into important

propensity issues. Their retention or deletion is really an empirical issue at the end of the day based upon an assessment of the psychometrics properties of the tool. In that respect, they certainly fit the requirements, as the psychometric properties confirmed by our analyses are excellent.

The report provided by Flinders contains a comprehensive set of scale development and item analyses. Additional confirmatory analyses were run by us using data kindly provided to us by the Flinders researchers. We ran confirmatory analyses as follows:

- Item difficulty;
- Item scale correlations;
- Coefficient alpha;
- Criterion related validity correlations;
- Factor analysis.

The analyses we conducted confirmed the Flinders group findings that the tool they developed is psychometrically robust according to the standard psychometric criteria. The Flinders report includes detailed discussion of these issues to a high standard.

The Flinders group in their report (Ben Tovim, Esterman and Tolchard, 2001) state that:

'In the next phase of its development, the scale needs to be administered to a larger sample. As it stands, the standard error of any estimate of prevalence of problem gambling in the small sample used to develop the scale is large (± 3.8 per cent) relative to the likely prevalence of problem gambling. That reflects a small sample size that cannot be used to estimate problem gambling in the community with any degree of accuracy (i.e. the scale awaits validation on a larger and more representative sample) ...' (p.3)

This statement correctly identifies the fact that the validation samples within the study were not sufficient to provide a final assessment of the tools performance in a community study.

The Flinders document outlines a comprehensive and credible research program culminating in the development of the VGS tool. The work is sound and well-executed within the parameters specified within the brief that drove the project.

However, there are issues with the VGS and other tools that need to be discussed and resolved. These include the tool purpose and the derivation of the items from a theoretical and conceptual framework.

While it is not confined to this scale, it is also important to consider item weighting. In this tool as in most of the other problem gambling scales, the items are unweighted. Each is considered to contribute equally to the problem gambling dimension. Dickerson has criticised this aspect of the SOGS, arguing that there is hierarchy of seriousness in the items. To an extent this is an empirical issue that could be readily addressed by conducting analyses such as Guttman scalogram analysis to examine whether there is indeed a hierarchy. We suggest that this would be a useful analysis to conduct of the all of the scales included in the proposed validation community survey study.

The VGS tool purpose

As we have previously discussed, we consider that there are five main purposes to which problem gambling measurement tools can be put. These include:

- A current diagnostic purpose (Who currently has the problem?);
- A current severity classification purpose (How severe is the problem?);
- A predictive diagnostic purpose (Who is at risk of developing the problem in the future?);
- An intervention design purpose (What is needed to treat the problem?);

- A triage or screening purpose to refer the person for further assessment or action (What further assessment or action is required?).

The authors defined the purpose of the VGS as follows:

'To develop a new instrument that could be used in surveys of the general population to assess the extent of problem gambling and for people presenting for problem gambling treatment or assistance in a clinical setting ...' (p.1)

The VCGA proposed that the measurement instrument, provisionally called the VGS should be able to:

- be used in surveys of the general population — i.e. have predictive validity when used as a population screen;
- have versions suitable for various methods of administration including self-administration by telephone interview;
- be administered by Computer Aided Telephone Interview (CATI) in particular in the Authority's continuing survey series of Gambling Patterns and Perceptions;
- be used as a face-to-face intercept interview at gambling venues;
- be used as a face-to-face interview at selected dwellings; and
- be used with people presenting for problem gambling treatment or assistance in a clinical setting (p.9).

Although the term prevalence is mentioned in the Flinders report, there is no explicit discussion of the implications of the kind of prevalence being measured (i.e. point, period or lifetime). As the VGS tool seeks questions concerning the last 12 months it can be considered as a 12-month period prevalence measure.

The following quotation from the report also informs this discussion:

'It was always intended that the VGS would be developed on an empirical basis. That is, there would be no pre-conceived assumptions about what constituted harm, how it would best be measured, how it related to phenomena such as the gambling syndrome and how it related to problem gambling. As far as possible the development process would be 'bottom-up', starting with input from all relevant sources and then working towards a measuring instrument. The process had certain limitations that have to be acknowledged at the outset. Importantly, the whole development process was 'cross-sectional' in nature. The development program reported here was intentionally limited to the generation of a valid measure of current problem gamblers. It was only ever intended to quantify past and present harm due to gambling. Resources were not available to follow up respondents over time, so that it was not possible to identify those gambling behaviours at one point in time that would be indicative of the development of harmful consequences at a time in the future. Responses to the VGS could potentially be used to identify gamblers at risk of future harm, but only once the additional relevant studies have been undertaken ...'

We take this discussion to mean that the tool is intended to serve a current diagnostic purpose and also to possibly serve as a current severity classification purpose. The predictive diagnostic purpose is specifically disavowed and the intervention design purpose is not mentioned.

As with the other problem gambling measurement tools, the authors of the VGS take what we consider to be an atheoretical or inductive position with respect to the tool structure and the derivation of items to be included in it. We do not agree that there are 'no pre-conceived assumptions' in the scale. Rather, the model or models used to inform item selection have not been explicitly stated. They have not been systematically derived from a theoretical or conceptual framework concerning the nature and constructs of problem gambling. Rather, an inductive process

of consultations with consumers and experts has been used. We by no means make this observation exclusively concerning the VGS. They are in good company.

For example, the developers of the CPGI provide the following discussion (Ferris and Wynne 2001a):

' ... in order to produce the most valid and reliable instrument possible for use in general population surveys, we needed to decide what sort of measure we wanted to produce, a prevalence measure or a general screen. In Phase I, we were assuming that the answer was "a general screen". However, as our work evolved, it became clear that what was required was an index that could serve both purposes. This of course is a thorny problem. For prevalence, we needed to be able to relate our findings to the current diagnostic standard, the DSM-IV. For screening, we needed to be able to include a variety of other indicators, and broaden the concept of "at risk" as it is defined by prevalence measures. To measure prevalence, we needed items measuring behaviour and adverse consequences. For screening, we wanted to incorporate items that provided more social context or background information on problem gambling, but couldn't be "scored" per se because they were soft, or indicative, signs of gambling problems rather than hard or diagnostic signs like the behavioural or consequence items ... ' (p.3)

This discussion neatly illustrates the dilemmas facing developers of omnibus measurement tools loaded up with divergent purposes and expectations. The discussion includes mention of the difficulties associated with serving both current and predictive diagnostic purposes. However, what predicts future behaviour may only be peripherally associated with current diagnostic considerations.

As a matter of fact, the SOGS developers have probably been the clearest exponents of the use of their tool. The SOGS was designed as a screening tool for clinical populations to assist with decisions to refer for further assessment or treatment. Many of the researchers who then embraced it attempted to apply it for the purpose of a diagnostic tool, which was then used in population studies to measure the prevalence of problem gambling within the target study population. As test developers we have personal experience of the enlargement of functions for a measurement tool designed for a different purpose. In the Work Ability Tables, which were designed to assess whether a person with disabilities could work or not, they are now used to assist with screening for referral to work assistance and training programs. The issue of whether tools can be used for additional purposes is an empirical one in which the issues of reliability, validity, applicability and practicability need to be re-assessed for the new purpose. These properties should not be assumed. In the case of the Work Ability Tables, extensive studies were conducted to evaluate the utility of the tool for the new purpose.

Our general conclusion is that the Flinders work was conducted to a high standard using proven and well-substantiated test development protocols. A more detailed explication of the conceptual and theoretical model informing its content and its specific purpose(s) would have been useful. Further validation of the tool involving a large validation study sample is required in the context of its specific purposes. It has good internal psychometric properties but the validation process requires further work. This is being completed as part of the GRP 2003 community attitudes survey.

Analysis of the problem gambling measurement tools and typologies

Purpose/auspice of the Canadian Problem Gambling Index

In 1997 an inter-provincial group of government agencies with responsibility to mitigate problem gambling commissioned the Canadian Centre on Substance Abuse (CCSA) to conduct a three-year research project to measure problem gambling in Canada. A main outcome of that project is the development of a new measurement instrument, the CPGI (Ferris, Wynne and Single 1999). This instrument was developed to better measure gambling problems in the general population in comparison to the more commonly used SOGS. One of the major criticisms of SOGS has been that it was developed in a clinical setting with 'problem gamblers', yet it is used in general population studies. The instrument also has been widely criticised for containing unproven assumptions about problem gambling (Volberg 2001).

Compared to SOGS, the CPGI is more theory based, designed specifically for community studies and is better able to distinguish between sub-types of problem gamblers in general population surveys.

Development of the CPGI

In the development of the CPGI, Ferris and Wynne retained nine scored items from a variety of sources — SOGS, DSM-IV, expert opinion — that were the strongest predictors of problem gambling (validity) and that showed stability in test/re-test (reliability). The nine items are:

- Chasing losses;
- Escalating bets to maintain excitement;
- Feeling that one might have a problem with gambling;
- Borrowing or selling to get gambling money;
- Betting more than one can afford;
- Feeling guilty about gambling;
- Being criticised by others for gambling behaviour;
- Incurring harm to one's health;
- Having financial difficulties to one's household due to gambling.

These items are scored to construct a Problem Gambling Severity Index (PGSI). Using this index, the CPGI makes a distinction between non-problem gamblers, low risk gamblers, moderate risk gamblers and problem gamblers.

In developing the CPGI, the research team critically analysed existing instruments, and examined the domains and variables that each purported to measure for the purpose of incorporating the best of these into the CPGI's first draft. This draft was scrutinised by an international panel of experts, modified and pilot-tested with three groups (a random sample from the general population, regular gamblers who responded to newspaper ads, and problem gamblers in treatment [N=50 per group]) (Smith and Wynne 2002:10).

Reliability/validity studies

The 31-item CPGI has been shown to have good construct validity and reliability in psychometric testing (Ferris and Wynne 2001a, 2001b). In a national validation study of 3,120 adult Canadians from all provinces the performance of the nine PGSI scored items in discriminating gambler sub-types was superior to either the SOGS or DSM-IV scored items.

To establish reliability, the CPGI was re-administered to a sample of 417 respondents from the initial survey. To further validate the classification accuracy of the CPGI, problem gambling treatment specialists conducted clinical interviews with 143 survey participants.

Thus the CPGI is the first problem gambling behaviour measurement instrument to be rigorously tested prior to its use in population surveys. Moreover, it is the only problem gambling measurement tool to have established and published psychometric properties before its application in gambling research.

Population studies and the CPGI

To date, the CPGI has been used in a Canada-wide gambling survey (Ferris and Wynne 2001b) and in the provinces of Ontario (Wiebe, Single and Falkowski-Ham 2001), Saskatchewan (Wynne 2002) and Alberta (Smith and Wynn 2002). It has also been used in a population survey in Queensland of over 11,000 respondents (Queensland Household Gambling Survey, 2001).

The CPGI is now clearly the measurement instrument of choice in Canada. By 2003, all provinces will have completed general adult population prevalence studies utilising the CPGI. These comparable studies will feed into a national database that profiles gambling and problem gambling behaviour across Canada.

Further proposed Canadian developments from the CPGI include:

- The CCSA plans to develop a Canadian Gambling and Problem Gambling Profile from these provincial data (Smith and Wynne, 2002);
- Statistics Canada has adopted the CPGI in its present omnibus national mental health survey (N=35,000) which is expected to provide rich data to explore mental health and at-risk/problem gambling correlates (Statistics Canada, 2002); and
- The Ontario DATIS system that tracks all clients in alcohol, drug, and problem gambling treatment has mandated that the nine-item PGSI must be administered to all clients entering treatment. This will result in an expanding database that will be available for longitudinal studies (Centre for Addiction and Mental Health, 2002).

Practicability issues and the CPGI

Because the CPGI is a relatively new measure, the results of surveys using this instrument cannot yet be compared directly with prior prevalence studies. However, it is widely acknowledged to provide more meaningful insight into the nature and extent of problem gambling behaviour in the general population than studies that use SOGS.

Common themes and advantages of the CPGI and the VGS are that they both direct attention to associated 'risk' behaviours/pathways such as alcohol and drugs. A major value of studies using the CPGI lies in the implications for the targeting and design of interventions to prevent and deal with gambling problems. Canadian studies using the CPGI have found that gambling problems are often complicated by substance abuse. Although problem gamblers are more likely to have higher rates of alcohol and tobacco consumption than other gamblers, and they are more likely to use illicit drugs. These studies have also found a close connection between problem gambling and a family history of alcohol or drug problems.

The finding in studies using the CPGI that gambling problems and substance abuse are closely connected indicates the potential benefit of screening clients in gambling counselling and treatment programs for alcohol and drug problems. Korn and Shaffer's review monographs published in the *Journal of Gambling Studies* and the Annual Review of Public Health provide major reviews of these research findings. The high level of alcohol and substance abuse co-morbidities amongst people with problem gambling is now an accepted finding in this research literature and screening for these problems is, in our view, a necessary and appropriate practice response to this research evidence. Similarly, persons presenting with alcohol and drug problems should be screened for gambling problems.

Another major finding of Canadian studies is that gambling problems are related to poor health, stress and depression. Korn and Shaffer's reviews and also the work of Doiron and Nicki (2001) in the *Canadian Journal of Psychiatry* support this proposition.

The relationship between gambling and health problems highlights the need for prospective studies designed to untangle causal patterns and inform development of targeted prevention strategies and treatment programs.

Application of the CPGI in Ontario and Alberta

Jamie Wiebe, Eric Single and Agata Falkowski-Ham recently completed the analysis of a telephone survey of 5,000 Ontario residents using the CPGI (Wiebe, Single and Falkowski-Ham 2001); and a study of 1,804 adult Albertans was completed in February 2002 (Smith and Wynne 2002).

There is a reasonably good consensus that the CPGI's nine PGSI items are useful and relevant, but there is some disagreement among Canadian and US researchers about the specific details on how to generate the most robust scale using these CPGI items.

While the Ontario researchers agree that the CPGI provides a better measurement tool than SOGS, they argue that the instrument still needs refinement. In particular they argue that there is a need for:

- unbiased, empirically based criteria for weighting the nine PGSI items. They are currently unweighted and the Ontario researchers suggest that some items should carry greater weight;
- unbiased, empirically based criteria for finding the most robust dividing lines for the scaling categories;
- to rename the four categories of the CPGI; and
- to investigate whether there are sub-dimensions to the scale.

In the Ontario report, the authors changed the names of the four categories of gamblers: 'low-risk gambler' was changed to 'at risk gambler' and 'moderate-risk gambler' to 'moderate problem gambler'. The Ontario study also changed the manner in which the 'at risk' group was scored, including some cases that would have been in the non-problem gambling group in the original version of the CPGI. This was based purely on face validity rather than empirical criteria. In the authors' judgement, cases involving people who said 'sometimes' to one or two items and 'never' to the other items seemed to be better categorised as at-risk gamblers. This did not change the basic results of the study in any appreciable manner.

These changes seem to be more driven by a socio-political concern rather than a technical question about the instrument. A representative of the Queensland Gambling Policy Directorate reported that they found the terminology in the Ontario study 'unhelpful'.

In personal correspondence Henry Lesieur (who developed SOGS) also raised questions about items in the PGSI. His criticism does not focus on the CPGI itself, but rather, his focus is on which items are the best predictors of problem gambling. His claim is that two of the SOGS items that are retained in the nine-item PGSI measure are among the weakest predictors of problem gambling. At time of writing, Lesieur is writing this analysis as an article for submission to Addictions.

The researchers who developed the CPGI have repeatedly stated that it is subject to further refinement and the Canadian Institute on Health Research (CIHR) reportedly is interested in funding a workshop on this issue.

Application of the CPGI in Queensland

A representative of the Gambling Policy Directorate reports that in general they are 'happy with the outcomes' from the CPGI:

'It seems to have limited non-disclosure by interviewees and it provides a useful array of information that helps governments to better define the nature of problem gambling behaviours and to design policy responses. Like all survey instruments the very act of measuring influences the outcome and trade-offs between specific information and generalisable information have been and continue to be made ...'

The CPGI screen has been found to be at least as reliable as the SOGS screen and probably more accurate. Anecdotes from the Queensland interview team suggest that interviewees were more likely to answer CPGI questions.

Individual items have been analysed with a 'relatively low level of depth' but the GPD has found that they are congruent with previous research findings and internally consistent. In relation to the validity of the CPGI the key issue is whether it provides valid useable information for understanding the social construction of problem gambling. The Gambling Policy Directorate reports: 'On that basis CPGI has given us good information about the behavioural as well as environmental aspects of both problem and non-problem gamblers. We suspect that the survey has identified some reliable mechanisms which might lead to problem gambling behaviour.'

As the CPGI is a population tool, the GPD argues that the instrument is more likely to be accurate at high sample sizes than lower ones, whereas they suggest that SOGS is 'just broadly inaccurate'. In the opinion of the GPD representative, one key advantage of the CPGI has been to have a statistically reliable way of testing for apparently correlated behaviours.

The CPGI also has been applied in a correctional setting in Queensland and proven to be 'quite robust' in that context as well.

Conclusion on the CPGI

The CPGI's capacity to identify 'at risk' gamblers in the general population has potentially important implications for early interventions aimed at preventing or dealing with gambling problems.

The major findings of prevalence studies in the USA, Canada and Australia using SOGS, CPGI and other prevalence instruments indicate that the prevalence rate is relatively constant/stabilised. Even so, new screening tools are currently being developed and several researchers (e.g. Shaffer and colleagues at the Harvard Medical School, the Queensland GPD, the Productivity Commission) suggest that governments and the public would be better served by switching the research focus to incidence studies, a point taken up in this report later.

The South Oaks Gambling Screen

Since its development (Lesieur & Blume, 1987) the SOGS has been used extensively. Schaffer, Hall & Vander Bilt (1997), for example, in their review of pathological gambling prevalence studies, noted that the SOGS had been used in over half of 152 studies identified, as the measure of pathological gambling.

As it has also been reviewed extensively elsewhere (Dickerson, 1993; Lesieur & Blume, 1993; Lesieur, 1994; Dickerson, McMillen, Hallebone, Volberg & Woolley, 1997; Productivity Commission, 1999; Stinchfield, 2002) we only note here, briefly, some of the main concerns identified in these reviews, with its use as a population prevalence measure of problem or pathological gamblers:

- The SOGS was developed as a clinical tool to identify probable pathological gamblers. It demonstrated good reliability and validity, and not surprisingly, high correlation with DSM–III-R criteria for pathological gambling ($r=.94$) and was able to accurately classify Gamblers Anonymous members (98.1 per cent), university students (95.3 per cent) and hospital employees (99.3 per cent). Taken out of the clinical context, there is concern that the SOGS may yield a high false positive score in population studies;
- Excessive weight is given to items concerned with borrowing money, with nearly half of the 20 equally weighted items dealing with sources of funding gambling;
- Using a lifetime frame of reference, rather than a past month, past six months or past 12 months for the SOGS items may overestimate current prevalence, as it captures in population surveys, those who may have had a problem with their gambling but now no longer do so;
- The SOGS contains both subjective and behavioural items, in distinction to DSM–IV which is behavioural only, introducing the potential for the relativity involved to inflate numbers of those defined as pathological gamblers, as a score of 5 on SOGS, the cut-off score for defining probable pathological gamblers, if made up of mainly behavioural items, may not reflect ‘objectively’ pathological gambling;
- In common with other measures of problem gambling, SOGS data are based on self report, which may not be reliable;
- Both SOGS and DSM–IV combine items to do with the characteristics of gambling, such as ‘chasing’; and items to do with the consequences of gambling, such as ‘missing important social engagements’;
- The SOGS may not be sensitive to the social and material contexts of the player, including culturally diverse contexts;
- SOGS may be better used as a screen prior to validation of problem gambling status by application of DSM–IV or clinical interview, as appropriate.

Content analysis of the measurement tools

In analysing the relationship of the VGS to other measurement tools, a thorough content analysis was required. Content analysis shows in a direct rather than statistical manner the association between the content and structure of different measurement tools. It is an essential activity in the development and validation of new measurement tools. The content analysis used the conceptual model described earlier in this document as its basis.

The tools included in the content analysis were:

- The standard SOGS;

- Canadian Problem Gambling Index;
- The Victorian Gambling Screen Content Analysis;
- The DSM–IV diagnostic criteria;
- The GA 20 Questions;
- Life Area Measures.

In order to better understand the ways in which problem gambling is currently measured amongst different measurement tools, we conducted a content analysis of the selected tools using four main content categories:

- Propensity to gamble/attitudes to gambling
- Gambling behaviour and actions
- Consequences of gambling behaviour
- Source of Funding

These categories derive directly from the model of problem gambling components discussed in the previous section of this report. Each of these categories was broken down into a further set of more detailed categories in order to understand the exact content of the tools. The categories used in the content analyses were as follows:

Propensity to Gamble/Attitudes to Gambling	Attitudes to Gambling Attitudes to Problem Gambling Ideation about Gambling
Gambling Behaviour and Actions	Frequency of gambling behaviour Duration of gambling activity Type of gambling activity Gambling Patterns (general) Unsuccessful control Overspending Loss chasing Spend on gambling
Consequences of Gambling Behaviour	Impact on job/employment Impact on housing/living arrangements Impact on financial well-being Borrowing money from others Received criticism about gambling Impact on relationships (general) Impact on relationships – spouse/children Impact on relationships – other family Impact on relationships – friends Impact on relationships – workmates Criminal Behaviour Deceptive Behaviour Gambling related health problems
Funding Source	Source of funding for gambling
Demographic and Other	Age Sex Job Religion Cultural background Income Family Structure/Living arrangements Education Physical health status Mental health status Drug and alcohol use Other

Conducting content analysis of gambling measurement tools

The initial coding scheme was trialled independently by two different raters on the tools chosen for the content analysis. The coding scheme was elaborated based upon discussion of the two raters of the outcomes of the initial coding pass. It was then re-applied independently by the raters to the selected problem gambling measurement tools. Once the independent rating was completed, the results of the ratings were compared. There was 98 per cent communality over all ratings. Any remaining differences were eliminated following discussion between the raters.

The detailed outcomes of the ratings appear in the following tables. The item numbers from each of the tools that address each of the categories appear in the right most column. The tools appear as appendices to this document. These detailed results tables are followed by a summary table and discussion.

Table 1: Standard SOGS Content Analysis

	Question Category	Item numbers
Propensity to Gamble/Attitudes to Gambling	Attitudes to gambling	
	Attitudes to problem gambling	6,9,10
	Ideation about gambling	
Gambling Behaviour and Actions	Frequency of gambling behaviour	
	Duration of gambling activity	
	Type of gambling activity	
	Gambling patterns (general)	4
	Unsuccessful control	
	Overspending	7
	Loss chasing	
	Spend on gambling	
Consequences of Gambling Behaviour	Impact on job/employment	15
	Impact on housing/living arrangements	
	Impact on financial well-being	
	Borrowing money from others	14
	Received criticism about gambling	8
	Impact on relationships (general)	13
	▪ spouse/children	
	▪ other family	
	▪ friends	
	▪ Workmates	
Criminal Behaviour		
Deceptive Behaviour	5, 11	
Gambling related health problems		
Funding Source	Source of funding for gambling	16a),b),c),d), e),f),g),h),i)
Demographic and Other	Age	
	Sex	
	Job	
	Religion	
	Cultural background	
	Income	
	Family structure/living arrangements	
	Education	
	Physical health status	
	Mental health status	
	Drug and alcohol use	
	Other	

Scoring for the SOGS

- On question 4, score 1 point if most of the time or every time I lost.
- On question 5 score 1 point if less than half the time I lost or yes, most of the time.
- On question 6, score 1 point if yes, in the past, but not now or yes.
- Ignore questions 1,2,3 and 12.

- On all remaining questions score 1 point if a yes.

A score of 3 or 4 points suggests a potential pathological (problem) gambler, a score of 5 points or more suggests a person is ‘probable pathological gambler’ using the US nomenclature, and a problem gambler in Australia.

Source: Lesieur and Blume (1987, p. 1188).

Table 2: Canadian Problem Gambling Index Content Analysis

	Question Category	Item numbers
Propensity to Gamble/ Attitudes to Gambling	Attitudes to gambling	9, 13, 16
	Attitudes to problem gambling	17, 16
	Ideation about gambling	
Gambling Behaviour and Actions	Frequency of gambling behaviour	
	Duration of gambling activity	
	Type of gambling activity	
	Gambling patterns (general)	
	Unsuccessful control	
	Overspending	15
	Loss chasing	
Consequences of Gambling Behaviour	Spend on gambling	
	Impact on job/employment	
	Impact on housing/living arrangements	
	Impact on financial well-being	12
	Borrowing money from others	
	Received criticism about gambling	11
	Impact on relationships (general)	
	▪ spouse/children	
	▪ other family	
	▪ friends	
▪ workmates		
Funding Source	Criminal behaviour	
	Deceptive behaviour	14
	Gambling related health problems	10
Demographic and Other	Source of funding for gambling	
	Age	
	Sex	
	Job	
	Religion	
	Cultural background	
	Income	
	Family structure/living arrangements	
	Education	
	Physical health status	
	Mental health status	
	Drug and alcohol use	
	Other	

Scoring for the Canadian Problem Gambling Index

Low Risk, High Risk and Problem Gamblers are defined using the following scores for each of the responses to Q9 to Q17:

Never=0 Rarely=1 Sometimes=1 Often=2 Always=3 Don't know/can't remember=0
Refused=0

If the total score for Q9 to Q17 is between 0–5, then this is a low-risk gambler.

If the total score for Q9 to Q17 is either 6–7, then this is a high-risk gambler.

If the total score for Q9 to Q17 is between 8–27, then this is a problem gambler.

Table 3: The Victorian Gambling Screen Content Analysis

	Question Category	Item numbers
Propensity to Gamble/ Attitudes to Gambling	Attitudes to gambling	1, 2
	Attitudes to problem gambling	4, 11, 12
	Ideation about gambling	3, 6, 8, 9, 10
Gambling Behaviour and Actions	Frequency of gambling behaviour	
	Duration of gambling activity	
	Type of gambling activity	
	Gambling patterns (general)	
	Unsuccessful control	5
	Overspending	19
	Loss chasing	7
Consequences of Gambling Behaviour	Spend on gambling	
	Impact on job/employment	
	Impact on housing/living arrangements	
	Impact on financial well-being	20
	Borrowing money from others	21
	Received criticism about gambling	13, 17a),b)
	Impact on relationships (general)	
	▪ spouse/children	16a),b), 18a), b)
	▪ other family	
	▪ friends	
▪ workmates		
Criminal behaviour		
Deceptive behaviour	14, 15	
Gambling related health problems		
Funding Source	Source of funding for gambling	
Demographic and Other	Age	
	Sex	
	Job	
	Religion	
	Cultural background	
	Income	
	Family structure/living arrangements	
	Education	
	Physical health status	
	Mental health status	
	Drug and alcohol use	
	Other	

Scoring the VGS**Enjoyment of Gambling Scale**

This is created from Questions 1, 2 and 3. If any of these is scored 8, 9 or is blank, then the Enjoyment of Gambling score cannot be calculated, and should be treated as missing. Otherwise, sum the responses of Questions 1, 2 and 3 to obtain a score ranging from 0 (No enjoyment) to 12 (Great enjoyment).

Harm to Partner Scale

This is created from Questions 16, 17 and 18. If Question 16a, 17a or 18a is scored 9 or is blank, or Question 16b, 17b or 18b is scored 9 or blank, then the Harm to Partner cannot be calculated, and should be treated as missing.

Recode Question 16b, 17b and 18b from 1=Yes, 2=Maybe, 3=No to 0=No, 1=Maybe, 2=Yes, so as to keep the direction of responses consistent with the other scales. The scores for the three harm to partner variables are then summed to provide an overall score ranging from 0 (No harm to partner) to 6 (High harm to partner).

Harm to Self Scale

The remaining 15 variables form the Harm to Self Scale, namely, Questions 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20 and 21. If any of these questions is scored 8, 9 or is blank, then the item should be considered to be missing. If four or more of the 15 items making up this scale are missing then the scale cannot be computed, and the Harm to Self Scale should be treated as missing. If up to three items are missing then their values may be imputed

The Harm to Self Scale is then created by summing the 15 items to create a score from 0 (No harm to self) to 60 (High harm to self).

The Harm to Self scale is used to identify problem gamblers in the following way:

0–8 normal; 9–13 Borderline problem gamblers; 14–20 Pathological gambler; 21+ Problem gambler.

Table 4: DSM–IV Content Analysis

	Question Category	Item numbers
Propensity to Gamble/ Attitudes to Gambling	Attitudes to gambling	
	Attitudes to problem gambling	
	Ideation about gambling	1, 5
Gambling Behaviour and Actions	Frequency of gambling behaviour	
	Duration of gambling activity	
	Type of gambling activity	
	Gambling patterns (general)	2
	Unsuccessful control	3, 4
	Overspending	
	Loss chasing	6
Consequences of Gambling Behaviour	Spend on gambling	
	Impact on job/employment	9
	Impact on housing/living arrangements	
	Impact on financial well-being	
	Borrowing money from others	10
	Received criticism about gambling	
	Impact on relationships (general)	9
	▪ spouse/children	
	▪ other family	
	▪ friends	
▪ workmates		
Funding Source	Criminal behaviour	8
	Deceptive behaviour	7
	Gambling related health problems	
	Source of funding for gambling	
Demographic and Other	Age	
	Sex	
	Job	
	Religion	
	Cultural background	
	Income	
	Family Structure/Living arrangements	
	Education	
	Physical health status	
	Mental health status	
	Drug and alcohol use	
	Other	

Scoring for the DSM–IV

All items are scored 1 for Yes, 0 for No. A sum of five or more indicates persistent and recurrent maladaptive gambling behaviour.

Table 5: The GA 20 Questions Content Analysis

	Question Category	Item numbers
Propensity to Gamble/Attitudes to Gambling	Attitudes to gambling	
	Attitudes to problem Gambling	3
	Ideation about gambling	5, 8, 14, 18, 19
Gambling Behaviour and Actions	Frequency of gambling behaviour	
	Duration of gambling activity	15
	Type of gambling activity	
	Gambling patterns (general)	
	Unsuccessful control	
	Overspending	9
	Loss chasing	7
Consequences of Gambling Behaviour	Spend on gambling	
	Impact on job/employment	6
	Impact on housing/living arrangements	
	Impact on financial well-being	
	Borrowing money from others	10
	Received criticism about gambling	
	Impact on relationships (general)	1, 2
	▪ spouse/children	13
	▪ other family	
	▪ friends	
	▪ workmates	
Criminal behaviour	16	
Deceptive behaviour		
Gambling related health problems	4, 17, 20	
Funding Source	Source of funding for gambling	11, 12
Demographic and Other	Age	
	Sex	
	Job	
	Religion	
	Cultural background	
	Income	
	Family structure/living arrangements	
	Education	
	Physical health status	
	Mental health status	
	Drug and alcohol use	
	Other	

Scoring the GA 20

All items are scored 1 for Yes 0 for No. A sum of seven or more indicates a problem gambler.

Table 6: Life Areas Measure Content Analysis

	Question Category	Item numbers
Propensity to Gamble/Attitudes to Gambling	Attitudes to gambling	
	Attitudes to problem Gambling	
	Ideation about gambling	
Gambling Behaviour and Actions	Frequency of gambling behaviour	
	Duration of gambling activity	
	Type of gambling activity	
	Gambling patterns (general)	
	Unsuccessful control	
	Overspending	
	Loss chasing	
	Spend on gambling	
Consequences of Gambling Behaviour	Impact on job/employment	4
	Impact on housing/living arrangements	
	Impact on financial well-being	5
	Borrowing money from others	
	Received criticism about gambling	
	Impact on relationships (general)	1
	▪ spouse/children	3
	▪ other family	
	▪ friends	
	▪ workmates	
Criminal behaviour		
Deceptive behaviour		
Gambling related health problems	2	
Funding Source	Source of funding for gambling	
Demographic and Other	Age	
	Sex	
	Job	
	Religion	
	Cultural background	
	Income	
	Family structure/living arrangements	
	Education	
	Physical health status	
	Mental health status	
	Drug and alcohol use	
	Other	

Scoring for the Life Areas Measure

The number of 'yes' responses are summed, those with two or more are considered problem gamblers.

Summary of content analyses for all problem gambling measurement tools

Table 7 below provides a summary of the outcomes of the content analyses for all of the relevant measures. There is obviously a wide divergence in the number of items in each of the tools. Some of the tools include demography and other questions as part of the overall tool, others do not.

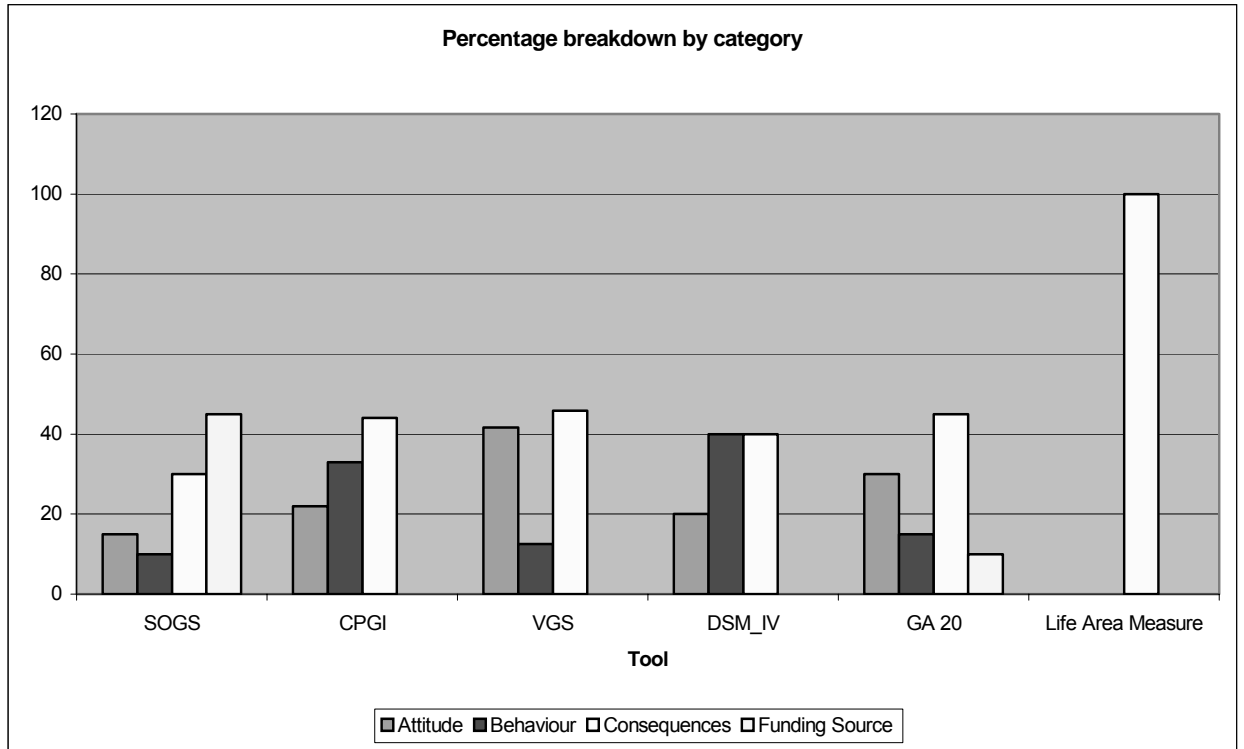
Table 7: Summary table of content analyses for all problem gambling measurement tools

Tool	Attitudes	Behaviour	Consequences	Funding Source	Total (scored items)
SOGS	3 (15%)	2 (10%)	6 (30%)	9 (45%)	20
CPGI	2 (22%)	3 (33%)	4 (44%)	0 (0%)	9
VGS	10 (41.6%)	3 (12.5%)	11 (45.8%)	0 (0%)	24
DSM-IV	2 (20%)	4 (40%)	4 (40%)	0 (0%)	10
GA 20	6 (30%)	3 (15%)	9 (45%)	2 (10%)	20

Life Areas Measures 0 (0%) 0 (0%) 5 (100%) 0 (0%) 5

For ease of presentation this data is summarised in Figures 1 and 2 that follow.

Figure 1: Summary graph of content analyses for all problem gambling measurement



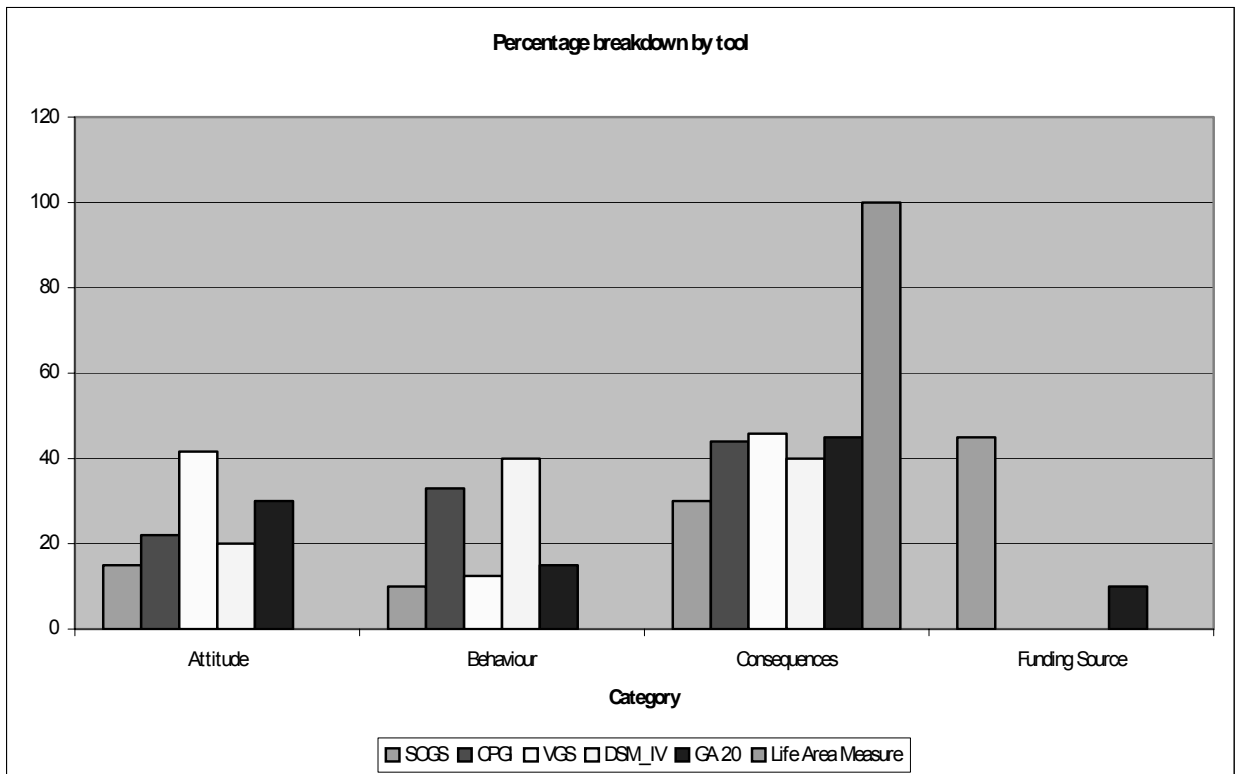
tools broken down by instrument

Figure 2: Summary graph of content analyses for all problem gambling measurement tools broken down by category

From the content analysis it is evident that the SOGS has a relative emphasis on both the consequences of problem gambling and source of funding. Whereas the VGS tool, has a relative emphasis on both the consequences and attitudes towards gambling. The CPGI and DSM-IV both have a relative emphasis on the actual gambling behaviour and its consequences. The Life Areas Measure places total reliance on consequences. Overall consequences of gambling rather than the actual gambling behaviour or attitudes to gambling are relatively emphasised in all the tools as a group.

We, once again, refer to Blaszczynski’s definition of problem gambling as one of the few to include explicit mention of both an underlying condition as well as its symptoms and consequences. We support this conceptualisation and its reflection in the tools designed to measure problem gambling. The Canadian Index most closely approximates this goal. The CPGI includes a preponderance of scored items in all of the domains suggested by Blaszczynski’s definition. The SOGS, being a clinical screening tool, albeit very widely used and studied, does not. The VGS has an intermediate position.

The analyses also indicate very widely differing emphases in the conceptualisation of what problem gambling is and how it should be measured. Such variation makes the adoption of standard measures even if they are flawed more attractive as the comparison of apples and oranges measured using imperial and metric scales makes it very difficult to derive adequate benchmark data in order to understand impacts and plan services.



What value does the VGS add over the other tools?

One of this project's goals is to:

'Assess the extent to which there are unique features related to problem gambling in Australia and the extent to which these are/could be adequately catered for in the VGS or a modified form of the VGS.'

This is a challenging question that can be addressed using several different methodologies. One approach is to, as has been done in the present study, examine the content of the VGS and compare it with the other problem gambling measurement tools. On the basis of this content analysis, it would not seem to have particularly unique content attributes when compared with the CPGI.

However, a content analysis alone does not reveal the empirical and statistical relationship of the measurements obtained from the VGS with the results of the other tools. If one takes the reference to 'unique' as referring to unique variance in a statistical sense then the only way to assess this is to run a concurrent validation trial where all of the tools are contemporaneously administered to the same sample of respondents and to then examine the statistical inter-relationships between the measurements yielded by the respective tools. The Flinders study performed a small such validation study but the numbers involved were modest. In addition other validation measures including spend/income could and should be correlated with the test results.

In sum our assessment of the content of the VGS does not reveal particularly unique features related to problem gambling in Australia but a content analysis alone is not a definitive way of determining this issue. A proper validation study as is currently being conducted for Study 1b of the current GRP research program and is required to answer this question combined with appropriate analyses. The proposed design of this study is specified later in this document.