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# THE IMPLICATIONS OF REAL-TIME BEHAVIOURAL TRACKING

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In contrast to offline gambling, behavioural tracking presents an opportunity for gaming operators and researchers to examine the actual and real-time behaviour engaged in by gamblers. To date, almost all diagnostic screening instruments contain criteria that are a mixture of statements about actual problem gambling behaviour, accompanied by criteria relating to the negative associated consequences of gambling. If problem gambling can be identified online without the use of diagnostic gambling screens, then this may have implications for the development of problem gambling screening instruments in the future.



For a number of years gambling researchers have been recommending to gaming companies (especially online gaming companies and those companies who offer loyalty cards), that they should start using their large data sets to help identify problem gamblers rather than target them for extra revenue (e.g., Griffiths & Parke, 2002; Griffiths, 2003; Smeaton & Griffiths, 2004; Griffiths, Parke, Wood & Parke, 2006; Griffiths, Wood, Parke & Parke, 2007; Wood & Griffiths, 2008).

There are two routes that gaming companies can take in identifying and helping online problem gamblers. Firstly, they could use a social responsibility tool that has already been developed, the most obvious example being PlayScan (Svenska Spel; see Griffiths, Wood, Parke & Parke, 2007; Griffiths, Wood & Parke, 2009). The second is to develop a bespoke identification scheme such as the Observer system designed by 888.com.

In contrast to offline gambling, behavioural tracking presents an opportunity for gaming operators and researchers to examine the actual and real-time behaviour engaged in by gamblers. Furthermore, such tracking technologies may provide implications for future diagnostic criteria for problem gambling if it can be shown that problem gambling can be reliably identified online without the use of established problem gambling screening instruments. In short, it could eliminate all the inherent weaknesses of the self-report methods that dominate traditional problem gambling research (such as gamblers lying, being economical with the truth, and/or providing socially desirable responses during questionnaires or interviews).

To date, almost all diagnostic screening instruments contain criteria that are a mixture of statements about actual

>> TRACKING TECHNOLOGIES MAY PROVIDE IMPLICATIONS FOR FUTURE DIAGNOSTIC CRITERIA FOR PROBLEM GAMBLING IF IT CAN BE SHOWN THAT PROBLEM GAMBLING CAN BE RELIABLY IDENTIFIED ONLINE WITHOUT THE USE OF ESTABLISHED PROBLEM GAMBLING SCREENING INSTRUMENTS. IN SHORT, IT COULD ELIMINATE ALL THE INHERENT WEAKNESSES OF THE SELF-REPORT METHODS THAT DOMINATE TRADITIONAL PROBLEM GAMBLING RESEARCH (SUCH AS GAMBLERS LYING, BEING ECONOMICAL WITH THE TRUTH, AND/OR PROVIDING SOCIALLY DESIRABLE RESPONSES DURING QUESTIONNAIRES OR INTERVIEWS). >>

problem gambling behaviour, accompanied by criteria relating to the negative associated consequences of gambling. The rest of this article therefore examines one of the world's most used problem gambling screening instruments (i.e., the American Psychiatric Association's [1994] criteria for pathological gambling) and relates these to online gambling behaviours. As will be demonstrated, only a few of these behaviours can be reliably identified online. This is then followed by an examination of other behaviours by problem gamblers that may be identified online. These behaviours were compiled and based on my social responsibility work with Internet gaming companies over the last five years.

#### PROBLEM GAMBLING, SCREENING CRITERIA AND ONLINE GAMBLING BEHAVIOUR

In this section, each of the ten DSM-IV problem gambling screening questions is outlined. Each of the DSM questions is then followed by what the criterion question is primarily concerned with assessing. This is then followed by a brief commentary concerning the extent to which the DSM criterion behaviour can be assessed online without the need to ask gamblers if they have or haven't engaged in such behaviour. Following the assessment of all ten individual questions, the implications for how problem gambling may be assessed in the future are outlined.

*DSM screening question* – Do you find that you are becoming preoccupied with past gambling successes or find yourself spending increasingly more time planning future gambling?

*What does the screening question assess?* – The extent to which a person is preoccupied with gambling and how important gambling is in that person's life (i.e., how salient the gambling is).

*Implications for online gambling* – A problem gambler is likely to spend a lot of time gambling online although this behaviour in itself does not necessarily indicate a problem. Anything above four hours daily play over a protracted period could be considered excessive although some forms of online gambling (e.g., online poker) may take up a lot of time and be played relatively inexpensively. Gambling pre-occupation (in terms of time spent online actually gambling) is something that could be identified easily using behavioural tracking technology.

*DSM screening question* – Do you find that you need to

increase the amount of money you gamble to achieve the same enjoyment and excitement?

*What does the screening question assess?* – The extent to which a person experiences tolerance (i.e., the increasing need for gambling as a way of changing their mood state for the better, at least in the short-term).

*Implications for online gambling* – If experiencing tolerance to gambling, online problem gamblers are likely to have changed their gambling behaviour in one of two ways over time. The first example of tolerance is a gradual increase of online daily play in terms of time. For instance, the player might start off playing 15-30 minutes a day but over the course of a few months starts to gamble for increasing amounts of time. The second example of tolerance is the act of gambling online and gradually gambling with bigger and bigger stakes over time. A problem gambler is more likely to experience both of these combined (i.e., gambling for longer and longer periods of time with bigger and bigger amounts of money). Experiencing tolerance (in terms of both time and money) is something that could possibly be identified online using behavioural tracking technology.

*DSM screening question* – Have you recently tried to stop gambling but were unsuccessful?

*What does the screening question assess?* – The extent to which a person experiences relapses when attempting to give up gambling.

*Implications for online gambling* – Although this is difficult to detect with absolute certainty online, it is not impossible. A typical pattern for a relapsing gambler might be that a gambler who gambles heavily, day-in day-out, for a period of time and then "disappears" for a period of time (which could be days, weeks, and sometimes even months), only to suddenly re-appear and gamble heavily again. Experiencing relapse is something that could be identified using behavioural tracking technology although sudden disappearance from an online gambling site may have other simple explanations (such as gambling with a different online gambling operator).

*DSM screening question* – Do you become moody or impatient when you are cutting down how much you gamble?

*What does the screening question assess?* – The extent to which a person experiences withdrawal symptoms when not gambling.

*Implications for online gambling* – Spotting withdrawal symptoms online using behavioural tracking technology would be very difficult to detect with any absolute certainty online, but is most likely to surface with the use of verbally aggressive comments in those games that have in-game online chat room facilities (such as online poker or online bingo).

*DSM screening question* – Do you ever use gambling as a way of ignoring stress in your life or even as a way to pick you up when you feel down?

*What does the screening question assess?* – The extent to which a person uses gambling as a way of reducing stress and escaping from reality.

*Implications for online gambling* – Identifying escape gambling using behavioural tracking technology is again almost impossible to detect online although those players who play for long hours every day are perhaps more likely to experience escape-like feelings. The only other way this might be picked up online is via conversation in online chat rooms.

*DSM screening question* – Do you ever try to win back the money you lost by increasing the size or frequency of your wagers?

*What does the screening question assess?* – The extent to which a person chases their losses while gambling.  
*Implications for online gambling* – This is one of the key indicators of problem gambling and can arguably be identified more easily using online behavioural tracking technology than any other problem gambling criterion. Typical chasing patterns will include repeated 'double up' strategies in an effort by the gambler to recoup losses.

Although many non-problem gamblers use this strategy on occasion, the online problem gambler will chase losses repeatedly.

*DSM screening question* – Do you ever hide how much or how often you gamble from significant others?  
*What does the screening question assess?* – The extent to which a person conceals their involvement in gambling from those close to them.

*Implications for online gambling* – Unfortunately, there is no way that an online gambling operator can spot whether gamblers conceal their involvement from other people during online gambling unless such admissions are given to other players in the online in-game chat rooms.

*DSM screening question* – Have you ever committed fraud or theft to get money to gamble with?

*What does the screening question assess?* – The extent to which a person has engaged in unsociable and/or illegal behaviour as a consequence of their gambling.  
*Implications for online gambling* – Again, there is almost no way that an online gambling operator can spot unsociable and/or illegal behaviour during online gambling unless such admissions are given to other players in the online in-game chat rooms.

*DSM screening question* – Has gambling ever ruined a personal relationship or an occupational or educational opportunity?

*What does the screening question assess?* – The extent to which a person has ruined a relationship or a life enhancing opportunity.

*Implications for online gambling* – As with the previous two criteria, there is no way that an online gambling operator can spot whether gamblers have ruined relationships and/or opportunities via online gambling unless such admissions are given to other players in the online in-game chat rooms.

**Table 1: Summary of problem gambling criteria (DSM-IV) and likelihood of identification of problem gambling behaviour online**

DSM-IV Criterion	Likelihood of online identification
Experiencing salience/preoccupation	Very good possibility
Experiencing tolerance	Possibly
Experiencing relapse	Possibly
Experiencing withdrawal symptoms	Unlikely
Escaping from reality	Unlikely
Chasing losses	Definitely
Concealing involvement	Unlikely
Engaging in unsociable behaviour	Unlikely
Ruining a relationship/opportunity	Unlikely
Other people providing a bail-out	Slight possibility

*DSM screening question* – Have you ever needed others to relieve a financial problem created by gambling?

What does the screening question assess? – The extent to which other people in the gambler’s life have bailed them out of financial trouble.

*Implications for online gambling* – When an online gambler has exhausted all their own funds, they will often ‘beg, borrow and (eventually) steal’ money to continue gambling. A player whose account is constantly ‘topped up’ by people other than themselves may be a sign that they have a gambling problem. Identifying instances of other people providing a ‘bail out’ is something that could possibly be identified using behavioural tracking technology if it happens constantly.

Table 1 provides a summary of DSM-IV problem gambling criteria that I have outlined and the likelihood of identification of specific problem gambling behaviours online. The table highlights that only two criteria have a high likelihood of being identified online (salience/pre-occupation and chasing losses), two criteria have some possibility of being identified online (tolerance and relapse), one criterion has a slight possibility of being identified online (bail out), and that five criteria have little likelihood of being identified online (experiencing withdrawal symptoms, escaping from reality, concealing involvement, engaging in unsociable behaviour, and ruining a relationship/opportunity) unless such behaviour is talked about in the online chat rooms.

Despite the fact that the DSM-IV criteria reliably identify relatively few problem gambling behaviours, there are other online behaviours that are likely to be indicative of problem

gambling. It is likely that the more these online behaviours are detected, the more likely the person is a problem gambler. The following list was derived from information supplied by a number of gaming operators that I have worked with over the last few years. This list includes the online gambling behaviours already identified above in relation to online problem gambling and the DSM-IV criteria.

The online behaviours that appear to be most associated with online problem gambling are: (i) chasing losses, (ii) total preoccupation with gambling, (iii) increase of gambling behaviour over time, (iv) playing with a variety of stakes, (v) playing a variety of games, (vi) player ‘reload’ of money within a gambling session, (vii) frequent payment method changes, (viii) verbal aggression within chat rooms, and (ix) constant complaints to customer complaints. These are each briefly examined below.

(i) Chasing losses – As mentioned earlier, this is one of the key Indicators (if not the key indicator) of problem gambling behaviour online. The ‘classic’ behavioural indicator here is a significant increase in bet size following losses. This is one of a number of cue-related chasing behaviours and is common among online problem gamblers. As this behaviour is most likely to signal problem gambling it is unlikely that someone could be labelled a problem gambler without this particular behaviour being present.

(ii) Total preoccupation with gambling – Clearly excessive gambling and the consequences are typical among online problem gamblers (i.e., lots of betting, gambling, spending in series of prolonged and/or frequent sessions then a period of quiet with no betting as they have no funds and are preoccupied with dealing with consequences of losing).

(iii) Increase of gambling behaviour (time and/or



>> FROM THE PERSPECTIVE OF GAMING OPERATORS, ANY INTERVENTION IN THE CASE OF A SUSPECTED PROBLEM GAMBLER USING BEHAVIOURAL TRACKING TECHNOLOGY WILL BE A SENSITIVE ISSUE. THIS IS EVEN MORE THE CASE IF THE INDIVIDUAL IN QUESTION IS A 'PREMIUM' CUSTOMER WHO SPENDS A LOT OF MONEY ON INTERNET GAMBLING SERVICES (AND MAY BE A PROBLEM GAMBLER). HIGH SPENDING ON GAMBLING IS NOT NECESSARILY (IN ITSELF) PROBLEMATIC, PARTICULARLY IF THE PLAYER IN QUESTION CAN AFFORD IT. THE REAL ISSUE IS WHETHER THE BEHAVIOUR BECOMES PROBLEMATIC. >>

money) over time – This behaviour (identified earlier as a form of tolerance) may be indicative of online problem gambling. A problem gambler is more likely to gamble for longer and longer periods of time with bigger and bigger amounts of money. The reason this is important in identification of problem gambling is that it is a behaviour that is likely to change over time and get progressively worse.

(iv) Playing a variety of stakes – Playing a variety of different stakes (in games like online poker) indicates poor planning and may be a cue to chasing behaviour.

(v) Playing a variety of games – Evidence from national prevalence surveys like the most recent British Gambling Prevalence Survey (Wardle et al, 2007) suggests that the more types of gambling engaged in, the more likely the person is to be a problem gambler. Although this factor on its own is unlikely to indicate problem gambling, when combined with three or four other indicators on this list it may be indicative of problem gambling.

(vi) Player 'reload' of money within gambling session – Although any gambler can engage in such behaviour, players who deposit more money within session (i.e., 'reload') appear more likely to be problem gamblers. This indicates poor planning and is a cue to chasing behaviour. This behaviour needs to be examined in relation to three or four other indicative behaviours.

(vii) Frequent payment method changes – The constant changing of deposit payment methods indicates poor planning and may be another cue to chasing behaviour. This online behaviour usually indicates shortage of funds and the need to extract monies from a variety of sources. Such behaviour can also indicate bank refusal. This behaviour needs to be examined in relation to at least three or four other indicative behaviours on this list.

(viii) Verbal aggression within chat rooms – Aggressive verbal interaction via in-game relay chat facilities is common among problem gamblers although any gambler losing money may trigger such behaviour. This behaviour needs to be examined in relation to other indicative behaviours outlined here. Such behaviour may be evidence of gamblers going on 'tilt' (i.e., negative cognitive and emotional reaction to losing or withdrawal effects if they run out of money to gamble).

(ix) Constant complaints to customer services – Constant complaints to the customer service department appears to be common among problem gamblers although any gambler losing money may cause such behaviour. Again, this behaviour needs to be

examined in relation to three or four other indicative behaviours. As with verbal aggression, such behaviour may be evidence of gamblers going on 'tilt' (i.e., negative cognitive and emotional reaction to losing).

Perhaps most importantly, it is a significant change in usual behaviour that is most indicative of a problem gambler. Most statistical modelling of player behaviour (e.g., PlayScan) predicts future problematic behaviour on the basis of behavioural change over time. The behaviours highlighted in this section suggest that future screening instruments may be able to be developed that concentrate on the gambling behaviour itself, rather than the associated negative consequences.

#### IMPLICATIONS FOR SOCIAL RESPONSIBILITY IN THE ONLINE GAMING INDUSTRY

From the perspective of gaming operators, any intervention in the case of a suspected problem gambler using behavioural tracking technology will be a sensitive issue. This is even more the case if the individual in question is a 'premium' customer who spends a lot of money on Internet gambling services (and may be a problem gambler). High spending on gambling is not necessarily (in itself) problematic, particularly if the player in question can afford it. The real issue is whether the behaviour becomes problematic. Recommendations made elsewhere about how to be socially responsible online (e.g., Griffiths, 2007) are initiatives that (a) minimise harm (both time and money), and (b) highlight behavioural transparency as a way of getting the gamblers themselves to come to a decision about whether they need help for their gambling.

Another advantage of having online (rather than offline) clientele is that help and intervention can also be online. This automatically reduces feelings of stigmatisation for the gambler. Gaming companies can e-mail their customers who are identified as having a possible gambling problem and inform them that as part of their social responsibility framework, they routinely e-mail customers if there has been a significant change in their gambling behaviour over a specified period (usually four to six weeks). The e-mail is therefore sent as a consequence of the social responsibility policy surrounding behavioural transparency for customers. Such e-mails do not make any reference to the behaviour being problematic per se, but can simply highlight that the amount of time and/or money spent by the gambler has increased significantly over the specified time period. Furthermore, the bottom of the e-mail can include hyperlinks to social responsibility tools (such as a self-diagnostic

gambling checklist) and/or gambling agencies that specialise in helping problem gamblers.

Information regarding an individual's gambling behaviour can be accessed through their 'My account' section on the gambling website and should include a multi-layer analysis of a customer's gambling behaviour on both micro- and macro-levels. The 'My Account' page should provide a snapshot of gambling behaviour for the previous month's gambling sessions (e.g., profit and loss, and a list of financial transactions). Even customers who choose to ignore gambling expenditure are provided with a true (and in some cases stark) indication of their level of gambling involvement regarding time and money. Information should be readily accessible to gamblers so that they can evaluate gambling behaviour on a micro-level because the precise details of each wager (including the outcome) will be available for close inspection.

E-mails clearly identifying the amount of time and money spent gambling should be made available instantly. Continual acknowledgement of actual behavioural contingencies in gambling behaviour is essential to minimise development of erroneous cognitive biases and therefore reduce irresponsible gambling behaviour (Griffiths, 1994; Parke, Griffiths & Parke, 2007). The whole process is about gamblers coming to an awareness themselves about their gambling behaviour. It is not a gaming company's job to treat problem gamblers. However, it is their job to help players analyse their own behaviour and provide a helping hand towards referral services should that be desired by the customer.

This article attempted to highlight the role of behavioural tracking technologies in identifying problem gamblers. Furthermore, it has suggested that if problem gambling can be identified online without the use of diagnostic gambling screens, then this may have implications for the development of problem gambling screening instruments in the future. No longer will screening instruments rely on the consequences of problem gambling, they may be based on the behaviours that problem gamblers actually engage in while gambling. It has also been argued that being online may also be beneficial for gaming operators helping in the case of suspected problem gamblers since online interventions are likely to be less stigmatising for the gambler than any face-to-face approach. **CGI**

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