

Institution: Nottingham Trent University (NTU)		
Unit of Assessment: A04 – Psychology, Psychiatry and Neuroscience		
Title of case study: Changing International Commercial Gambling Practices and Policies for More Socially Responsible Gaming		
Period when the underpinning research was undertaken: 2013-present		
Details of staff conducting the underpinning research from the submitting unit:		
Name:	Role:	Period employed by submitting HEI:
Professor Mark Griffiths	Distinguished Professor	1995-present
Period when the claimed impact occurred: 2014-present		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact <p>Problem gambling is a major issue worldwide with prevalence rates between 0.5%-2% in most countries. NTU research into the many factors that contribute to problematic gambling behaviour has driven major developments in responsible gaming (RG) tools which reduce the risk of problem gambling. Professor Griffiths' research has underpinned the design and continued optimisation of RG tools used by international gambling operators and regulators with a global reach of tens of millions of individuals, including:</p> <ul style="list-style-type: none"> (i) <i>GAM-GaRD</i>, adopted into the company social responsibility protocols of over 50 gambling operators and regulators in over 20 countries, and is stipulated countrywide in some cases; (ii) <i>Mentor</i>, used by leading European gambling operators and independently evaluated as helping clients gamble more responsibly. <p>Griffiths research has also underpinned the national and international development of RG Codes of Conduct, including those implemented by the <i>Association of British Bookmakers</i> (overseeing 85% of UK sports betting shops) and the <i>China Sports Lottery</i> (overseeing all 31 provinces in China).</p>		
2. Underpinning research <p>Since 2000, Griffiths has published over 30 research papers identifying the structural characteristics of games that encourage gambling. These include event frequency, stake size, size of the jackpot, speed of the game, and illusion of control elements [R1]. Understanding elements associated with problematic play can help in harm minimisation and the design of safer games. This research formed the basis of the responsible gambling [RG] tool GAM-GaRD [Gambling Assessment Measure: Guidance about Responsible Design] as follows:</p> <ul style="list-style-type: none"> • Griffiths' research into the structural and situational characteristics (i.e., features that are external to the gambler such as marketing, advertising, and the number of gambling venues in the environment) of gambling pinpointed the most important factors associated with problem gambling and co-developed GAM-GaRD with Dr. Richard Wood (CEO, GamRes, Canada) to help game developers design more responsible lower-risk games for vulnerable and susceptible individuals (Funder: Camelot Plc £40,000). This research began in 2006 and led to the commercial development of GAM-GaRD). • In 2010, Griffiths and Wood developed the Responsible Gambling Impact Index (commissioned by Nova Scotia Gaming Corporation CAD\$250,000), a tool which was 		

designed for gambling operators to make well-informed decisions about developing and implementing RG tools and features. The tool was based on situational characteristics [R2] rather than the structural factors identified in GAM-GaRD. The index was then incorporated into GAM-GaRD and since the last REF cycle has been sold and licensed as GAM-GaRD 2.0 in 2014.

- Subsequently, Griffiths' research (particularly on limit-setting as a responsible gambling tool [R3]) was used in the development of GAM-GaRD 3.0 in 2016 in which game risk scores on GAM-GaRD could be mitigated by use of limit-setting tools by gambling operators. In the last six years, the number of gambling operators using GAM-GaRD has almost doubled. Furthermore, its national use across every province in China and Canada has led to significant increase in terms of reach since 2014.

With Dr Michael Auer (former NTU PhD student), Griffiths carried out a study in 2013 with 100,000 real online gamblers and developed a new measure of gambling intensity called 'theoretical loss' [R4]. This measure was used as the basis for Griffiths' subsequent research demonstrating the effectiveness of RG tools such as limit-setting [R4], pop-up messaging [R5], and personalised feedback [R6] using 'big data' provided by the gambling industry. These are just three of the many studies that Griffiths has published showing that limit-setting and bespoke personalized feedback are particularly effective in significantly reducing the amount of money spent by gambling-intense individuals. As the Association of British Bookmakers note:

"One of Professor Griffiths' most valuable contributions was in the area of limit setting. His 2013 paper...is the only study to date carried out with real gamblers (n=100,000) in real time on a real gambling site (win2day), and demonstrated that limit setting is an effective responsible gambling tool for the most gambling intense players," [S5].

This research [R4-R6] also underpinned the development of another RG tool (Mentor – developed by Griffiths and Auer between 2012 and 2014) with Neccton, an Austrian data mining company with expertise in the European banking and gambling sector. Mentor provides personalised feedback to gamblers in real time about their gambling behaviour and is used by leading gambling operators across Europe including the Gauselmann Group (Germany, Austria, Denmark), Austrian Lotteries (Austria), ComeOn (Sweden), Greentube (UK, Spain), The Mill Adventure (Sweden) and Skillonnet (UK, Denmark, Spain). The tool provides gamblers with accurate information about their actual gambling behaviour (e.g., time and money spent gambling) across different time periods (e.g., weekly, monthly, half-yearly) and also presents players with normative data from other gamblers in the database so that gamblers can compare their own behaviour with others and facilitate self-appraisal and help enable behavioural change [R5].

3. References to the research

- **R1** - Griffiths, M.D. & Auer, M. (2013). The irrelevancy of game-type in the acquisition, development and maintenance of problem gambling. *Frontiers in Psychology*, 3, 621. doi: 10.3389/fpsyg.2012.00621
- **R2** - Wood, R.T.A., Shorter, G.W. & Griffiths, M.D. (2014). Rating the suitability of responsible gambling features for specific game types: A resource for optimizing responsible gambling strategy. *International Journal of Mental Health and Addiction*, 12, 94–112. doi: 10.1007/s11469-013-9473-y
- **R3** - Auer, M. & Griffiths, M.D. (2013). Voluntary limit setting and player choice in most intense online gamblers: An empirical study of gambling behaviour. *Journal of Gambling Studies*, 29, 647-660. doi: 10.1007/s10899-012-9332-y
- **R4** - Auer, M. & Griffiths, M.D. (2014). An empirical investigation of theoretical loss and gambling intensity. *Journal of Gambling Studies*, 30, 879-887. doi: 10.1007/s10899-013-9376-7

- **R5** - Auer, M. & Griffiths, M.D. (2015). Testing normative and self-appraisal feedback in an online slot-machine pop-up message in a real-world setting. *Frontiers in Psychology*, 6, 339. doi: 10.3389/fpsyg.2015.00339
- **R6** - Auer, M. & Griffiths, M.D. (2015). The use of personalized behavioral feedback for problematic online gamblers: An empirical study. *Frontiers in Psychology*, 6, 1406. doi: 10.3389/fpsyg.2015.01406

The high quality of the underpinning research is indicated by rigorous external peer review and the wide range of funding organisations continuing to invest in the research and its dissemination as detailed below:

- Camelot Plc – £40,000 ('Structural characteristics and gambling', 2006)
- Svenska Spel – £49,000 ('Evaluation of PlayScan', 2008)
- Nova Scotia Gaming Corporation – \$250,000 [CAD] ('Development of the Responsible Gambling Impact Index', 2010) awarded to Griffiths
- Assissa Consulting – €10,000 ('Structural characteristics in slot machine gambling', 2012)
- Association of British Bookmakers – £13,300 (three projects: 'Development of the Code of Conduct for Responsible Gambling', 'Evaluation of the Code of Conduct' and 'Review of problem gambling and social responsibility in FOBTs [Fixed-Odds Betting Terminals], 2013-2014), awarded to Griffiths
- Norsk Tipping, approx. £740,000 ('Evaluation of responsible gambling tools', 2017-2021)
- Hong Kong Jockey Club. £3,600 ('Responsible gambling implementation in China', 2018) awarded to Griffiths

4. Details of the impact

Griffiths' research has provided unique evidence for the development of two Responsible Gaming (RG) tools, GAM-GaRD and Mentor, which have significantly changed day-to-day practices in world-wide gambling operators, and underpinned UK and international codes of conduct which aim to significantly reduce problem gambling. The development and initial implementation of GAM-GaRD formed part of a REF2014 impact case study, but its optimization in versions 2.0 and 3.0 and international implementation represents new impact with greater international reach and significance. The development and implementation of Mentor, and Griffiths' influence on international codes of conduct are also new developments. Following his 2013 research, Griffiths was commissioned by the Association of British Bookmakers (ABB - £13,300 over three projects) in 2013 and 2014 [S6-S8] to support the development of their Code of Conduct for Responsible Gambling (which came into operation nationally from March 2015). NTU research on limit-setting was referenced in the Code and, consequently, a limit-setting feature was included on every fixed-odds betting terminal in every UK betting shop based on Griffiths' research [S5].

Optimisation and Adoption of GAM-GaRD RG tool

GAM-GaRD (GAM-GaRD 2.0 since 2014 and GAM-GaRD 3.0 since 2016) is a commercially available online tool used by gaming companies, and co-developed by Griffiths. This tool assesses the ten most addictive characteristics of gambling games (e.g. accessibility, prize-back percentage, etc.) and offers gaming operators practical ways to reduce the risks of gambling addiction by altering the game's structural characteristics before marketing it. The World Lottery Association recommended that all its companies use such a tool as part of their social responsibility accreditation procedures [S1]. The testimonial letter notes: "*Dr. Griffiths' research findings have been applied by many lottery companies around the world in improving their day-to-day practices in the areas of player protection and harm minimization including Camelot (UK), Premier Lotteries (Ireland), Norsk Tipping (Norway), Veikkaus (Finland), Svenska Spel (Sweden), Danske Spil (Denmark), West Lotto (Germany), Austrian Lottery (Austria), Loterie Romande (Switzerland), Postcode Lottery (The Netherlands), Atlantic Lottery Corporation (Canada), Nova Scotia Provincial Lotteries and Casino Corporation (Canada), Interprovincial Lottery Corporation*

(Canada), and Singapore Pools (Singapore)". Additionally, the World Lottery Association recommends that all its member organisations (combined revenue of \$250bn across 80 countries) use a tool such as GAM-GaRD.

This latest version of GAM-GaRD is now used by over 50 of the world's biggest operators and gambling regulators in over 20 countries, including operators in Canada, UK, USA, China, Australia, New Zealand, France, Germany, Belgium, Austria, Hungary, Poland, Norway, Sweden, Switzerland, Italy, Cyprus, Greece, Ireland, Poland, Morocco, Hong Kong, South Korea and Uruguay [S2]. The tool is also used by gaming regulators (e.g., Norway, Sweden, UK). In certain countries, (e.g., Norway) it is not possible to obtain gambling licences without GAM-GaRD accreditation. In 2015, Canada bought a countrywide site license, and each state-owned gambling company uses GAM-GaRD (i.e., a minimum of one gaming company in every Canadian province). In 2019, the China Sports Lottery bought a countrywide license across all 31 provinces (1.4 billion reach). According to the General Manager of the Hong Kong Jockey Club, who also works for the China Sports Lottery *'We wanted to use Professor Griffiths' long-standing research expertise and experience to help us run our gambling business in a more social responsible way and for us to change and/or enhance our day-to-day policies on player protection and harm minimization'* [S9]. Beneficiaries include the tens of millions of gamblers in over 20 different countries playing games that have undergone rigorous GAM-GaRD testing during the product development phase. Independent evaluation of GAM-GaRD also highlighted how beneficial it had been for both gambling operators and regulators [S3].

Development and introduction of Mentor RG tool

Griffiths and Auer also co-developed the world's first personalized messaging system [Mentor, S4] that uses gamblers' online tracking data to provide bespoke information and feedback to gamblers about their wins, losses, deposits and time spent gambling. Since 2014, a number of operators in Europe now use this tool (e.g. Germany, Austria, Spain, UK, Sweden and Norway) [S4]. The beneficiaries are the estimated five million gamblers who use Mentor as a way of reducing their risk of developing gambling problems [S4].

Impact on UK and international regulators of commercial gambling

Griffiths' research with Auer underpins the recent Association of British Bookmakers' (ABB) Code of Conduct for Responsible Gambling [S5-S8]. A key consequence of this work is that since 2015, every fixed-odds betting machine in every UK betting shop now allows players to set their own limits on how much time and/or money they want to spend gambling [S5]. The research was instrumental in the ABB's introduction of limit-setting features on every FOBT. Beneficiaries of both the Code of Conduct and the specific responsible gambling tools are the 2.6 million gamblers who frequent British betting shops, and the hundreds of thousands of gamblers who specifically play FOBTs. The Chief Executive of the Association of British Bookmakers states:

"Professor Griffiths' research is of great utility to the ABB and is used to help update our national policies regarding responsible gambling, social responsibility, player protection, and harm minimization," [S5].

Griffiths also won an international competitive tender by the Norwegian Government's monopoly gaming operator to evaluate Norsk Tipping's responsible gambling portfolio. To date, this research has assessed the efficacy of the company's new (i) global loss limit (introduced in November 2016), (ii) the loss-limit reminder informing players when they have reached 80% of their loss limits, and (iii) mandatory play breaks. As the operator notes:

"Norsk Tipping have used these findings...to help the all gamblers (currently more than two million players) who play our games. Dr. Griffiths' research has fed directly into all our constantly evolving player protection practices," [S10].

Griffiths was commissioned by the Hong Kong Jockey Club to help develop the China Sports Lottery's codes of conduct in relation to player protection and harm minimization across all 31 provinces in China. Alongside this consultation, Griffiths ran a series of workshops in Beijing (December 2018) which led to the implementation of new policies and procedures across all 31 provinces in China [S9].

Ultimately, Griffiths' research has played a critical role in the development of RG tools and RG Codes of Conduct across four continents. Testimonials demonstrate that these codes have informed the day-to-day practices of international gambling operators and that recommendations from Griffiths' research has enhanced socially responsible practices with the aim of reducing problem gambling among tens of millions of gamblers.

5. Sources to corroborate the impact

- **S1:** Testimonial letter No. 1: Chair, Responsible Gambling Independent Assessment Panel, World Lottery Association
- **S2:** Testimonial letter No.2: CEO, GamRes (re: GAM-GaRD)
- **S3:** Independent evaluation of GAM-GaRD Cousins, University of Ottawa.
- **S4:** Testimonial letter No. 3: CEO, Neccton Ltd (re: Mentor); Screenshot of Neccton website advertising Mentor (www.neccton.com)
- **S5:** Testimonial letter No. 4: Chief Executive, Association of British Bookmakers
- **S6:** Griffiths, M.D. (2013). Developing a World Leading Code of Conduct for the British Bookmaking Industry. Report prepared for the Association of British Bookmakers (UK).
- **S7:** Griffiths, M.D. (2014). Responsible gambling initiatives and preliminary evaluation of the ABB Code of Conduct. London: Association of British Bookmakers. 44pp.
- **S8:** Association of British Bookmakers Code of Conduct for Responsible Gambling
- **S9:** Testimonial letter No. 5: General Manager, Hong Kong Jockey Club
- **S10:** Testimonial letter No.6: Chief Adviser Responsible Gambling, Norsk Tipping