

Evaluation of Gamgard

A tool to identify gaming risks to vulnerable players under 'normal' playing conditions



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Executive Summary

Originally developed in 2007, Gamgard (Gambling Assessment Measure – Guidance about Responsible Design) is an online rating tool designed to assist in the assessment of risk to vulnerable populations of game features, designs and characteristics. The tool, developed by Dr Richard Wood and Dr Mark Griffiths, and managed by GamRes Ltd., is entirely based on the results of empirical research concerning responsible gambling and is now in its third incarnation. Gamgard is currently used by 31 gaming companies¹ and regulators in 16 countries world-wide.

This third party evaluation of the tool was commissioned by GamRes in order to meet the needs of the World Lottery Association (WLA) and Gamgard customers. The evaluation was conducted by Professor Emeritus J. Bradley Cousins, an internationally renowned evaluation specialist (see Appendix 1a), under the auspices of the University of Ottawa’s *Centre for Research on Educational and Community Services* (www.crecs.uottawa.ca). The evaluation adhered to the *Program Evaluation Standards* of the Joint Committee for Standards in Educational Evaluation (www.jc-see.org ; see Appendix 1b). All parties agree that it would be desirable to publish the results of the evaluation for broad access to a range of industry stakeholders.

The inquiry may be thought of as a process evaluation that takes into account aspects of Gamgard service provision and delivery as well as outcomes. The questions guiding the evaluation were:

1. To what extent have Gamgard and its associated services met stated aims of assessing risk of specific games to vulnerable populations and informing game refinement and redevelopment in order to reduce risk?
2. Does the Gamgard tool produce evidence that is valid and reliable for the stated purposes?
3. To what extent are members of the user community satisfied with the use of the Gamgard tool and associated services? What do they see as the tool’s main strengths and weaknesses?
4. In what ways can Gamgard and its associated services be revised in order to enhance their effectiveness?

The evaluation utilised five specific data sources. The principal mode of data collection was one-to-one interviews with individuals and groups representing Gamgard corporate customers and regulatory bodies. Other streams of data collection augmented this source: web-based support

¹ It should be noted that Canadian provincial gaming operators can access and use the tool via a country-wide licence under the auspices of the Canadian Responsible Gambling Association

documents for the tool and its administration; Gamgard scores from prior applications to a range of game types; service provider reports detailing the nature and severity of client gambling vulnerabilities; and special research reports detailing the extent and nature of Gamgard's evidence base.

Findings

With some modest variation, the findings of the evaluation were predominantly positive. It is fair to say that there is good evidence that **Gamgard is meeting its objectives** at the level of developers, operators, and regulators. Some interviewees reported that Gamgard fostered more in depth conversation about RG practices and features and helps to develop a vocabulary among developers, marketers, business owners who may be involved in the development process, and regulators. Some operators market game products developed by others and despite routinely using Gamgard, they feel relatively powerless in influencing game development companies. They suggest a critical mass of operators would be required in order to have game development concerns addressed.

There was good evidence to show that Gamgard has been overtly integrated into company social responsibility protocols worldwide. Essentially, Gamgard assessments play an RG assurance role being seen as an early detection mechanism (i.e., one source of information that is used in conjunction with other SR strategies). Also, the interviews revealed that many regulators are favourably disposed to Gamgard assessments and pay attention to such results. Yet this was not uniformly the case. In one jurisdiction, regulators are relatively indifferent to Gamgard and see it as overly subjective and not comprehensively covering risk factors and environmental concerns. One operator in a different location offered similar concerns, suggesting that her company relies quite heavily on a range of other sources of information in addition to Gamgard.

Of central interest in the evaluation of Gamgard, are **issues of reliability and validity**. There is widespread agreement among the game developers/operators and regulators interviewed that Gamgard is *highly credible* and grounded in science-based evidence. This observation was corroborated by close examination of the sophisticated and thorough processes that were used to develop and periodically update the tool. Such processes included systematic reviews and integration of the research literature as well as the extensive involvement in original research of panels of RG experts and specialists as well as treatment providers and even reformed gamblers. Other indicators attesting to the valid use of Gamgard were (i) the development of corporate systems to triangulate for data quality assurance, and (ii) varied applications of the tool within the organisation. For example, one interviewee reported that earlier restriction of focus to comparing Gamgard scores across verticals has now evolved into within-vertical applications thereby revealing interesting patterns of variation within game types. In this sense Gamgard shows sensitivity to game risk and has been able to contribute to corporate learning about game products.

Discussions about reliability and validity also raised some concerns about Gamgard. One concern was about interrater reliability either between operators and GamRes, or between operators and regulators. There is a sense that more can be done to enhance the consistent use and application of

the tool. Another validity concern was raised by operators who market games developed by others and was associated with consequential validity. Some such operators felt that while Gamgard may identify important issues to address, there was really very little they could do to mitigate the concerns given that they do not have a role in product development. It should be noted that the concern did not implicate Gamgard scores per se; rather, it had to do with the use of the information.

Perhaps the most common concerns that were raised had to do with content validity. Several participants identified a range of risk factors and RG strategies that do not seem to be covered well by Gamgard. These include such considerations as bonuses and incentive structures, mandatory loss limits, advertising, play monitoring and feedback mechanisms, casino set up, staff interactions, among others. A related concern is the rapidly changing contexts in the gaming industry due to technological developments and policy shifts. Since Gamgard is only concerned with structural characteristics, some of these more situational concerns are outside of its scope. But even for some structural characteristics (e.g., bonuses), the dilemma is that Gamgard developers are committed to evidence-based developments of the tool, and are thereby limited by the state of the art of research knowledge at any given point in time. For some structural characteristics there is little empirical evidence of risk effects, either positive or negative.

For some operators, concerns were raised about the transition from v 2.1 to v 3.0 and whether scores from the two versions were entirely comparable. While this was a concern raised by two independent participants, several others reported no such transitional issues when questioned directly.

To augment the interview data the evaluation included a review of documentation on the tool and its applications, and especially on processes used for tool development and validation. It was confirmed that sophisticated steps have been taken to ensure that the initial and ongoing development of the tool has been grounded in solid empirical evidence. In this evaluation reliability checks were conducted by comparing user- and GamRes-generated scores on a specific game type (online slots), the results showing no difference in the two types of risk assessment between Gamgard v.2.0 and the current version of Gamgard v. 3.0. However, it should be noted that the sample size for these comparisons was rather small. External validity of the tool was evaluated by rank ordering Gamgard game type risk ratings and correlating them with rank-ordered game type risks reported by disordered gamblers as published in a number of treatment service provider reports. The results show that Gamgard scores correlated in the expected direction attesting to the tool's external validity. That is, games that were scored as high-risk by Gamgard were also those games most often reported as problematic by problem gamblers seeking treatment.

With a few exceptions, Gamgard customers and regulators expressed **high levels of satisfaction with the tool**. Interview respondents were generally enamoured with Gamgard's scientific credibility as well as its ease of use especially for novice users (although, according to one interviewee, ease of

use could create the perception that the tool's substantive value is limited). The new enhancements to v 3.0, particularly in terms of reporting features, were very well received by participants.

When asked about perceived limitations, one operator commented that the focus for the tool is on game risk characteristics but that it is not really looking at player behaviour, which may have some potential to enhance Gamgard's power. Another participant suggested that the RG options that are provided are fairly standard do not really push one's thinking about RG considerations that could be put in place. Finally there were two concerns about communications, the first being that transitional communications were less than adequate when v 3.0 was released, which caused some operators to be caught unawares. Second, it was observed that there is somewhat of a lack of detail about expectations and standards for corporate self-assessment procedures.

A range of **suggested improvements and desired future developments** of the tool and associated services were identified. These suggestions are categorized into six higher-order themes which were: (i) uses of Gamgard, (ii) scaling and measurement issues, (iii) structural issues, (iv) tailoring, (v) communications, and (vi) added counsel. It is important to note that some of these suggestions did not align well with the current state-of-the-art of the RG empirical knowledge base.

Issues for consideration

The report concludes with a set of issues for consideration recognizing that feasibility of concrete action associated with any of these depends on a range factors including resource availability, corporate priorities, and strategic planning. These issues are highlighted for future dialogue and discussion that will potentially inform ongoing development and application of Gamgard.

- **Continue to actively and systematically scan for research-based knowledge on risk characteristics as well as RG strategies.** Gamgard developers have a solid and respectable track record in this respect. However, many respondents are becoming increasingly aware of and concerned about perceived risk characteristics (structural and situational) that are not covered by Gamgard. Some of these are associated with technological developments, increasingly popular in the gaming industry. However, it is important to note that Gamgard can only be amended when new research evidence becomes available and research frequently lags behind technological developments.
- **Encourage corporate customer and regulatory agencies to sponsor research on risk characteristics and RG strategies.** Related to the foregoing issue for consideration, there is a need for ongoing empirical research to help grow the knowledge base in ways that would enable the identification and justification of changes to Gamgard structure and scoring. In some jurisdictions, the imposition of mandatory loss limits and player tracking capabilities provide good opportunities to add to the relevant knowledge base.
- **Market Gamgard for research purposes.** To date, Gamgard has been used in applied settings to assist corporate customers in enhancing their social responsibility game development and marketing practices. Given the imperative need for ongoing research on

risk characteristics and responsible gambling strategies arising from shifts in context and technological developments, it would be beneficial make the tool available to researchers in order to help add to the knowledge base. Such a strategy may help to inform research designs on such things as the wider social repercussions of gambling; the influence of home environment of players; whether context or channel is a more significant precursor to problem gambling in the cases of some types of game rather than others.

- **Develop communication strategies.** Three considerations come to mind with respect to communications: (i) it would be useful to develop communication and marketing strategies for Gamgard that would help members of the community of practice including regulators to understand the strengths and limitations of the tool and how it can be used in conjunction with other social responsibility information to help inform game development and marketing decisions; (ii) for future iterations of Gamgard, a greater investment in communication to customers should be made than had previously been the case. Of particular concern would be implications for scoring and comparability from one version to the next; and (iii) the *Gamgard User Guide* could be expanded to convey expectations for best practice for corporate self-assessment. For example, suggestions to promote the involvement of multiple raters in game assessment and discussion of results could enhance not only score reliability and validity but also may feed into fruitful discussions about alternative applications (e.g., within-vertical as well as between-vertical comparisons) and RG choices to reduce risk.
- **Provide options for customer staff training and support:** Further to (iii) above, Gamgard developers may do well to consider expanding service provision to include training and professional development opportunities. The goal would be to enhance both staff facility with the tool and its valid and reliable application. Such capacity building options might include workshops, on-line videos or even an FAQ section on the Gamgard website.
- **Collaborate with operators to influence external product developers and regulators:** (i) Many of Gamgard's corporate customers are not in the business of game development. Rather, they purchase games for use and application in their jurisdiction, if they meet acceptable risk standards as at least partly determined by Gamgard assessments. These organisations have little power or influence over game developers to reduce game risk by introducing RG strategies, for example. (ii) In some jurisdictions regulators may not see the same value of the tool as would be the case with game developers and operators, and the latter have relatively little influence over regulators. Given the foregoing, it may be beneficial for Gamgard developers to work with some customers to lobby external game production companies to consider integrating RG risk reduction features into their products, or to work with others to communicate and justify to benefits of Gamgard to gaming regulators.
- **Invest in thorough metric analysis of the tool drawing from archival data as well as planned inquiry.** The present evaluation was limited by the availability of data and therefore findings, particularly with regard to reliability, are limited. It would be useful to access all archived/historical data that can be made available, much of it coming from corporate clients who would grant permission to use their (anonymized) data for this

purpose. Seeking such permission would enhance the opportunity for more in-depth analyses. On the question of interrater reliability, it would be entirely useful to sponsor a formal study that would compare user-generated and GamRes-generated independent risk ratings of the same games across a range of game types that vary in risks posed to vulnerable players.

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Introduction

Gamgard, a tool for use in the gaming industry to assess risks to vulnerable players under 'normal' playing conditions, is the focus for evaluation here. The tool was developed and marketed by GamRes Ltd. The main users of Gamgard are members of the World Lottery Association (WLA) including Canadian provincial gaming companies represented by the Canadian Responsible Gambling Association (CRGA). This evaluation is partly in response to a commitment of the WLA to evaluate and improve responsible gambling (RG) services and a commitment by GamRes to meet the needs of Gamgard customers. This third-party evaluation is commissioned by the founding designers and developers of the tool and associated services. The study examined outcome and process data useful in determining the merits of the tool and associated services and ways in which they may be improved.

Background

Gamgard is an online rating tool designed to assist in the assessment of risk to vulnerable populations of game features, designs and characteristics. Vulnerable players are defined as a "Vulnerable players are defined as any adult with either a biological, psychological / emotional predisposition to gamble excessively, or for those players whose personal circumstances may put them at a greater risk of developing gambling problems (e.g., low income individuals, those with co-morbid disorders, etc.)" (Wood, Griffiths & Parke (2007, p. 3). The initial design and development of the tool was commissioned in 2007 by Camelot, the National Lottery operator in the UK which reports to the Gambling Commission, sponsored by the Department of Culture Media and Sport. Gamgard is accepted by the World Lottery Association (www.world-lotteries.org) as meeting the requirements for considering responsible game design, as part of their level IV RG Framework (highest level). Many companies use it because of this as it provides an off-the-shelf independent solution supported by empirical research.

Gamgard can be used by game developers, operators, responsible gambling staff or regulators and is now in its third generation. Since its initial development the tool and the secure website on which it resides have undergone significant revisions. Its initial development and ongoing refinement have been heavily based on peer-reviewed research on the effects of gambling and the effectiveness of responsible gambling (RG) strategies. A range of leading experts in the field have participated in systematic assessments and studies that have led to modifications of the tool. In addition to input from responsible gambling experts, treatment providers and individuals who have recovered from serious gambling problems have helped to inform development.

The current version of the tool (v 3.0, www.Gamgard.com) considers 10 risk factors and 4 responsible gambling features. Game developers, operators, RG staff, and/or regulators interested in assessing the risk associated with new or existing gaming products provide carefully considered ratings of risk factors as well as RG features associated with game. A normalized total score is generated which conveys an overall risk rating for the game.

The final ‘traffic light’ rating will be either; green = very low or low risk for vulnerable players; amber = medium risk for vulnerable players; or red = high risk or very high risk for vulnerable players (Gamgard 3.0 User Guide, p. 1). A summary ‘scoring wheel’ conveys the extent to which given risk factors contribute to the total score, providing good fodder for considering design alternatives or, in some cases, higher level gaming decisions such as termination.

Game characteristics and strategies that receive problematic or even unacceptable risk ratings become the focus for moderation considerations. These modifications are either associated with game design/strategy characteristics or with the installation of RG strategies. Essentially, the game is rated in terms of risks associated with its design and access features, and these risks can be reduced through the installation and integration of RG features and strategies. In addition, associates with GamRes provide a range of services associated with Gamgard including technical and conceptual support, and the provision of commissioned technical reports of RG features associated with particular games.

At this juncture, GamRes Ltd. decided to commission a third-party evaluation of the tool and its associated services in order to assess their merits and to identify potential possibilities for ongoing development and improvement. The Centre for Research on Educational and Community Services (CRECS) was commissioned for the evaluation to be undertaken by Professor J Bradley Cousins, an experienced evaluation researcher and practitioner (see Appendix 1a). All parties agree that it would be desirable to publish the results of the evaluation for broad access to a range of industry stakeholders.

Evaluation questions

In consultation with GamRes, we agreed to a set of guiding questions for the inquiry as follows:

1. To what extent have Gamgard and its associated services met stated aims of assessing risk of specific games to vulnerable populations and informing game refinement and redevelopment in order to reduce risk?
2. Does the Gamgard tool produce evidence that is valid and reliable for the stated purposes?
3. To what extent are members of the user community satisfied with the use of the Gamgard tool and associated services? What do they see as the tool’s main strengths and weaknesses?
4. In what ways can Gamgard and its associated services be revised in order to enhance their effectiveness?

Answers to these questions help to meet the information needs of the Gamgard developers and offer insight into the effects of the tool and implications for ongoing development and refinement. Knowledge generated by this evaluation will also benefit potential future users of Gamgard by providing them with a broader array of information than is currently available so as to inform their choice of whether to use the tool or not.

Evaluation approach and assumptions

Gamgard is a tool and therefore may be considered, at some level, to be a product. However, for two main reasons it was decided that this evaluation will depart from conventional approaches to ‘product evaluation’, which focuses heavily on judgments of merit and worth in comparison with a range of alternative options or choices. From a search for comparable commercially available tools, *Gamgard* is relatively unique. Second, Gamgard can be considered to be a risk management/minimisation or harm reduction tool. It helps minimise the risk that vulnerable players will develop problems and/or limits the money they can lose by flagging risk factors associated with new and existing games and suggesting strategies to reduce risk. It also minimises the chance that a company’s reputation will be tarnished by launching a game that is found to be dangerous to a significant number of players. This being the case, it was decided that the evaluation of the tool would benefit from taking a ‘process evaluation’ approach where aspects of tool implementation, application, and use are analytically related to identified outcomes. Through the identification of process-outcome relationships, Gamgard developers will have meaningful evidence upon which to base ongoing development and refinement decisions.

Given the process evaluation approach, then, it makes sense to explicate a logic model for the tool to guide instrument development, data collection and analysis, and reporting for the evaluation. Such a model was drafted on the basis of input from a range of resources including web documentation and consultations with the principal of GamRes Ltd.

Gamgard logic model

The logic model to be used in this evaluation appears in Figure 1. The Figure lays out a set of temporal considerations in columns from left to right beginning with Gamgard’s goals. Assumptions that must be met in order for the logic to flow appear at the bottom of the Figure.

Any program or intervention is designed to address a specified social, educational, or health need. In the case of the Gamgard tool, identified was a range of needs associated with different actors or stakeholders in the gaming industry. Gamgard seeks to reduce risks for vulnerable players and minimise harms to problem gamblers and may therefore be principally classified as an instrument for harm reduction, with only modest interest in prevention. Regardless of stakeholder group, Gamgard seeks to translate research into practice and therefore takes on a knowledge transfer (KT) role. Some of the goals expressed here are “educative” whereas most are targeting instrumental effects such as support for design and operational decision making.

It can be noted that the objective ‘minimising risk,’ in addition to applying to problem gamblers, also concerns gaming operators and state regulators. The latter groups, of course, loathe releasing games that could lead to catastrophic legal and political complications. In addition, Gamgard helps operators to balance the goals of minimising harm, while at the same time, producing games that are enjoyable to play, or have marketing/attraction value. It does this by indicating precisely why a game may be excessively risky, so that specific elements of the game might be amended or otherwise modified, rather than bluntly reducing a range of play features that may not be relevant, or scrapping the game altogether.

A tool such as Gamgard requires resources or inputs in order to be operational. This column in Figure 1 is divided into development and operation components. As mentioned above, Gamgard has evolved over a ten-year period, and has undergone many revisions and upgrades on the basis of a good deal of input from a wide range of sources. Gamgard is relatively easy to operate and maintain and many resources are available to support the process.

A clear process to implement Gamgard is well detailed in the User Guide. The process enables the tool to be applied by GamRes in consultation with client personnel or it can be applied within organisations by internal members. In some cases, such groups seek consultative support from GamRes. Both processes result in similar standardized reporting which is then elaborated and extended in the case of GamRes-run applications, or integrated with other reporting responsibilities within given organisations in the case of client self-assessment.

Output from all game evaluations is available in a standardized, time-and-date stamped PDF file which includes standard traffic light and scoring wheel summaries of risk factors. Through a combination of GamRes operated evaluations and those generated within organisations (client self-assessments) a significant number of games tested, reports, and client organisations served are produced each year. It is through these outputs that Gamgard will realize it’s immediate, short-term, and longer-term conceptual and instrumental potential. Through increasing awareness of RG characteristics and risk factors game developers and operators stand to make better informed decisions on more of a proactive basis than would be the case if acting without Gamgard or some other tool or evidence. In addition, Gamgard has the potential to give gaming regulators, a common language by which to discuss and better understand inherent game risk factors.

Having explicated the logic underlying Gamgard, the evaluation design and methods used to answer the questions posed above are now elaborated.

Goals/Needs	Resources/Inputs	Activities/Processes	Outputs	Outcomes
<p>Vulnerable players (i.e. at-risk and problem gamblers):</p> <ul style="list-style-type: none"> -Reduce risks of game features thereby minimizing harm to persons who are vulnerable to developing gambling problems. - "Normal" players who occasionally lose control - Emotionally disturbed gamblers - Impulsive/biologically vulnerable gamblers <p>Game developers:</p> <ul style="list-style-type: none"> -Increase sensitivity to gaming design for RG <p>Game operators:</p> <ul style="list-style-type: none"> -Enhance compliance of gaming companies with state regulations and industry standards (e.g., WLA). -Enhance gaming staff understanding of key RG - considerations. -Provide an objective standardised procedure for examining potential game risks -Provide evidence of due process -Minimize risk <p>State regulators</p> <ul style="list-style-type: none"> -Clarify gaming risk factors -Provide common language for RG practice -Minimize risk 	<p>Development:</p> <ul style="list-style-type: none"> -2 lead experts -Start-up financial support from Camelot -Research on risk and situational characteristics -initial (7) and later input from 22 experts on RG ; 19 treatment providers, 20 recovered PGs -2 independent peer reviewers -WLA level IV certification requirements for RG design -Prevalence studies / clinical service reports. <hr/> <p>Operation:</p> <ul style="list-style-type: none"> -Owned and operated by GamRes -Secure GamRes managed server -Procurement of technical service -Gamgard user guide and web-resources -Revenue from gaming operators/clients -Expert and collegial input/promotional services -Input and feedback from clients 	<p>Gamgard process:</p> <ol style="list-style-type: none"> 1. Define game characteristics 2. Analyse score games (multi-staff participation, avg. score) 3. Interpret results 4. Consider design changes/alterations to enhance RG 5. Reporting <hr/> <p>GamRes service provision</p> <ul style="list-style-type: none"> -occasional involvement of multiple participants -consultation with clients - standardized results plus enhanced reporting <p>Client self-assessment</p> <ul style="list-style-type: none"> -Team application -standardized report integrated with other reporting systems. <p>Other:</p> <ul style="list-style-type: none"> -GamRes promotion and service support -GamRes monitoring and communication to clients of ongoing research developments 	<p>Standardized reports: Traffic light total score and scoring wheel summary</p> <p># GamRes reports produced</p> <p># Client self-assessment reports produced/utilized in organizational reporting</p> <hr/> <p># games tested</p> <p># client organizations served</p>	<p>Immediate (conceptual):</p> <ul style="list-style-type: none"> -Increase understanding of game RG characteristics <p>Short term (instrumental):</p> <ul style="list-style-type: none"> -Design benefits from enhanced game developer sensitivities to RG risk factors -Improvement of individual characteristics of games (balance RG with fun). -Abandon/redesign game provider decisions -Employment of market protection and prevention strategies/reduced risk to gaming operators -Regulated games meet WLA level IV certification requirements for RG design - client awareness of ongoing research findings <p>Long term:</p> <ul style="list-style-type: none"> -minimize harm to persons who are vulnerable to develop gambling problems. -minimise losses from disordered players -Games balance RG with user value - maintain reputation as conscientious and responsible gaming operator - integrate ongoing research findings into RG practises
<p>Assumptions/Risks</p> <p>Needs to Inputs: Regulators will continue to require of game developers high RG standards Inputs to Activities: resources sufficient to manage processes; client participation is genuine; Activities to Outputs: server security integrity maintained; Outputs to Outcomes: credible, accurate reporting; findings genuinely considered and acted on.</p>				

Figure 1: Gamgard logic model

Figure 1: Gamgard logic model

Design and Methods

The evaluation adhered to standards of professional practice published by the Joint Committee for Educational Evaluation Standards (see Appendix 1b). To follow is a summary of methodological decisions for the evaluation including design, methods, and logistical considerations.

Design

In consultation with GamRes, a non-comparative evaluation design that relies on data gathered from multiple sources was decided. The study is non-comparative in the sense that Gamgard processes and outcomes are not being matched against those associated with alternative instruments or tools. Rather, judgements about the tool are based on the extent to which observations align with the Gamgard logic model, described above (Figure 1).

The general procedure is one of gathering evidence which was compared to the logic model. Two types of data were collected: interview data collected solely for the purposes of this inquiry; and extant/archival data, some qualitative, some quantitative.

Data

Five principal sources of data to answer the evaluation questions were used. The sources of data which described below, differentially apply to the four questions but interviews with Gamgard users and regulators, the principal data source, apply to all of the questions. Described below are sources of data, and where applicable, the methods and the data quality assurance measures used to gather the evidence.

User and gaming regulator interviews (Evaluation questions 1-4):

User satisfaction with the application of the tool and its associated services, and decisions, actions and consequences arising from the results was assessed through interviews. GamRes assisted with the recruitment of potential interviewees. Care was taken to ensure that a full range of participants from different sectors and contexts were integrated into the sample and to stratify the sample by (i) self-users of the tool and (ii) GamRes assisted users of the tool/services. Recruitment text (Appendix 2a) was sent to all potential respondent organisations by GamRes and replies were forwarded for follow up. Potential interviewees were provided with a letter of informed consent to be agreed prior to the interview (see Appendix 2b). After a two week period, GamRes sent a friendly reminder of the voluntary opportunity to contact persons at organisations who had not yet responded. No further reminders were sent.

Interviews were conducted with 12 organisations in Canada, Europe and Australasia – the regions where most Gamgard customer companies are located. A 13th organisation, located in Europe, provided written feedback in a short email response to general questions. Two of the organisations were responsible for gaming regulation, while the remainder were in the business of game

development and/or operation. Some were private sector, reporting to state regulators, others were crown (state/governmental) corporations.

Sample description

The participating user organisations had generally been in existence for a considerable period of time, some as far back as 1930s and 40s, and they have evolved over time to provide a good mix of game types. Some organisations were strictly in the lottery business, with many variations of draw games and instant win tickets, both in-store and online. Others embraced a full range of gaming activities and products (as developers and operators, or as just operators): in addition to lotteries, Keno and instant win tickets, they offered a mix of live, electronic, and online games of chance.² This included fixed and variable odds casino games, bingo, poker, roulette, blackjack, and assorted other table games, sports betting (including para mutual horserace betting), slot machines, video games, and video lottery terminals (VLTs).

Whether a crown (governmental) corporation or private sector company, all operators were accountable to state-level regulatory bodies and obligated to provide routine fiscal and responsible gambling (RG) information. In a few jurisdictions the state holds the monopoly for all gaming operations. In the case of lotteries, Level IV World Lottery Association (WLA) certification was invariably required by state regulatory bodies. In one jurisdiction new legislation to come into effect in the near term to mean that the state monopoly will no longer exist and that operators internal and external to the jurisdiction will be able to apply for licensure.

All of the participating organisations had a clear mandate for social responsibility, and in particular RG, as part of their mission. In some jurisdictions very strict controls were implemented by the state, which meant that players set mandatory loss limits, as well as other voluntary limits such as frequency of play, and even had to play on an identified basis. Sometimes there were responsibilities for tracking either individuals or game performance to inform RG practice. An important RG role for many organisations was to intervene at the individual level when problem gambling was flagged, usually through personal dialogue, encouragement to connect with the appropriate services, or in extreme cases mandatory exclusion. The sense of commitment to the RG role, and the stakes involved, are illustrated by comments from the following two participants,

The company's mandate, or mission if you like, is to prevent problem gambling; that's the number one priority. That is the whole reason for having a monopoly. We could make a lot more money if

² Many interview participants used the descriptor 'game of chance' to describe their games, but as will be addressed below in the Findings section, the role of skill in at least some of these games is a topic for debate.

we didn't have these loss limits or if we were able to offer bonuses but we don't do this because we don't want to encourage problem gambling. (PO7)³

When we started doing the online business it was new for everybody. We were being watched like crazy; they were scared of what was going to happen. Would it cause very severe problems among the gamblers themselves? Everybody was watching, everybody was a bit nervous. (PO4)

With such a strong commitment to RG, most organisations also were compelled to keep up to date with recent developments in knowledge about problem gambling. Through conferences and ongoing professional development many participants keep abreast of new research, risk factors, RG strategies and other relevant understandings. In some cases organisations contract out to external experts to review their RG practices. One of the regulators also had the role of sponsoring research on risk factors and RG strategies, sometimes targeted research questions but also funding available for unsolicited inquiry usually by university-based researchers.

Finally, for companies in the business of developing and operating new products RG practices were generally integrated into the product development protocol. But for many operators who strictly purchase existing games that can be tailored to their own market, they had little input into the extent to which RG considerations are integrated with product development. As one participant put it,

We're a small market; we pretty much have to take it as they give it to us. If all the operators [in this jurisdiction] pooled together they could put pressure on the company developers. [It] would give more power to the operator. (PO4)

Instruments

Interview protocols for both users and regulators taking into account the Gamgard Logic Model (see Figure 1) were used. In consultation with GamRes, only minor alterations were made. The interview protocols appear in Appendices C-1 and C-2.

All interviews were run via Skype or telephone and audio recorded. Most interviews were individual, although four were group interviews: two involving 2 participants, two involving 3.

Plan for analysis

The audio recordings were summarized into individual Word files taking care to identify specific illustrative verbatim quotations. The Word files were then integrated into the *NVivo* (version 10) text analysis software package used to code and sort the data according to the main themes associated with the guiding evaluation questions. A thematic analysis of the responses to each question and provided sample verbatim quotations to illustrate key findings was conducted.

³ 'PO7' is an abbreviation of 'Participating Organisation #7'; this coding system is being used to protect the identity of participants. It should be noted that for some POs 2 or 3 persons took part in the interview; in such cases no differentiation among persons was made.

Request for documentation

At the completion of the interview, each participant was asked if they would be willing and able to provide documents such as sample reports that include reference to Gamgard. About half of the interview participants complied with the request. The purpose of it was to get a sense of how Gamgard is used for reporting purposes and secondly to augment the sample for quantitative validity analysis (described below). Table 1 shows the nature of the reports gathered.

Document and website review (Evaluation questions 2-4):

To provide some indirect insight into questions of validity, user satisfaction and suggestions for improvement extant Gamgard documentation and its web interface were examined.

Sample

Reviewed were a range of technical documents and support materials relating to Gamgard including, user guides, instructions, sample score sheets, and sample anonymized technical reports to clients generated by GamRes. GamRes also provided access to the actual tool on its secure website the main purpose being enabling the review of these documents, the Gamgard website, and the tool itself in terms of its current state, its operation and typical output provided to clients, and also to identify possible issues for consideration. Such data touch to a limited extent on validity issues, the tool’s strengths and weaknesses, and suggestions for revision. To follow is the list of resources made available:

Table 1: Descriptive Characteristics of Documents Shared by Interview Participants

Report Type (N)	Contents
Game Review (13)	Gamgard assessment/score report for one or more games.
Accountability reports or report excerpts (4)	Internal and external reports making specific reference to Gamgard
Review processes (3)	Reports or memos describing how Gamgard is used in corporate social responsibility analysis
Review Reports (2)	Full blown game review reports completed for the corporate customer by GamRes
Re-regulation reports (2)	A jurisdictional re-regulation policy option report that makes reference to Gamgard, and accompanying operator response to the report.
Social responsibility report (1)	Presentation of social responsibility analysis as integral part of corporate SR process.

- Historical record: Report on Gamgard history and development trajectory (GamRes, n.d.);
- PowerPoint slide decks and a concept paper that provide an overview of Gamgard (and its predecessor GAM-RiSC, Gambling Assessment Measure – Risk of Structural Characteristics) and a summary of structural characteristics at risk for vulnerable gamblers;
- Sample commissioned Gamgard report (anonymized);
- Sample score sheet (anonymized);
- Gamgard v 3.0 user guide;
- Scoring key for Gamgard 2.1; and
- Access to password protected domain of www.gamgard.com to enable test usage of Gamgard and access to scoring key for v 3.0.

Plan for analysis

Content analysis was conducted on the documents and the website to identify information relevant validity and user-interface issues.

Research and inquiry relative to Gamgard (Evaluation question 2):

The development of the tool has been based on a great deal of input from experts and surveys of different groups such as customers.

Sample

Published and unpublished reports on these activities were provided by GamRes which were integrated into the review. These data are a valuable source from which to comment on the credibility of the tool and the validity of scores and recommendations emerging from its application. The following documents were examined:

- **GAM-RiSC Technical Report (2007):** The report details the rationale for and the development of GAM-RiSC, the forerunner to Gamgard v 1.1. The report includes information about international advisory panel of RG experts, and methodology associated with Stage 1 (item selection) and Stage 2 (Individual characteristic ratings) development processes as well as additional exclusions and weightings.
- **Evidence summaries (Gamgard 2007, 2013, 2014):** There were three versions of a document summarizing evidence in support of Gamgard content development. The evolving document explicates gambling risk characteristic assessment through detailing research evidence supporting the identification of 8 structural and 2 situational risk characteristics that were built into the initial versions of the tool (GAM-RiSC, Gamgard v 1.1) and subsequently used in its modifications (v. 2.0 and v2.1) . A description, summary of evidence and example are given for each risk characteristic. The bulk of the evidence that was documented by the authors arises from original research published in peer-reviewed outlets.
- **Original research (2007, 2011, 2014):** Three documents described original research: two commissioned research reports and one study published as a peer-reviewed journal article. The

first report (Wood, Griffiths & Parke, 2007) was commissioned by Camelot, a UK private sector company responsible for running the National Lottery and was designed to examine what is currently understood about the risks of specific structural characteristics for vulnerable players.

Wood, R., Griffiths, M., & Parke, J. (2007). Examining the risks involving structural characteristics in gambling. Nottingham, UK: International Gaming Research Unit, Nottingham Trent University, UK.

Second was a research report commissioned by the Nova Scotia Gaming Corporation and the Interprovincial Lottery Corporation in Canada (Wood & Griffiths, 2011). The study reported the results of (i) a global survey of gaming providers about RG practices and tool usage and (ii) a comparative analysis of 4 tools including Gamgard 2.0. This study was subjected to some considerable data quality assurance processes. Specifically, (i) open-ended feedback and feedback on the pilot draft questionnaire was solicited from a panel of several international RG experts prior to launching the study (the raw data from this process provided by GamRes) and (ii) the final report was peer reviewed by 2 external RG experts (also shared with me).

Wood, R., & Griffiths, M. (2011). Reviewing, assessing and developing a better understanding of RG product assessment tools. Rigaud, Quebec Canada: GamRes and International Gaming Research Unit, Nottingham Trent University, UK.

Obtained were peer-reviewed article authored by GamRes associates that reports Delphi ratings of 45 RG strategies in relation to 20 game types.

Wood, R., Shorter, G. W., & Griffiths, M. (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.

The sample consisted of RG experts (20), treatment providers (19); recovered problem gamblers (20). This original research was designed to more directly verify the importance of gambling risk characteristics and RG strategies that were incorporated into the design of Gamgard.

In addition to the foregoing literature review, further empirical inquiry was conducted by GamRes to inform the development of Gamgard v. 3.0. Specifically, a series of surveys was sent to 17 international experts in RG and problem gambling treatment. “Each expert was asked the rate the extent to which they believe evidence supported the notion that a range of RG tools could diminish the risk for vulnerable players developing a gambling problem in relation to a range of ‘low-risk’, ‘medium risk’ and ‘high-risk’ games” (GamRes, n.d., p. 5). GamRes provided the responses to these surveys; such responses attest to the intensity of the tool development process.

Feedback exchange with National Lottery Corporation (2007): This report captures an exchange between the UK’s National Lottery Corporation (NLC) and GamRes concerning a

research report commissioned by Camelot (Wood et al., 2007). Posed by the NLC was a set of questions about the validity and characteristics of the tool and the responses provided by GamRes.

Update memos: Three update letters and memos laying out changes and modifications to Gamgard as new research information were reviewed. These documents specifically focus on the development of Gamgard v 2.0 which incorporates RG features into structural and situational characteristics, and v 2.1 which included technical interface enhancements as well as a removal of adjustments to scoring.

Plan for analysis

A content analysis of the reports was conducted to identify information relevant to the development of Gamgard.

Archived game ratings (Evaluation question 2):

About 28 organisations⁴ have used Gamgard to date to assess many hundreds of games: some existing games, some new; some for different game types, some for variations on a specific game (e.g., instant win cards). In some cases, user organisations commissioned GamRes to prepare technical reports summarizing the results and providing fodder for ongoing improvement.

Sample

A sample of these game assessments (N=47) on an anonymized excel datasheet to enable validity and reliability analyses was provided by GamRes.

In order to obtain information about corporate customer self-assessment⁵ uses of Gamgard, following each interview with customer organisation representatives, participants were asked if they would be willing and able to share internal or external reports where Gamgard was referenced (see Interview methods above). A few respondents obliged and sent sample reports (see Table 1). From these, where possible, data were extracted to add to the archived game rating data base used in the analysis. From this source 9 client self-assessments, and 3 assessments completed by GamRes were added. Descriptive characteristics of the sample appear in Table 2.

⁴ It should be noted that Canadian provincial gaming operators can access and use the tool via a country-wide licence under the auspices of the Canadian Responsible Gambling Association

⁵ Note: In accordance the Gamgard Service Agreement GamRes was unable to provide Gamgard data from corporate customer self-assessments, without permission.

Table 2: Description of Sample of Gamgard Game Risk Assessments (N=59)

Descriptor	Breakdown
Gamgard version	v 1.0 (3), v 1.1 (3), v 2.0 (11), v 2.1 (24), v 3.0 (18)
Date of Assessment	Earliest: Oct 2011, Latest: June 2017, Modal Year: 2014 (15)
Country	Canada (34), Europe A (23)*, Europe B* (2)
Assessor	GamRes (50), Self-Assessment (9)
Game Type	Video Lottery (8), Bingo Online (7), Online Slots (20), Online Probability Scratch (2), Casino Online (3), Lotto Draw Games (19)
Risk Ratings	Low (20), Medium (16), High (23)

* Country name withheld to protect company identity.

The table reveals that all versions of Gamgard were used for the assessments which spanned from 2011 to 2017. Almost 70% of the assessments were completed using v 2.1 or v 3.0. The majority of assessments were completed by GamRes, with only 15% having been done by corporate customers. A complete range of game types were assessed but the number of assessments within game types was uneven. Lotto draw games and online slots each represented about one third of the sample. Only 2 online probability scratch games (4%) and 3 online casino games (5%) were included in the sample. However, the final row in Table 2 reveals that the assessed games were evenly distributed over low, medium and high risk score categories.

Table 3 provides technical information concerning the preparation of the data for analysis. In the data set, the Gamgard scores were generated by using different versions of the tool where some variation in item scoring and scaling across versions was evident. In the interest of comparability, it was necessary to take steps toward standardizing the assessment scores across versions. Table 3 clarifies how scoring structures from earlier versions of the tool were put on the same metrics as v 3.0; GamRes historical record document (mentioned above) served as guidance for these changes. Note that while some minor adjustments were made to v 1.1 and later to v2.0, the most significant change was for v 3.0 where the item scales and associated risk category benchmarks for the total score were doubled. According to the developers this set of changes:

... provides a wider range of risk scores and allows for more nuanced differences in risk to be examined. The risk categories have also been expanded from 'low-risk', 'medium-risk' & 'high-risk' to 'very low-risk', 'low-risk', 'medium-risk', 'high-risk' & 'very high-risk.' (GamRes, 2007., p. 5).

Table 3: Item Adjustments in Gamgard Scoring

Item	V1.0	V1.1	V 2.0-2.1	V 3.0	Adjustments to equate v 2.1 and earlier with v 3.0
1. Event Frequency	Range: 1-20	Range: 1-20	Range 1-20	Range 1-40	Double scores for v 2.1 and earlier
2. Multi-game/stake opportunities	1,2,3	1,2,3	1,2,3	2,4,6	Double scores for v 2.1 and earlier
3. Variable/fixed stake size	1,3	1,3	1,3	2,6,8	Recode v2.1 and earlier: 1=4, 3=8 Note: low option split into 2 options
4. Prizeback percentage	1,3,5	1,2,3	1,2,3	2,4,6	Recode v1.0:1=2, 3=4, 5=6; Double scores for v 1.1 through v 2.1
5. Jackpot size	0.5,1,1.5,2,2.5,3,1.5	0.5,1,1.5,2,2.5,3,1.5	0.5,1,1.5,2,2.5,3,1.5	1,2,3,4,5,6,3	Double scores for v2.1 and earlier
6. Near win opportunities	1,3	0,2	0,2	0,4	Recode v1.0: 1=0, 3=2; Double scores for v 1.1 through v2.1
7. Continuity of play	1,2,3	1,2,3	1,2,3,4,5	0,6,10	Recode v 1.0 and v 1.1: 1=0, 2=6, 3=10. Recode v 2.1 and earlier; 1=0, 2&3=6, 4&5=10
8. Accessibility points	1,3,5	1,3,5	1,3,5	2,4,6	Double scores for v 2.1 and earlier
9. Payment options	1,2,3	1,2,3	0,0.5,1,2,3	0,1,2,4,6	Add options in v 2.0 & v 2.1: 0, 0.5: Double scores for v 2.1 and earlier
10. Illusion of Control	1,3	0,2	0,2	0,4	Recode v2.0: 1=0, 3=4; Double scores for v2.1

Note: Cell entries for middle columns correspond to values associated with item options. **Bolded** entries correspond to changes made from previous version

Plan for analysis

Archival data served to provide further insight to Gamgard validity and reliability issues. From a measurement perspective, Gamgard is considered to be an *index*, as opposed to a *scale*; the total risk rating score is a composite variable where scores on multiple indicators are summed. Therefore to assess the reliability of Gamgard scores it was decided to focus on a version of inter-rater reliability, as opposed to internal consistency.⁶ The plan was to compare user-generated scores with GamRes-generated scores for ratings within game types. A finding of no statistical difference would provide, albeit weak, evidence of inter-rater reliability. A better test of such reliability would be to compare independent user and GamRes assessments of precisely the same games. Such a test was beyond the scope of the present evaluation.

The focus on testing the validity of Gamgard scores was to examine its external validity; the approach used is described in the section to follow.

Service provider reports (Evaluation question 2):

With the assistance of GamRes, RG service provider reports from gambling helpline and treatment organisations were collected.

Sample

The list of reports from five countries appears in Table 4. These reports provide data on the types of games that are reported as being problematic by their clients and provide some empirical evidence to examine the relationship between some ‘model’ game scores and actual reported risks of related games

⁶ Standard internal consistency analyses is best suited to the analysis of scales, or composite measures composed of several items that have a logical or empirical structure among them (Babbie, 2012). This procedure depends on all the items being interchangeable; it is assumed that they are measuring the same thing, and that any set of items is equivalent to any other set (Wigdor & Green, 1991). While it is possible in some instances to use internal consistency analysis with indexes, as Babbie (2012, p. 169) explains, in developing indexes it is good practice to “weight [items] equally unless there are compelling reasons for differentiating weighting” (p. 169). In the case of Gamgard, differential weighting was both (i) quite dramatic and (ii) justified on the basis of systematic reviews of the empirical literature and careful input from expert panel members (documentation described above).

Table 4: Sample of Helpline and Treatment Service Provider Reports.

Report Identifier Country (yr).	Source
SPR 1 Brazil (n.d.)	Collegial personal communication (n.d.): “See attached for data that might be potentially helpful. Please note, Brazil is unique in that most gambling forms are still prohibited except state run lotteries and bingo. However, illicit venues can still be found readily. So these numbers need to be interpreted with the things in mind”
SPR2 Canada (2011)	Focal Research Consultants. (2011) Nova Scotia Adolescent Gambling Surveillance Technical Report. Prepared for Nova Scotia Government https://www.novascotia.ca/dhw/addictions/reports.asp
SPR3 Canada (2012)	Williams, Volberg & Stevens (2012). <i>The population prevalence of problem gambling</i> . Prepared for Ontario Government. https://www.uleth.ca/dspace/handle/10133/3068
SPR4 Canada (2013)	Nova Scotia Department of Health and Wellness. (2013) Nova Scotia Adult Gambling Information Collection Project: Technical Report. Prepared for Nova Scotia Government https://www.novascotia.ca/dhw/addictions/reports.asp
SPR5 Canada (2016/17)	Hotel Dieu Grace Healthcare (2016/17) Gambling data form items by age group for open admissions. Internal report. https://www.hdgh.org/problemgamblingservices
SPR6 UK (2016/17)	Gamcare (2016/17). Gamcare Annual Statistics http://www.gamcare.org.uk/publications/annual-reviews-and-statistics
SPR7 USA (2016)	Moore, T. (2016). Oregon gambling treatment programs evaluation update 2016. Salem, OR: Oregon Health Authority, Health Systems Division, Problem Gambling Services
SPR8 USA (2016-17)	California Problem Gambling Helpline (2016-17). California Problem Gambling Helpline Statistics http://www.calpg.org/spotlight-research/
SPR9 USA (2017)	Iowa Department of Public Health (2017) Admission profiles SFY 2017: Gamblers Admitted to Treatment. https://idph.iowa.gov/igtp/reports

Plan for analysis

The external validity of Gamgard scores was examined by correlating them with data reported in the service provider reports. While it would be desirable to investigate Gamgard convergent validity with game risk assessments using an alternative tool, preferably a gold standard in the industry, no such tool is currently available. A content analysis of the service reports was conducted in order to compile rank orders of game types that put vulnerable players most at risk and correlated these with the Gamgard rank ordering of the riskiness of game types.

Findings

This section is organized by the four evaluation questions guiding the inquiry: achievement of the stated aims, validity considerations, user satisfaction, and suggested improvements to the tool. As mentioned, interview data apply to all four questions, whereas other data streams were differentially applicable as noted above. Most of the data sources inform a response to the second evaluation question about the validity of scores produced by the tool. In general the findings from the interviews are summarized first, followed by the results arising from the analysis of other data streams.

Achievement of stated aims

As clarified in the Gamgard logic model (see Figure 1), Gamgard aims to have an impact at four different levels. Specifically, it aims to reduce the risks of game features to vulnerable players, although an impact on players would obviously be indirect through the actions and practices of developers, operators and regulators. An assessment of the impact on vulnerable players is beyond the scope of this evaluation. Of interest in this study are outcomes of Gamgard associated with game developers, game operators and regulators. Given the design of the study, all data pertaining to the impact question arise from the interviews.

Interview Findings:

Responses to the impact question from the perspectives of game developers, game operators and finally, regulators were examined. The findings are presented in this order.

Game Developers

Has Gamgard increased sensitivity to gaming design for RG? This question met with mixed responses. On the one hand, participants shared that Gamgard served to leverage conversations between social responsibility organisation members and new product developers. In that sense it fostered more in depth conversation about RG practices and features and helps to develop a vocabulary among developers, as the following comments imply.

Definitely it did and it raised their awareness for problem gambling topics as well as for understanding the necessity of RG and RG measures; being a part of sustainability at the end. (PO9)

People have come to an understanding of the 10 characteristics and if they make a change to one of them how that is likely to impact the player. (PO1)

It's been helping the folks on our business side the strategic gaming area understand what are some of the risks and potential risk points per game. (PO5)

One of the operators talked about involving product development business owners in the assessment process and how that has sensitized them to RG considerations.

So really it's an effort to embed the principles of RG within the business,... so by having the business owner, who knows the product inside and out, think about these different RG characteristics, it helps, rather than them trying to explain the game to us and us doing all the paperwork completion... That's where it's helped increase the knowledge in the business, what they should be looking for and asking themselves during product development. (PO1)

But for many operators who are not in the development business, it seems that the prospect of Gamgard leveraging sensitivity to RG matters among game developers would be a 'tough row to hoe.' Such operators feel relatively powerless in influencing game development companies. Consider the following sentiment shared by three Canadian colleagues. Like most Canadian operators they buy most of their games from companies who develop either in the US or Canada.

Typically it would require probably all provinces working together to be heard by manufacturers because they are so large and they probably won't notice there have to be significant demand for change not just coming from one province. (PO5)

Others were of the view that the impact of Gamgard on developers was indirect because the games are already developed under a social responsibility protocol of which Gamgard may or may not be part. Nevertheless, we can see that Gamgard criteria and results do enter into product development related conversations.

Maybe we can suggest some modifications to user experience team to make some changes to reduce risk. [It] can be useful for this kind of application, to suggest some small modifications that can be made. (PO10)

So we have different steps internally to approve the product. If it's 'red' (risky) we have different kinds of consumer protection measures. It's a collaborative process. [The] technical group wants to make the game fun and attractive, but through the process it's more collaborative and they're taking into account the risk factors. (PO11)

In some cases, particularly where operators were working with previously developed products, or routinely with low risk products, the perceived impact of Gamgard was negligible, as might be expected.

Our lottery games are already low risk; nothing much to do. Sometimes a low score on retail and higher score online [versions will appear]. But from a game design point of view we can do nothing because it has to be the same in retail as it is online. (PO10)

Would say no to [RG sensitivity development] because really we haven't been all that innovative in our [many-year] history. The wheels have not been spinning that fast but they are spinning faster now [since, due to impending legislation, there will no longer be a state monopoly]. (PO2)

For one operator where development was not really part of the company's mandate, effects on others, particularly marketing personnel, were observed as suggested in the following quotation.

I would say [Gamgard] has had a positive effect on staff, the marketing staff, the people [who] are looking into what's out there and 'should we buy or not this game?' ...It has a positive sensitization impact in that way. (PO4)

Participants were asked about the extent to which Gamgard has factored into development decisions, perhaps even decisions to terminate games or game ideas. Many commented on how Gamgard has now become part of the design process or protocol: "We would not say that Gamgard is a solution to everything, its one part of the game design program." Two interviewees sent game company game design protocols that clearly identified Gamgard as an integral part of the process. Others provided examples of the specific modifications that were made on the basis of Gamgard results.

Yes we've had some sports game that are really fast games, so we said no it's not okay to have it that fast, we have to slow down. So the game had to be changed to slow down. (PO7)

Not many operators could think of instances of game termination offhand but suggested that the game development protocols in place would mean highly risky games would never be an issue. Yet, although rare, such decisions can occur as these respondents related.

There was one game that we looked at for our online games and based on input from [GamRes] and one other expert we decided not to launch. It does happen but it's infrequent. (PO1)

We have stopped the development of a product that did go over the limits. We had a project with virtual racing, it had many new features but we saw that it scored too high so that project was stopped. Otherwise none of the existing products that we've had up there for a while have been touched. (P02)

Game operators

Does Gamgard help operators with accountability demands, for example, compliance with state regulations and industry standards? Does it enhance the understanding of gaming staff of key RG considerations? Does it provide an objective procedure for examining potential game risks?

Generally, the response to all of these questions was affirmative across the interview participants. According to the following respondent Gamgard is best seen as an early detection mechanism.

Gamgard is often seen as an early warning mechanism in the product development process. Gamgard is very good at a certain stage in the game development process but it's not the holy Grail of making a judgment of whether a game is high risk, medium risk or low risk.... It's an early

warning system, it's an early detection system, but in my opinion it's not there to base everything on your game development on Gamgard and [the] scoring [you] get. (PO12)

The following participants provided vivid examples of Gamgard use in this way.

So we are offering instant tickets in store... and when we wanted to introduce this game online we use Gamgard and all of a sudden the risk profile change significantly because of the convenience of access. (PO8)

Recently we had a change in the field to "Max back" and we are able to assess it using the previous version [of Gamgard] and the new version and okay there's not actually huge increases in the risk or so that's good. So I think it is good and it helps build credibility in the strategic gaming area. (PO5)

The latter comment demonstrates that in addition to early warning Gamgard can play an RG assurance role, particularly when new changes raised the possibility of implications for risk factors.

In many instances Gamgard has been integrated into the product development protocol and organisational RG frameworks. One operator mentioned that Gamgard was actually used in a foundational way in this respect:

It's evidence-based... Now we can say with we've got a risk profile for all of our games and this is how they sit. That's a kind of lottery operator we are. And we were actually able to use Gamgard to build a foundation of our responsible gambling program. (PO8)

But most agree that Gamgard is only one source of information in product development protocols and in communications about RG features and strategies. Several organisations have developed their own checklists and other types of information that helped to inform their RG practices. Gamgard is part of that but this does not necessarily imply that it's the major part.

Many mentioned using Gamgard or making reference to it in license applications or new product approval processes. They see it as a way to minimize subjectivity in discussing risk factors and RG measures. In some instances, operators did so even though they were not required to.

Every year we have to write a responsibility report and so it's useful to have results already prepared. (PO10)

I think Gamgard is useful when we are going to apply to European lottery certification. This is a way to show what the players but also to people who are interested in this; that we are taking care of this part. (PO10)

It seems likely that such strategies are directly tied to corporate image maintenance as the following quotations suggest:

I've seen it so many times and in particular with regard to the regulator or even when I was with [company name] we shared it with public interest groups and pressure groups, we demonstrate to them how we use Gamgard and how we look at the scores. (PO12))

It definitely did contribute to our [corporate image]. [We've used it in] various publications, and also in the media. If we get the opportunity to do it, we communicate that we do use Gamgard, and that it's useful for us. (PO9)

One operator mentioned that their company is seeking to be more transparent and perhaps will consider using Gamgard evidence for that purpose. They are currently not reporting specific scores to the regulator; only if the game was really new and different what they include the full Gamgard score and breakdown. Others have suggested that they certainly have to attend to social responsibility considerations, in particular RG matters, one reporting to regulators but that Gamgard results were not necessarily directly part of that.

A potential use of Gamgard had to do with marketing games. One operator speculated on the possible use of Gamgard results as a potential stamp of RG approval, for example, games that score in the green zone. She knew of some countries where that kind of marketing was done, though not necessarily with Gamgard.

Regulators

Does Gamgard clarify gaming risk factors? Does it provide a common language for RG practice? Does it help regulators to minimize risk?

Although considerable affirmative evidence emerged from the interviews the response to these questions was somewhat mixed but decidedly favouring Gamgard. On the one hand, there is clear evidence that the tool facilitated communications among various stakeholders in the gaming community, including regulators, as the following comments exemplify.

But if you use a kind of risk assessment tool, yes we can say we have Gamgard and we know a lot of people have Gamgard, so in that sense it's a common language, so yes we speak the same language. (PO11)

Mostly it's a very good tool to have a discussion and to communicate around different types of games. It helps to keep the awareness of certain aspects of different games, features. Most [people] know [what is] built into Gamgard, and we also know what kinds of features trigger risky behaviour. (PO7)

One thing that is good with Gamgard is that you get a common concept, the same framework of words. When you discuss among regulators and operators they have the same words, [the] same language so that is a good thing with it. (PO6)

Likewise, there is good evidence to show that many regulators pay attention to Gamgard. This is not to say that they have endorsed it specifically or required it as evidence of RG practice, but it is to say that many regulators are aware of Gamgard and appreciative of the input it provides. In the words of one regulator was quite familiar with the tool:

We come across Gamgard again and again and again, because there are many lotteries these days from all around the world that are using Gamgard. It's not that we have an interest; it's something

that we look at and review and we also provide an opinion on whether they're using Gamgard correctly or whether their game design program is appropriate for the products they've got in the market they try to access. (PO12)

Similarly, an operator reflected favourably on what Gamgard means to some regulating bodies

[Our publishing Gamgard results] is very much appreciated not only by the gambling regulators but by the public as well. As you may know there are different certification frameworks for lottery games as well as for casino games, like the RG framework of the European Lottery Association... [our company] is certified at the highest level on all of these frameworks, and Gamgard contributed to a lot to that. (PO9)

Another regulator commented quite specifically about Gamgard's weight in the context of RG assurance. He describes not only how Gamgard is consistent with specific RG features which have been regulated in his jurisdiction, but also relevant convergent validity data.

But I know it has influenced regulation. I'll give you an example.... We have maximum loss limits and mandatory to set your own limits. Here we also have land-based IVTs [interactive video terminals] [requiring] a break every hour. That is also a feature of Gamgard, to reduce risk: to have a break.... You can [set up] these machines and when it's been on for an hour it stops... for 10 minutes. We have one of the machines with a shorter time. In 2005 we had around 1,200 calls to the national helpline for slot machines. Last year in 2016... IVT's: we had 16 calls. (PO6)

It is true, as the regulator pointed out, that in an era of online gaming the relevance of national helpline's for slot machines and IVTs has changed, implying the need for caution in interpreting this correlation. Yet at the same time this change over an 11 year period is quite dramatic. He indicated that his organisation uses the tool regularly, in conjunction with other information. "We look for harmony with other information and usually we are satisfied."

Despite these positive indications, not all regulators are fully persuaded. In another jurisdiction, one where gaming is the state monopoly, the regulators are relatively indifferent to Gamgard despite the network of state owned game developers and operators consistently relying on the tool. "It's really useful for us; we will continue to use it, absolutely." Members of two operator organisations in this jurisdiction were interviewed and they concurred that the regulators don't really see the full value of Gamgard because they believe there are many other risk factors and environmental considerations that are not covered by the tool and they also believe that there's a significant degree of subjectivity in the scoring application of some of the tool's items. I received from one of the participant's a policy discussion document on state gambling re-regulation which specifically states.

Instruments have been produced to classify the degree of dangerousness of a specific game, GAM-GaRD being an example. The weakness of these instruments is that they accommodate quite a lot of subjective elements that limit their validity. (Document provided by PO11)

This operator also provided a developer/operator organisational response to the document which takes an affirmative position on Gamgard. On the issue of subjectivity, the operator suggested that it seems that way to the regulatory body because they didn't have in-depth knowledge of the gaming product. As she put it

Mainly [their reticence] is due to [them not being] aware of the product components; they are not familiar with the product and that could be meaning that you're kind of subjective not objective in your assessment of the product. We had hoped it would be a mandatory tool in the forthcoming gaming law, but unfortunately it's not mandatory or recommended to use it, so it was a pity for us. (PO11)

And according to the other operator:

We want the authorities to accept Gamgard as a good measurement, or measurement tool, but they don't. They don't think it objective enough. They feel there needs to be other parts in it as well. (PO2)

Another operator, in a different jurisdiction, indicated that her organisation is debating whether they will continue with Gamgard. They too are of the view that there are many elements associated with risk factors and RG practice that are not covered by the tool and they routinely rely on other information to which Gamgard is complementary. More will be said about this aspect under the next section on validity considerations.

Summary

In summary, it is fair to say that we have good evidence that Gamgard is meeting its objectives at the level of developers, operators and regulators. Despite the relatively favourable assessment of organisational and system benefits of using the tool, some respondents did raise some issues for further consideration such as perceived subjectivity and suggested inadequate coverage of risk factors and environmental concerns. These issues are addressed in the following section on validity considerations as well as ensuing sections on user satisfaction and suggested improvements to Gamgard.

Validity considerations

All data streams integrated into this evaluation touched on the issue of the validity of evidence arising from Gamgard. Interview findings will be presented first, followed by an integrated section that looks at the other data streams.

Interview findings:

There is widespread agreement among game developers/operators and regulators whom were interviewed that Gamgard is highly credible and grounded in research-based evidence. This information will be presented first, followed by a series of Gamgard validity concerns that were raised. It should be noted that many such concerns had to do with the extent to which Gamgard

comprehensively covers gambling risk factors and environmental issues. Given Gamgard's unwavering commitment to evidence-based knowledge, such challenges need to be considered in the light of the availability of research-based knowledge

Credibility

Here is a sample of what interviewees had to say about the credibility of Gamgard

We talk about credibility, it's good to see that what is predicted from Gamgard is the same as what you see in data from the helpline, for instance, ...quite a high degree of convergence...very good correlation between how this is scored and what we see in research mostly from our national helpline for problem gambling. (PO7)

A similar observation was inadvertently made by another participant

The fact that you have more than one way to measure this may mean you have an opportunity for validation? Yes that is correct. There's definitely an overlap for 10 of the 14 items. (PO4)

Another respondent talked about ways to gather data quality assurance information. In particular, he mentioned that at the national level operators work together to compare Gamgard scoring outcomes, a form of triangulation.

What we have done within [our country level network] because you could always be a little too positive about your own games, we can see if other members get the same figures that we do with our bets. So we have kind of a third opinion. (PO2)

This particular example is notable for another important reason, because several respondents had some challenges with scoring accuracy, as will be discussed below relative to validity concerns.

Some operators commented on the extent to which they worked creatively with Gamgard which speaks favourably of Gamgard's sensitivity to emergent issues in the community of practice. In one instance Gamgard directly affected company policy decision making. Where Gamgard used to be used in comparative ways across different game verticals (e.g., draw games, casino table games), it is now being used within a vertical, specifically, instant win games with the operator finding considerable variation in risk profiles of different versions of the games. Company policy now monitors this regularly:

So we are offering instant tickets in store... and when we wanted to introduce this game online we use Gamgard and all of a sudden the risk profile change significantly because of the convenience of access you can use a credit card to play online. All of a sudden things started changing and so therefore we had to feel we had to introduce make sure we got a responsible gaming framework around this to make sure this is a low to medium risk product for putting out there. (PO8)

It is important to note that some variability in systems for scoring and compiling databases of Gamgard applications was observed. In many cases, multiple scorers, sometimes from different departments within the organisation, worked collaboratively to independently score games and then

confer amongst one another to identify discrepancies and their resolution. But it varies in different organisations, as following quotation suggests.

At [our organisation] it's one person. He said you know "I could very well lie about everything and nobody would know or would even look into it... There's nothing in the tool that GamRes provides that says ,"Here this is how it should be done." (PO4)

Such speaks to the risk of not having some sort of safeguard or mechanism in place to assure proper tool administration. As is the case with all monitoring practices the quality of the results depends very heavily on the quality of procedures for capturing the data.

Validity concerns

The importance of collaborative scoring systems is amplified by the following concerns by respondents about scoring discrepancies. This is one of several concerns about the validity of Gamgard raised by participants who were typically very forthcoming and elaborate about their concerns.

Interrater reliability: As one operator related earlier this year while they thought they were scoring Gamgard properly, they came across another report done by GamRes with scoring that was different.

When we read the options we have it didn't refer to any of that stuff. It's almost like [GamRes] had additional information but for us, we didn't see what went into framing these questions so we took it very literally. Even today if I was to go through this I would probably still scored a '1' [as opposed to a '2'] based on the wording that's used. (PO1)

Another respondent elaborated on her experience with the issue which involved discrepancies between gaming operators and regulators.

When [regulators] take our [new] product... And they go through the Gamgard test they get another result than we do. They end up 'red' and we are not red we are in the 'yellow' area or 'light red.' Because we read the questions and we give what we think is a correct answer but they say "You know you should look at it this way." (PO2)

A number of instances occurred where operators encountered scoring discrepancy issues and approached GamRes for clarification; they happily received input and advice. This situation does, however, raise the spectre of interrater-reliability of the tool for further consideration.

Consequential validity: There was some discussion as to whether Gamgard scores, in and of themselves, provide a solid basis for decision making and follow up. An operator told of a recent product test they did:

And when it went through Gamgard it came back with a high score and we had a session with GamRes. There's nothing we can do with the terminal to reduce scores, so what do we do? ...It was tied to your platform not your game. (PO4)

When we get the results we sometimes have the opinion that a lot of the elements are not particularly changeable anyway. For example, when you look at payback percentage, well it is what it is, jackpot size, it is what it is. A lot of the things are set by the manufacturer so any mitigation we might do might be [sending] information to customers. (PO5)

In several other organisations the collaborative aspect of scoring really helped in this regard. It leveraged lots of discussion about options and in some cases the identification of further required information outside of Gamgard. Often sensible RG strategies came out of these discussions.

Content validity: Consistently across organisations interview participants raised questions about Gamgard's comprehensiveness (content validity). Is it measuring what it's intended to measure? While many participants agreed, there was a general sense that there are many environmental considerations that come into play during game implementation that have implications for risk for not explicitly covered by Gamgard items. It is important to clarify at this point that Gamgard is recognized as an evidence-based, research informed product. This being the case it is critical to the validity of interpretations arising from the tool that any additional risk factors or RG strategies need to be well-grounded empirically. More is said about the state-of-the-art of research below.

For now, suffice to say that several issues identified in the community of practice would benefit from a serious interrogation of the research literature on risk factors and RG practices. These factors and variables include promotional activities, such as offering bonuses and frequent user (VIP) club incentives. One regulator reflected on the complexities involved:

Many casinos have bonus games, games within the games [e.g., cash incentives, free spins]. The type of bonus could affect the game itself. You could have a game itself with a certain set of parameters but when she reached the bonus game may have a different set of parameters. I know it's complicated but there could be some way to include bonus games in Gamgard. (PO7)

Another important consideration for focus was,

But it's really important to remember that [our jurisdiction] you have to play identified, you can't play a game with just the player's card you have to have independent verification your identity. So this means that we can look at all of the risk factors in association with players as a whole, and that's important when you want to prevent problem gambling. (PO7)

The practice of identifying people in association with their playing behaviour provides specific opportunities for researchers and for ongoing inquiry into problem gambling and response to emerging measures.

Other variables surfaced well, such as staff interactions, casino set up, and additional considerations that are not reflected in the score. When one respondent was asked "Where does that leave you?" The answer was discussion with GamRes which gave them a greater level of confidence in launching a new game. "But if we did not consult and if we did not have that input [it could've been problematic]."

Another set of factors worth looking at are voluntary and mandatory limits; one respondent picked up this particular issue and explained it this way:

[RG strategies suggested by Gamgard] bring down the global [risk] score but doesn't change the game itself. Unfortunately only about 10% of our clients will use the voluntary limit thing, it's not like 60% of my clients have limits, it's a very small proportion. And to me the fact that the game is a red flag at the highest risk level and clicking a 'set voluntary limits' [option] and it turns to 'green'; I think the message is it's not a safe game for that vulnerable client. It doesn't make much sense to me personally...That is one of the big issues we have. (PO4)

It is worth noting that scores v 2.1 only turned games green with voluntary limits in the context that players could be advised that the game is green if they set an appropriate limit. According to GamRes this may have been confusing to many clients. In v.3.0 RG tools were more clearly integrated into the tool.

In another jurisdiction limits are mandatory; players were required to set them.

We have great success with mandatory loss limits, and of course you could argue that you should set the limit at the one that's going to be preventing problem gambling. It prevents people from losing a lot of money in a short time, and in addition it will also affect their behaviour because it's kind of a shock effect when you reach your limit, also affecting their behaviour. It's better to have a limit where you have a maximum amount than it is to be able to set limits where it's as high as you want, (PO7)

Although Gamgard certainly addresses loss limits, the point to be taken here is that it does not differentiate set up comparisons between voluntary and mandatory limits and to members of the community of practice this seems to be an important structural feature to know more about in the interest of RG practice. According to GamRes, all of the research on loss limits appears to be focused on voluntary limits.

While the concern was well articulated, it's not clear that this line of thinking was pervasive among those people interviewed. At issue is the transition from previous version to the current version of Gamgard, v 3.0. Associated with this was a communication issue which will be addressed later. Here it is noteworthy that questions were raised about the compatibility of v 2.1 and v 3.0 in terms of construct validity. This is observed when previously assessed game products emerged from version 3 assessment with a different, *generally higher risk profile*.

At [our company] we are questioning the use of Gamgard ever since [the transition to v 3.0] because ... if something was green or orange is now red; so the games we evaluated before no longer comparable to the new ones will be evaluated, and we have an issue with some items which are not game related. Really platform related. (PO4)

It should be noted that the majority of the interviewees were of the opinion that version transition issues were not really problematic for them. One operator mentioned his organisation's system for

rigorously and systematically storing Gamgard reports. He had a full collection of reports including some where Gamgard was applied to similar games with different versions. No concerns were expressed. The following quote, reveals that transitional discrepancies were handled as points of interest and worth exploring but not perceived to be particularly problematic:

Some of the 'yellow' products went into 'light red' which meant that our policy had to be checked and we had to see what we would do with those products that were coming into the minefield of the 'red' area. But we could handle that, so it was not a problem to use it when you change the kind of software, it was more the result that comes out of it." (PO2)

In the everyday I don't think [the transition has] created a problem, no. But of course we are aware of and we have looked at the games in the old version and we'll still been working with the application processes with the new versions. Well you have to live with that I think, that's my personal opinion. Some people might think it's a bigger problem but I've never heard of it." (He mused that it in the old version all games became green if you had the tool to 'set loss limit.' (PO6)

Another organisation, from the same jurisdiction (there may have been some discussion about this among colleagues), experienced this transitional outcome as well. It is important to clarify that a significant added feature of v 3.0 was the addition of four RG measures that can *lower observed risk rating* which seems to be a bit contradictory if not puzzling. It seems likely that the integration of voluntarily setting loss limits in the prior version (v 2.1) could have had a significant impact on the risk assessment. That issue seems to have been resolved with the v 3.0 added feature of lowering risk scores through the integration of RG strategies.

Another aspect of construct validity had to do with the relative applicability of Gamgard to live versus online games. While most operators are satisfied that Gamgard is measuring what it's intended to there is some modest debate about the live versus online context as we can see in the following exchange:

Is there a challenge with live games versus online games? No I really don't think so, ... With the new version you can actually click the safeguards that you've got in place. But online access anywhere? Anytime? That increases the risk factor. I think [Gamgard] does now really capture what you've got in place online to mitigate risk. *Do the four RG strategies apply equally well to live user communities?* I think for the most part they do apply just in the online context. (PO8)

Understanding context: An important consideration for construct validity is the shifting context for gaming evolving at a rapid pace due predominantly to technological advances in the industry. Of particular interest is the advent of online games, especially those that represent digitized versions of live games.

Absolutely, because when the online business started in Canada, before that ... this tool was okay for venues I guess. But now we have online lotteries, so in the grid you have if the event is happening every seven days and two points or whatever. And if its [now] three seconds then... Oh wow!" "Because if you're comparing a lottery ticket that you buy in a local store compared with an online

casino game that you can play every three or four seconds... Your kind of comparing apples and mashed potatoes, not even apples and bananas :-> (PO4)

I think the issue that were having is in gaming development what people require goes so quickly and on the research side of things Gamgard definitely tries to keep up with it but it's very difficult because the technology is developing so quickly. (PO12)

Another important consideration in terms of contextual shift, would be significant policy changes at the governance level. For example, in one jurisdiction legislation will soon be introduced to dismantle the state owned monopoly and open the market to outside providers who would be required to meet a number of quality control criteria. Such shifts of course require close attention by operators who now need to think strategically:

We welcome the new legislation because it means we will now compete on equal levels. Companies from outside the jurisdiction will have to meet same criteria for responsible gambling, different criteria that you have to follow there will be self-exclusion, there will be national exclusion, will be mandatory. (PO11)

State-of-the-art of research: As detailed below, Gamgard has a commitment to evolve and to best reflect contemporary research-based knowledge and evidence. A number of participants somewhat sceptically commented on the state-of-the-art research knowledge base and the extent to which it is aligned with and cognizant of pressing issues in the field. Several ideas emerged in this respect:

Size of the bets, many other things we have no research data. Not enough... To say if you're doing this you probably in the cause harm to the vulnerable players... It's common sense, until proven... (PO4)

In addition to Gamgard a participant mentioned his organisation has a long-term tool called 'Play Scan' which monitors all play activities and gives feedback about the risk level. Such a tool and its effects are of high interest in terms of their impact on practice. They can look for patterns such as whether feedback is provided on the basis of risk level. This seems like an important factor to monitor; continually followed could be whether the organisation RG strategies affected in high-risk players and "what would be the causes of the fall is it particular games is it marketing or what is it?"

One participant reflected on importance of researching the contextual changes that are being observed and of Gamgard maintaining its commitment to state-of-the-art knowledge:

The world is moving forward, we've had 10 characteristics since the tool was launched 10 years ago maybe there should be more. For example, what is the impact of bonuses, what is the impact of advertising? Sometimes you don't have to press the start button [as in the case of autopay],... what is the impact of that? In Gamgard you have four strategies to reduce risk 'limit money,' 'limit time', pop up warnings, [and the] monitoring system. What is the impact of having mandatory versus voluntary loss limit setting? You can reduce score by two points if you use a prevention tool; I think there should be more credits for mandatory use of such limits. But it hasn't been looked into terms of the research; sometimes you don't need to look at the research. (PO6)

Of course, Gamgard is generally used as only one part of a larger SR process for game risk assessment and perhaps some of these issues not covered by the current version of the tool are somehow assessed through the use of other tools and processes. As the final sentence of the foregoing comment suggests, in the absence of Gamgard data on these extraneous elements corporate developers and operators are forced to rely more on common sense. Meanwhile, there is little that the Gamgard tool developers can do in the absence of solid empirical research on gaming risk. It would serve all concerned for researchers to continue dialogue if not collaboration with expert practitioners in the interest of developing the knowledge base.

Many organisations used a range of additional tools to complement Gamgard scores. Using Gamgard in conjunction with other information is fully aligned with the tool's mission, but at the same time these elements may be understudied in the RG literature. One participant told of her organisations' commitments to two RG features. But she said that they've implemented many different RG strategies without even knowing if it's helpful or not. There is a sense that ongoing inquiry, if not action research, would benefit the situation:

We have no way of knowing such things as hanging flyers on the walls... Is [it] helpful at all? Let's measure that, see if people are using it. Let's ask whether or not it's useful, how can we improve that? We don't [need] to have *more* always, we want to have *better*. If this one is useless let's remove it and come up with something people can actually use and benefit from. (PO4)

Yes we use pilot groups and we have a development process. We have a responsible gaming framework around the development process. So we work on developing attractiveness of games but it's always within this RG framework (PO7)

Suggestions to improve validity: In ensuing sections on user satisfaction, and general suggestions for improvements. Provided here are suggestions to improve interpretations arising from scores on the tool; suggestions intended to enhance the validity of interpretations arising from Gamgard scores.

Some ambiguity in terms of duration between draws or how whether the games are continuous or not. There might be a better explanation in Gamgard about what that actually means... One sentence there, two sentences there, and if you're coming to it fresh [it can be beneficial] it doesn't really always mean the same thing to everybody. (PO8)

Yes but there are some differences regarding the items. There is no more possibility to compare results directly; you have to go into the results of the assessment to compare it because they added some new relevant points. (PO9)

[Gamgard should be good] for less structural characteristics and more intangible characteristics. For example, does the theme of the game appeal to children [It's a] judgment call not [a] hard and fast structural characteristic,... checklist can set these intangibles. [Tool developers] may even do pilot testing, focus groups, surveys and use such data to inform possible changes. (PO3)

There some responsible gambling features at the end of the evaluation, there just for different RG features and they are not matched to certain products, I mean they are obviously better for some

products than others, so I think that's somewhere they can do much better. They are very general, it's hard to differentiate across different products. (PO2)

Finally, one participant offered a realistic perspective regarding Gamgard's mission of transferring research-based knowledge to the community of practice.

I think the issue that were having is in gaming development; what people require [technologically] goes so quickly and on the research side of things Gamgard definitely tries to keep up with it but it's very difficult because the technology is developing so quickly. (PO12)

Other data streams

A review of the tools' website, user guides, historical documentation and studies supporting the ongoing development and evolution of the tool provides clear indications that risk factors and RG strategies included in the tool evidence-based. Several technical reports and original research studies carried out by Gamgard developers in support of identifying and justifying changes and updates to the tool were reviewed. Many of these inquiries included world renowned experts in the RG field, located in different jurisdictions globally. The general pattern of development has been to review extant empirical research (scoping studies), generate potential items of interest and then test them against the perceptions of informed experts and respondents. Such data feed directly into instrument development decisions.

I also observed the evolution of research summaries as new findings became available. The significant jump from v 2.1 v 3.0 – the major change being the inclusion of RG strategies – was supported by a very thorough review and integration of research-based knowledge that was published in a peer-reviewed outlet (Wood et al. 2014) as well as original empirical inquiry involving RG experts⁷. The suite of documents that I reviewed attests to the evidence-based credibility of the tool.

Table 5 provides an overview of the structural and situational risk characteristics integrated into Gamgard and associated descriptive statistics. A quick scan of the table reveals that item structures vary quite dramatically, this being attributable to the developers intentional item weighting strategy.

As a test of interrater reliability I compared user-generated and GamRes-generated risk scores within game types. Given the small sample size I was only able to compare ratings of online slot games for 9 user-ratings versus 11 GamRes-ratings. I therefore used the Mann-Whitney nonparametric test of group differences available in SPSS (v 24). The results showed no statistical difference between the two sets of ratings. This is admittedly a weak test of interrater reliability because raters did not independently rate the same games, they merely generated ratings within game type. Still, the results support the claim that there is a modicum of interrater reliability inherent in Gamgard ratings.

⁷ Data collected from expert reviewers were provided by GamRes for review.

Table 5: Descriptive Statistics for Gamgard Item and Total Scores (N=59)

Item	Mean/Median	SD/Observed Range	Comments
Base Total	Mn 55.0	15.9 23-79	Continuous variable
Adjusted Total	Mn 52.7	15.9 23-78	Continuous variable: Range 23-78
1. Event Frequency	Mdn 20	n/a 2-40	Ordinal variable: 10 options; Values: 0,2,4,6,8,16,20,28,36,40
2. Multi-game/stake opportunities	Mdn 2	n/a 2-6	Ordinal variable: 4 options; Values 0,2,4,6
3. Variable/fixed stake size	Mdn 4	n/a 2-6	Ordinal variable: 4 options; 2,4,6,8 Range 2-8 Note: a score of 4 results from recoding from V2.1 and earlier
4. Prizeback percentage	Mdn 6	n/a 2-6	Ordinal variable: 3 options 2,4,6
5. Jackpot size	Mdn 3	n/a 1-6	Ordinal variable: 7 options: 1,2,3,4,5,6,3 Note: option 7 scored 3
6. Near win opportunities	Mdn 0	n/a 0-4	Ordinal variable: 2 options: 0,4
7. Continuity of play	Mdn 6	n/a 0-10	Ordinal variable: 3 options: 0,6,10
8. Accessibility points	Mdn 10	n/a 2-10	Ordinal variable: 3 options: 2,6,10
9. Payment options	Mdn 6	n/a 0-6	Ordinal variable: 5 options: 0,1,2,4,6
10. Illusion of Control	Mdn 0	n/a 0-4	Ordinal variable: 3 options: 0,2,4

I then looked at external validity by extracting data from the service provider reports described above in Table 4. To conduct this analysis I rank ordered the six game types included in the Gamgard data file and then compared them with rank ordered game types in service provider reports. It should be noted that the service provider reports varied quite significantly in terms of how they reported game types, many of them lumping online games together. In such cases I gave the online games the same rank. Other service provider reports did not include reference to particular games of interest. This is likely due to accessibility issues. For example in SPR1 (Table 6) the sample was youth aged 18 years and under, and therefore not eligible to attend casinos. In another example SPR7, proximity to casinos in California was quite high and therefore brick and mortar casino games were much more prevalent among presenting problem gamblers.

In any case, Table 6 reveals the results of non-parametric spearmen rank order correlations. In most cases the correlations are high and in the expected direction, some of them being statistically significant despite the very low sample size. Taken as a whole, these results attest to Gamgard's external validity.

Table 6: Gamgard Risk Ratings against Service Provider Report Rankings

Game type	Gamgard Risk Score Rankings	SPR1 Brazil	SPR2 Canada	SPR3 Canada	SPR4 Canada	SPR5 Canada	SPR6 UK	SPR7 USA	SPR8 USA	SPR9 USA
Video Lottery	1. High	1-12.8%	3-0%	1-22	1-5.6	6-4.5%	1-26%	1.5-84.7%	X	2-4.5%
Online slots	2. High	X	X	3.5-5	2-2.9	2.5-29.3%	2.5-12%	1.5-84.7%	X	4.5-3.8%
Bingo online	3. Med-high	2-6.5%	1-2.3%	3.3-5	2-2.9	2.5-29.3%	4-1%	X	X	4.5-3.8%
Online scratch	4. Medium	4-0.1%	X	3.5-5	2-2.9	2.5-29.3%	5.5-0%	X	4-1%	4.5-3.8%
Casino online	5. Medium	X	X	3.5-5	2-2.9	2.5-29.3%	2.5-12%	4.5-0%	X	4.5-3.8%
Lotto draw games	6. Low	3-2.0%	2-2.0%	6-4	6-1.8	5-25.6%	5.50%	4.5-0%	1-11.4%	1-15.2%
Spearman Correlation	--	.80	-.50	.85*	.85*	-.17	.71	.89	-1.0	-.17

Note: See Table 4 for cross-reference with Service Providers Reports (SPR). SPR cell entries are Rank (1-6)-(% or N) *p<.05; X=missing data.

SPR1: Type of gambling participant engages with most frequently. (%)

SPR2: Participation of adolescents in commercial forms of gambling in last year.(%)

SPR3: Number of studies that found game type to be associated with problem gambling. (N) Online games not well differentiated.

SPR4: Past year gambling by activity for problem gamblers (%). Online games not well differentiated.

SPR5: Gambling activities reported by problem gamblers as a problem (%). Online games not well differentiated.

SPR6: Gambling activities reported by helpline users (%).

SPR7: Gambling activities reported by problem gamblers (%).

SPR8: Gambling activities reported by helpline users (%). Most reported live casino.

SPR9: Gambling activities reported by problem gamblers (%). Online games not well defined.

Summary

In summary, participants expressed a high degree of comfort in Gamgard's credibility in measuring risk factors and strategies to mitigate them. Some reported on how their creative use of Gamgard had led to some important insights with implications for practice, and that speaks to favourably to validity issues. However, a variety of concerns were elaborated by several participants. For many participants priorities looking forward include increased understanding of shifting contexts, and adaptations to the tool that will enable it to cover a broader range of risk characteristics and RG strategies. It is critical to recognize however that such developments for the tool must be on the basis of research evidence for Gamgard to maintain its commitment to research based knowledge transfer. Some participants shared quite specific feedback about suggested improvements that may benefit interpretations arising from Gamgard scores.

User satisfaction with Gamgard

Clearly, opinions about Gamgard's validity are tied to the more general concept of user satisfaction. Participants were forthcoming in elaborating about Gamgard's positive features and strengths, as well as potential limitations and weaknesses that go beyond the validity discussions presented above.

Perceived strengths of Gamgard and associated services:

Notwithstanding the validity considerations reported above, by far and away, comments about the strengths of Gamgard far exceeded the identification of drawbacks and limitations. To follow are string of comments that provide some sense of the principal strengths participants elaborated. This first set relates to Gamgard's scientific credibility and perceived objectivity:

For me one of the strongest is that we remove subjectivity from the process.... That he has a roster of experts to review it on a regular basis as a lot of credibility to it. (PO1)

In this business you meet a lot of people and they have all have subjective opinions, and 'that should not be allowed' and 'you should do that, and that, and that. We are looking for a tool that is objective as we can. And the best would be if everybody in the business also agreed that this is an objective tool and we use it in that way.'" (PO2)

I really like the consistency of the tool. Standardized approach, validated independent tool therefore is very valuable for us when we're looking at a particular game, or concept or idea. (PO5)

Other complementary remarks concerned ease-of-use, sometimes in the context of introducing novice users to the procedures associated with the tool.

It's quite straightforward. For example when we are using it with new members of staff who are learning to use the tool thereof see questions raised about the nature of our products in the categories and how they have been allocated. That can take a while to explain. (PO3)

But at the same time, ease-of-use can be a double edge sword as suggested by the same participant in continuing,

At the same time this may be one of the greatest weaknesses; it looks so easy it almost looks like there's no substance behind it which having been involved in the development process I know it's not necessarily the case. (PO12)

In developing v 3.0 GamRes introduced some new reporting features to the tool and these appear to have been well received:

I appreciate in the last version the clear display of results; it is complex but you have the chance to display the results on one page, the crucial things about the game, because you have to explain to people who are not so much involved. (PO2)

We are quite satisfied with the way they are presenting the results. I was really happy when I saw the way in the new release the final report is really, really nice. I have one folder in which I am printing and saving the previous reports. When you go and see how much over the years it's changed I think it's good. A good way to see how it has improved. (PO10)

I like the output it's hard numbers is unambiguous, and gives you a basis points to start these conversations and where you need to go from there because it's a metric that we can track over time ... That it is very difficult because it's not that easy to say how moving things are moving over time. Sales is easy to track, profit is easy to track, responsible gambling less so. (PO8)

This final remark pointed to particular application of the tool that involves tracking game performance over time. Gamgard generates a standard PDF report. I asked if operators would prefer to have access to the raw data from the Gamgard website so that they could conduct some of their own analyses, and explore hunches. No one was terribly drawn to that prospect.

We don't really need it. We give him the information and we receive from him the scores so I know what they're based on, we have what we need. We are usually quite happy with what we get back and if there are any discrepancies that are noted [GamRes] is very happy to get on the phone with us to discuss. (PO1)

Perceived limitations of Gamgard and associated services

One operator expressed that Gamgard is really good and helpful to them in preventing problem gambling. It is prospective from the game point of view. But it's not really looking at what the players are doing, the player's behaviours. This operator held the view that such a feature would enhance the power of Gamgard enormously.

Another participant was less than satisfied with RG options and considerations that are provided:

When you get to the point where it gives you options [to] think about it was a very diverse it felt like a standard list of things. And maybe this speaks to the responsible gambling industry may be really there's only a standard list of things to think about it didn't change depending on the risk profile, to just maybe if there some more ways of pushing your thinking forward in terms of responsible gambling standards. But again I'm not sure that this is really part of this tool's job. (PO8)

According to the following commentary it is important for users not to develop any allusions about Gamgard, and what it can accomplish, or false expectations. Her comment is not so much about a weakness of Gamgard, as it is about the proper use of the tool

Gamgard is very good at a certain stage in the game development process but it's not the holy Grail of making a judgment of whether a game is high risk, medium risk or low risk.... It's an early warning system, it's an early detection system, but in my opinion it's not there to base everything on your game development on Gamgard and scoring a get. (PO12)

A couple of respondents referred to communication issues with Gamgard services, specifically with regard to the transition from version 2 to 3 that has been discussed above. It was noted that that limited prior communications about the changes had some awkward consequences for the organisations in question.

The new version was launched without kind of a heads up to us. So then when the questions came from the business, we weren't well equipped to answer them. (PO1)

For us, the changeover came in the middle of a big project we are working on. So when we originally put through the games that we're looking at, and getting input from [GamRes], in between having that work done, getting approvals internally and from our shareholders, the new version came out and completely change the scoring. (PO1)

Two times in the past two years [GamRes] updated the tool or made changes to [it] without informing any of us and our colleagues in, our teams responsible for doing the evaluation were kind of in shock. (PO4)

Finally, and as mentioned above, some modest dissatisfaction was expressed about the lack of detail provided about expectations for self-assessment standards and procedures.

Summary:

Generally, identified strengths of Gamgard outweighed observed deficiencies. Scientific credibility, ease of use, and new enhancements to reporting features were seen positively, whereas an absence of focus on player behaviours, limited leverage for stimulating thinking about RG strategies, and some communications issues were identified as the weaknesses.

Potential Improvements

Many interview participants were forthcoming with suggestions to improve Gamgard. Some evidently give consideration to such improvement in advance of the interview, on occasion sending written feedback beforehand.

A content analysis on the suggested improvements in terms of higher-order categories appears in Table 7, below. Six main categories of improvements surfaced: uses of Gamgard, scaling and measurement issues, structural issues, tailoring, communications, and added counsel. Several of these are redundant with information presented above.

Table 7: Thematic Analysis of Suggestions for Improvement

Description	Suggestions: Supportive Evidence (verbatim quotations and paraphrasing).
<p>Uses of Gamgard: Recommended practices for the use of Gamgard</p>	<p>Have Gamgard evaluations done by an independent body like ... a certification company ... certification for integrity and other things. If it is an independent group we can say that the game we buy from a company in [Jurisdiction A] is using has been evaluated the same way in [Jurisdiction B].[This] would be an improvement on validity and relevance of Gamgard is a tool itself. (PO4)</p> <p>There could be a better guide as to how you score things. Not everything is straightforward, especially for new games, games that are not in the existing market. (PO6)</p> <p>It would be useful to have a user forum. It may be hard for operators to do this but, maybe. (PO6)</p> <p>The challenge is to have really clear descriptions of the characteristics of specific games. This is work that has to be done before it can use the tool, because one has to be clear for example about the price percentage. (PO2)</p>
<p>Scaling and measurement issues: Technical changes to either what and how risk factors and RG strategies are measured</p>	<p>One issue is payback ratios. Maximum payout in Gamgard systems is 70% and up. In the online industry and in horseracing and para-mutual betting, it's below 70%; everyone else is above 70%. Sports book is 90 to 96%; my betting could be 98%, casinos 97 to 98% pay back; those are way above 70%. Some lotteries are under 50% some lotteries are even increasing their payback ratios. (PO2)</p> <p>Jackpot sizes: currently this is variable jackpot sizes. Risk factor number 5, going up to 12.6 million. It's hard to know which one to [select]. Jackpot sizes could be sometime zero or sometimes 3 million. Should it be three points or should it be six points? That's a difference from yellow to red. (PO2)</p> <p>Some ambiguity in terms of duration between draws or how whether the games continuous are not, there might be a better explanation about what that actually means causes quite one sentence there, two sentences there, and if you're coming to it fresh... It doesn't really always mean the same thing to everybody." (PO8)</p> <p>The technology has passed Gamgard. The smart phone has been a real revolution in the gaming industry. Gamgard should be more applicable to smart phones and portable media. Continuity of play is one criterion. Having mandatory breaks can be part of that criterion. And also number eight accessibility points. It has a 'remote access' option; smart phones should be an option with higher weight. The mobile phone is a duplication of the Internet</p>

Description	Suggestions: Supportive Evidence (verbatim quotations and paraphrasing).
	<p>but the implication is you not carrying the laptop with you; the mobile is readily accessible.... This is a big chance for the developers this wealth to adapt the games to be able to play on a mobile device. Mobile applications part of this. The smart phone hence really increase the number of problem gamblers all over the world and in [our jurisdiction as well]. (PO11)</p> <p><u>Game continuity</u>, mandatory breaks have greater effect, can you play 24/7, different options depending on the game. Gamgard does not really capture that very well. This relates to accessibility, this is a smart phone issue. (PO11)</p> <p><u>Ability to pay</u>, accessibility to funds. Online or off-line game, this is a good example of why different versions for these different game types is important. (PO11)</p> <p>I am not sure where it is these days on the <u>question of skill</u>. I remember having a conversation about this, not illusion of control, really the element of skill and how that can impact the ability to navigate higher risk game. Elements of skill even if not for the entire game but elements of it. When we had this conversation before we had no really good empirical evidence on this matter. How can we make a skill that would help us judge risk in this case? You need additional research; Gamgard will not help you to understand these elements. (PO12)</p> <p>I know it's complicated but there could be some way to include bonus games in Gamgard. (PO8)</p>
<p>Structural considerations:</p> <p>Technical changes to Gamgard software and services</p>	<p>It would be amazing if you just press a button and say how does this game that I'm testing now stack up against all the games I've tested in the last year as a point of <u>comparison</u>. So we start to build up your own benchmark; that would be awesome if I could at the end of the year just download a report. (PO3)</p> <p>Another improvement could be <u>comparison</u> with the existing games. You could have comparison with other products within your documents. For example if you assess the instant ticket, and you arrive at 40 points you could compare this with another product with 40 points to see what kinds of changes have you made are adaptations to enhance RG, maybe there are some useful comparisons. This could speed up the process of finding out what responsible gaming practices to use. (PO11)</p>

Description	Suggestions: Supportive Evidence (verbatim quotations and paraphrasing).
	<p>It would be great to be able to <u>customize the output</u> so that you can essentially modify the report to show which you want to show, e.g., Remove pie chart. Be able to export individual graphs, individual table's. The whole thing is PDF not really customizable. Cannot really have access to the raw data once you click submit. (PO3)</p>
<p>Tailoring: Offering different versions of Gamgard for different game types</p>	<p>The main focus is to get it possible to differentiate, and to be more sensitive to <u>different game types</u>. (PO2)</p> <p>Because were only using it for the <u>online games</u>.... I don't know if it be possible to have, for example, "here's Gamgard for casino games, and here's Gamgard or grid for online games. That would really take into consideration that this is accessed 24 hours a day; ... [analysis] of features of online gambling that are very particular and should not be included in a general grid. Once you decide to apply the tool to online games you've already guaranteed that access will be 24/7. So take this out it's not measuring what is supposed to. (PQ4)</p> <p>We would want more RG measures that would be <u>live games</u>. All we need to consider this, because there are lot of RG measures and it would be good to know which of the important ones. It could be an extension or section within Gamgard that would focus more on typical characteristics of live games. A version tailored to live games including RG strategies. But from a scientific view, because it is important that there is theory behind it. (PO2)</p> <p>Maybe sometimes can be useful to have tools for just our games. ... Could be nice to have one tool for <u>para mutual themes</u> and another for fixed odds games because there may be little differences; [we are] not sure about the risk differences from the players point of view, but it might be interesting to evaluate these types of games differently.; could be tailored based on game type. (PO10)</p> <p>Will the games be offered in certain environments, like in [our jurisdiction] you need to have a <u>license for alcohol</u> in order to be able to offer VLT, so there should be a higher weight on that because alcohol and the game playing is more risky. You cannot offer VLT in a restaurant where there is no alcohol license. (PO11)</p> <p>What are the proposed responsible gambling features? What is the effect of using it? Need to expand into how/<u>to what extent will it be used</u>, 80%?, 60%? What will be the difference in effect? It's a kind of forecast. It would help to begin to be a bit more precise. (PO11)</p> <p>Close to winning opportunities, doesn't take into account the difference between a lottery ticket and a VLT. <u>Should</u></p>

Description	Suggestions: Supportive Evidence (verbatim quotations and paraphrasing).
	<p><u>there be different versions of Gamgard?</u> Yes maybe you're right, it would be much easier to define and ask all the questions, because now you have to consider online and off-line in both. And maybe it's a bit abstract in some cases. That's a really good suggestion. (PO11)</p>
<p>Communications: GamRes communications about the product and service</p>	<p><u>Communications</u>, not really sure how easy it is to figure out how to obtain a license for Gamgard. (PO12)</p> <p>Make more <u>marketing</u>, make more to promote Gamgard. [it] could clearer [about] what it would cost. Make it clear how to obtain a license. Make license and the services more visible. I think it could really do more on the marketing activities if I'm perfectly honest. (PO11)</p>
<p>Added counsel: GamRes to provide more advice /suggestions for RG actions</p>	<p>And maybe the system could even be as clever... When you reach a certain score with a certain product type that Gamgard should come up with a <u>list of suggestions</u> of tools that match that specific outcome. (PO2)</p> <p><u>Explaining why</u> the characteristics that have been included in Gamgard have been included so, for example, justification, even if it was just a short paragraph, explaining what the evidence base is. Explaining why speed of play is an important characteristic that we need to be concerned about, or why jackpot size might be a concern, or what the availability of the product might be a concern." [There is currently no such companion document] available. (PO3)</p> <p>[Designed more for casino games than horseraces] One way to solve that would be to have <u>better examples</u> because under each and every risk factor there's an example but they're not clear enough for all product types to know how to think. Either [put it] there [in the software] or in a manual. (PO2)</p> <p>Is it necessary to bring in external consultants or <u>second opinion</u>? Not sure how this can be added into Gamgard. A Control question? Or checkpoints? For example, do you need to think about bringing in a third opinion? [if there were] lots of recommendations [it would be really] good to have those; you can see it more obviously. This would help us to develop strategies to reduce risk. (PO11)</p>

It should be noted that these suggestions for improvement are in the words of members of the community of practice. How realistic they are will depend on a number of considerations including resources but most particularly the availability of research-based knowledge supporting content changes.

Summary:

In summary, this section lays out in the words of the interviewees what they would like to see as changes to Gamgard moving forward.

Issues for consideration

The report concludes with a set of issues for consideration recognizing that feasibility of concrete action associated with any of these depends on a range factors including resource availability, corporate priorities, and strategic planning. These issues are highlighted for future dialogue and discussion that will potentially inform ongoing development and application of Gamgard.

- **Continue to actively and systematically scan for research-based knowledge on risk characteristics as well as RG strategies.** Gamgard developers have a solid and respectable track record in this respect. However, many respondents are becoming increasingly aware of and concerned about perceived risk characteristics (structural and situational) that are not covered by Gamgard. Some of these are associated with technological developments, increasingly popular in the gaming industry. However, it is important to note that Gamgard can only be amended when new research evidence becomes available and research frequently lags behind technological developments.
- **Encourage corporate customer and regulatory agencies to sponsor research on risk characteristics and RG strategies.** Related to the foregoing issue for consideration, there is a need for ongoing empirical research to help grow the knowledge base in ways that would enable the identification and justification of changes to Gamgard structure and scoring. In some jurisdictions, the imposition of mandatory loss limits and player tracking capabilities provide good opportunities to add to the relevant knowledge base.
- **Market Gamgard for research purposes.** To date, Gamgard has been used in applied settings to assist corporate customers in enhancing their social responsibility game development and marketing practices. Given the imperative need for ongoing research on risk characteristics and responsible gambling strategies arising from shifts in context and technological developments, it would be beneficial make the tool available to researchers in order to help add to the knowledge base. Such a strategy may help to inform research designs on such things as the wider social repercussions of gambling; the influence of home environment of players; whether context or channel is a more significant precursor to problem gambling in the cases of some types of game rather than others.

- **Develop communication strategies.** Three considerations come to mind with respect to communications: (i) it would be useful to develop communication and marketing strategies for Gamgard that would help members of the community of practice including regulators to understand the strengths and limitations of the tool and how it can be used in conjunction with other social responsibility information to help inform game development and marketing decisions; (ii) for future iterations of Gamgard, a greater investment in communication to customers should be made than had previously been the case. Of particular concern would be implications for scoring and comparability from one version to the next; and (iii) the *Gamgard User Guide* could be expanded to convey expectations for best practice for corporate self-assessment. For example, suggestions to promote the involvement of multiple raters in game assessment and discussion of results could enhance not only score reliability and validity but also may feed into fruitful discussions about alternative applications (e.g., within-vertical as well as between-vertical comparisons) and RG choices to reduce risk.
- **Provide options for customer staff training and support:** Further to (iii) above, Gamgard developers may do well to consider expanding service provision to include training and professional development opportunities. The goal would be to enhance both staff facility with the tool and its valid and reliable application. Such capacity building options might include workshops, on-line videos or even an FAQ section on the Gamgard website.
- **Collaborate with operators to influence external product developers and regulators:** (i) Many of Gamgard's corporate customers are not in the business of game development. Rather, they purchase games for use and application in their jurisdiction, if they meet acceptable risk standards as at least partly determined by Gamgard assessments. These organisations have little power or influence over game developers to reduce game risk by introducing RG strategies, for example. (ii) In some jurisdictions regulators may not see the same value of the tool as would be the case with game developers and operators, and the latter have relatively little influence over regulators. Given the foregoing, it may be beneficial for Gamgard developers to work with some customers to lobby external game production companies to consider integrating RG risk reduction features into their products, or to work with others to communicate and justify to benefits of Gamgard to gaming regulators.
- **Invest in thorough metric analysis of the tool drawing from archival data as well as planned inquiry.** The present evaluation was limited by the availability of data and therefore findings, particularly with regard to reliability, are limited. It would be useful to access all archived/historical data that can be made available, much of it coming from corporate clients who would grant permission to use their (anonymized) data for this purpose. Seeking such permission would enhance the opportunity for more in-depth analyses. On the question of interrater reliability, it would be entirely useful to sponsor a formal study that would compare user-generated and GamRes-generated independent risk ratings of the same games across a range of game types that vary in risks posed to vulnerable players.

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Appendix 1a: Personnel

J. Bradley Cousins is Professor of Emeritus of Evaluation at the Faculty of Education, University of Ottawa and *Credentialed Evaluator* of the Canadian Evaluation Society (CES). Although Cousins has a great deal of experience with evaluation practice and evaluation capacity building, his principal interests are in research and scholarship on program evaluation including participatory and collaborative approaches, use, and capacity building. He received his Ph.D. in educational measurement and evaluation from the University of Toronto in 1988. Throughout his career he has received several awards for his work in evaluation, most recently the Paul F. Lazarsfeld award for theory in evaluation (AEA, 2008), and the 2011 Distinguished Scholar Award (SIG Research on Evaluation, AERA). He was Editor-in-chief of the *Canadian Journal of Program Evaluation* from 2002 to 2010 and served as Director of the Centre for Research on Educational and Community Services from 2010 to 2015.

Appendix 1b: Professional standards of practice

This evaluation was guided by the Joint Committee for Standards in Educational Evaluation—*Program Evaluation Standards* which are widely used in the global evaluation community and have been adopted by the Canadian Evaluation Society (CES) (Yarborough, Shulha, Hopson, & Caruthers, 2011). A summary of the standards – categorized by utility, propriety, feasibility, accuracy and accountability – is available at www.jcsee.org

Appendix 2a-i: Recruitment text -- GamRes assessment

Dear (name of contact person)

Greetings. I am writing to let you know that we have commissioned a 3rd party evaluation of Gamgard and to encourage your help and support. As you know, we are committed to the ongoing development and fine tuning of Gamgard to ensure its utility and effectiveness in assisting gaming companies to improve their products so as to enhance responsible gambling practises.

This year we have contracted with Professor Brad Cousins of the University of Ottawa in Canada, to conduct a 3rd party evaluation of the tool and associated services. Professor Cousins is a highly regarded evaluation specialist located at the Centre for Research on Educational and Community Services, at uOttawa (www.crecs.uottawa.ca).

If you are willing and able (and this is completely voluntary) you can help in two ways.

1. Consent to a Skype/telephone interview of about 40 minutes. Shortly Professor Cousins will be in touch with you via email to request your participation in a confidential interview about your experience with Gamgard. The interview would be confidential and arranged at a time that is convenient to you. Provided by Professor Cousins in advance of the interview will be a letter of informed consent that fully explains this aspect of the evaluation.
2. Provide me with your permission to share reports that GamRes has generated for you.

Rest assured that reports arising from this evaluation will withhold identities of participating individuals, organisations, and games as per Professor Cousins' commitment to professional standards of practise (specifically, [JCEE Program Evaluation Standards](#)).

Please get back to me at your earliest convenience with your decision about permission or if you have any questions or wish to discuss this project further. I look forward to hearing from you.

Sincerely, Richard Wood, PhD

Appendix 2a-ii Recruitment Text – Self-assessment

Dear (name of contact person)

Greetings. I am writing to let you know that we have commissioned a 3rd party evaluation of Gamgard and to encourage your help and support. As you know, we are committed to the ongoing development and fine tuning of Gamgard to ensure its utility and effectiveness in assisting gaming companies to improve their products so as to enhance responsible gambling practises.

This year we have contracted with Professor Brad Cousins of the University of Ottawa in Canada, to conduct a 3rd party evaluation of the tool and associated services. Professor Cousins is a highly regarded evaluation specialist located at the Centre for Research on Educational and Community Services, at uOttawa. (www.creecs.uottawa.ca).

If you are willing and able (and this is completely voluntary) you can help in two ways:

1. Consent to a Skype/telephone interview of about 40 minutes. Shortly Professor Cousins will be in touch with you via email to request your participation in an interview about your experience with Gamgard. The interview would be confidential and arranged at a time that is convenient to you. Provided by Professor Cousins in advance of the interview will be a letter of informed consent the fully explains this aspect of the evaluation.
2. Consider Professor Cousins' request for copies of any reports generated by you or your organisation that include Gamgard results.

Rest assured that reports arising from this evaluation will withhold identities of participating individuals, organisations, and games as per Professor Cousins' commitment to professional standards of practise (specifically, [JCEE Program Evaluation Standards](#)).

Please get back to me at your earliest convenience with your decision about permission or if you have any questions or wish to discuss this project further. I look forward to hearing from you.

Sincerely, Richard Wood, PhD

Appendix A2b-i: USER Letter of informed consent

Evaluation of Gamgard

TO: [Member of Gamgard customer organisation]

FROM: Brad Cousins, Professor Emeritus, CRECS, University of Ottawa
+1-613-469-4009; bcousins@uottawa.ca

I invite you to participate in a study designed to evaluate and improve *Gamgard* a tool that your organisation has used to assess game risks to vulnerable players under ‘normal’ playing conditions. I am asking you to consent to a Skype or telephone interview of about 40 minutes. Here are the details

What is the purpose of the study? Gamgard was initially developed in 2007 by GamRes Inc. and has continually undergone fine tuning and developmental adjustments. The purpose of this study is to independently assess the tool in terms of its functionality and effectiveness in helping organisations to ensure that their gaming products adhere to standards of responsible gambling. Specifically, I am seeking to know:

1. To what extent have Gamgard and its associated services met stated aims of assessing risk of specific games to vulnerable populations and informing game refinement and redevelopment in order to reduce risk?
2. Does the Gamgard tool produce evidence that is valid and reliable for the stated purposes?
3. To what extent are members of the user community satisfied with the use of the Gamgard tool and associated services? Do Gamgard results effectively feed into product development and refinement activities?
4. In what ways can Gamgard and its associated services be revised in order to enhance their effectiveness?

What will my participation involve? Your involvement will essentially consist of participating in a private Skype/telephone interview at a time convenient to you and about your company’s experience with Gamgard.

In order to ensure accuracy, I would like to audio-record the interview. I will not share the recording or its written summary with anyone else.

What are the risks associated with my participation? There are no risks to you or your organisation associated with your participation in this study. As described below, information that

you provide will be treated in confidence, and names of individuals and organisations providing input will be withheld from any reports.

What are the benefits associated with my participation? The information that you provide, once analysed in aggregate form, will greatly assist the developers of Gamgard in improving the tool and its associated services. This in turn will help gaming companies and producers to enhance the extent to which their products align with recommended responsible gambling practices.

Will the information I provide remain confidential? The information that you provide will be available only to me, the principal investigator for the study. The information will be pooled with interviews of other individuals and analysed in an aggregate form. While reports arising from the study will include verbatim quotations from some of the persons interviewed, in no way will these excerpts reveal the identity of participating individuals or organisations.

How will the information I provide be conserved and for how long? The audio recordings and summaries that I generate from them will be maintained on my personal, password protected computer. In keeping with standard research practice I will keep these files for a period of five years following the completion of the study, following which they will be deleted.

Will I be compensated for my participation? Persons participating in the study will not be compensated monetarily or otherwise. I greatly appreciate your generosity in giving up some of your time to provide input for the study.

Is my participation voluntary? Your participation is absolutely voluntary and you may withdraw from the study at any time.

Acceptance: I, (*Name of participant*), agree to participate in the above research study conducted by Brad Cousins of the Centre for Research on Educational and Community Services, University of Ottawa

If I have any questions about the study, I may contact Brad Cousins at the telephone number or email address listed above.

I commit to sending a signed version of this letter to Professor Brad Cousins at the following address bcousins@uottawa.ca

Participant's signature: (*Signature*)

Date: (*Date*)

Researcher's signature:

Date: (*Date*)

Appendix 2b-ii: REGULATOR Letter of informed consent

Evaluation of Gamgard

TO: Member of Gaming Regulatory Agency

FROM: Brad Cousins, Professor Emeritus, CRECS, University of Ottawa

613-562-5800ext4036; bcousins@uottawa.ca

I invite you to participate in a study designed to evaluate and improve *Gamgard* a tool that companies use to assess game risks to vulnerable players under ‘normal’ playing conditions. I am asking you to consent to a skype or telephone interview of about 40 minutes. Here are the details

What is the purpose of the study? Gamgard was initially developed in 2007 by GamRes Inc. and has continually undergone fine tuning and developmental adjustments. The purpose of this study is to independently assess the tool in terms of its functionality and effectiveness in helping organisations to ensure that their gaming products adhere to standards of responsible gambling. Specifically, I am seeking to know:

1. To what extent have Gamgard and its associated services met stated aims of assessing risk of specific games to vulnerable populations and informing game refinement and redevelopment in order to reduce risk?
2. Does the Gamgard tool produce evidence that is valid and reliable for the stated purposes?
3. To what extent are members of the user community satisfied with the use of the Gamgard tool and associated services? Do Gamgard results effectively feed into product development and refinement activities?
4. In what ways can Gamgard and its associated services be revised in order to enhance their effectiveness?

What will my participation involve? Your participation will consist essentially of participating in a private Skype/telephone interview at a time convenient to you and about your company’s experience with Gamgard.

In order to ensure accuracy, I would like to audio-record the interview. I will not share the recording or its written summary with anyone else.

What are the risks associated with my participation? There are no risks to you or your agency associated with your participation in this study. As described below, information that you provide will be treated in confidence, and names of individuals and organisations providing input will be withheld from any reports.

What are the benefits associated with my participation? The information that you provide, once analysed in aggregate form, will greatly assist the developers of Gamgard in improving the tool and its associated services. This in turn will help gaming companies and producers to enhance the extent to which their products align with recommended responsible gambling practices.

Will the information I provide remain confidential? The information that you provide will be available only to me, the principal investigator for the study. The information will be pooled with interviews of other individuals and analysed in an aggregate form. While reports arising from the study will include verbatim quotations from some of the persons interviewed, in no way will these excerpts reveal the identity of participating individuals or organisations.

How will the information I provide be conserved and for how long? The audio recordings and summaries that I generate from them will be maintained on my personal, password protected computer. In keeping with standard research practice I will keep these files for a period of five years following the completion of the study, following which they will be deleted.

Will I be compensated for my participation? Persons participating in the study will not be compensated monetarily or otherwise. I greatly appreciate your generosity in giving up some of your time to provide input for the study.

Is my participation voluntary? Your participation is absolutely voluntary and you may withdraw from the study at any time.

Acceptance: I, (*Name of participant*), agree to participate in the above research study conducted by Brad Cousins of the Centre for Research on Educational and Community Services, University of Ottawa

If I have any questions about the study, I may contact Brad Cousins at the telephone number or email address listed above.

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5 Tel.: (613) 562-5387 Email: ethics@uottawa.ca

I commit to sending a signed version of this letter to Professor Brad Cousins at the following address

Scanned/electronic version: bcousins@uottawa.ca

Hardcopy version: CRECS, University of Ottawa, VNR 5002G, Ottawa, ON, Canada K1N 6N5

Participant's signature: (*Signature*) Date: (*Date*)

Researcher's signature: (*Signature*) Date: (*Date*)

Appendix C-1: Gamgard Evaluation Interview Guide for USERS

1. How long has your company existed? What sorts of games does your company develop/market?
2. How did your company become aware of Gamgard? What prompted your company to become a Gamgard customer? When did you initially use the tool?
3. Describe your use of Gamgard.
 - How many games have you assessed or had assessed using the tool? Over what period of time?
 - Do you rely on GamRes external assessments? Self-assessments? A mixture? Explain.
4. What aspects of the Gamgard process, if any, do you find to work particularly well? Why? (*differentiate external and self-assessments*)
 - Defining game characteristics
 - Scoring games
 - Interpreting results
 - Identifying design options/changes
 - Reporting
5. What aspects of the Gamgard process, if any, might be improved? How? Why? (*differentiate external and self-assessments*).
 - Defining game characteristics
 - Scoring games
 - Interpreting results
 - Identifying design options/changes
 - reporting
6. In what ways, if any, have your gaming development processes and products benefited from the use of Gamgard? To what extent did such benefits meet with your expectations? Why?

- Increased understanding of RG characteristics
 - o GamRes provided updates on research
- Enhanced developer sensitivities to RG risk factors
- Existing game alterations/decisions:
 - o Redesign: Improved balance of RG and fun
 - o Termination/abandon: decisions to withdraw game
- Reduced corporate risk / increased market protection
- Meeting WLA level IV certification requirements for RG design
- 7. IF SELF ASSESSMENT: Could you share with me corporate reports that integrate game Gamgard results (to be used on a confidential basis).

- 8. Other comments?

THANK YOU SO MUCH FOR YOUR TIME AND INPUT!

Appendix C-2: Gamgard Evaluation Interview Guide for REGULATORS

1. How long has your organisation existed? Describe its principal roles and functions.

2. How did you and/or your organisation become aware of Gamgard?

3. Describe your knowledge of Gamgard uses and applications in your jurisdiction.
 - How many companies do you believe have used the tool? How many games have been assessed? Over what period of time?
 - Have the assessments been predominantly done by GamRes as external assessments? To what extent have companies used Gamgard for self-assessments of their own products? A mixture? Explain.

4. What aspects of Gamgard, if any, do you believe work particularly well? Why?
 - Defining game characteristics
 - Scoring games
 - Interpreting results
 - Identifying design options/changes
 - Reporting

5. What aspects of Gamgard, if any, might be improved? How? Why?
 - Defining game characteristics
 - Scoring games
 - Interpreting results
 - Identifying design options/changes
 - Reporting

6. On a scale of 1-5, To what extent, if any, has the gaming industry in your jurisdiction benefited from the use of Gamgard? (1-5)

- Enhance general understanding of RG risk factors (1-5)
- Increase game developers sensitivities to RG risk factors (1-5)
- Support game developer redesign and/or abandon decisions (1-5)
- Minimise harm to persons who are vulnerable to develop gambling problems? (1-5)
- Minimise losses from disordered players? (1-5)
- Balance RG with fun in game development? (1-5)
- Maintain corporate reputations as conscientious and responsible gaming operators? (1-5)
- Integrate ongoing research findings into RG practice (1-5)

7. Other comments?

THANK YOU SO MUCH FOR YOUR TIME AND INPUT!