

Revealing Gambling's Grey Literature

by

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ABSTRACT

Governments that have legalized gambling bring in billions of dollars in revenue from this risky, harmful product, and direct a small fraction of that revenue to gambling research intended to help mitigate those harms. Most of this research is published as grey literature. I ask the following questions in three chapters: Does gambling grey literature cover topics that best help minimize harm? Is gambling grey literature reused? And is gambling grey literature rigorous?

Chapter One is a systematic mapping review of 1,189 research reports from Canada and three similar countries, and reveals that governments rarely investigate the effective public health policy measures that might jeopardize gambling revenues, unless legislated to do so. Chapter Two is a citation analysis of recent gambling review articles. Despite the large body of gambling grey literature, it is underrepresented in reviews compared to other domains, and search methods fall short of best practices. Chapter Three explores gambling grey literature's rigour through in-depth interviews with gambling researchers. We learn that gambling's grey literature is of comparable quality to its academic publications, but also that standards of its academic publications are relatively low.

In sum, gambling researchers face several barriers to producing and accessing research that will effectively prevent gambling harm and promote public health. The thesis concludes with individual- and system-level suggestions for how to improve the gambling research environment and produce higher quality research to guide ethical gambling regulation.

PREFACE

The gambling grey literature data collected for this thesis is currently also being used for a larger collaborative research project, led by Dr. Fiona Nicoll at the University of Alberta, examining both primary literature and grey literature on gambling. This has resulted in two co-authored publications involving the present gambling grey literature dataset:

Baxter, D. G., Nicoll, F., & Akcayir, M. (2021). Grey literature is a necessary facet in a critical approach to gambling research. The Grey Journal, 17(3): 155-164.

Baxter, D. G., Nicoll, F., & Akcayir, M. (2021). A protocol for identifying gambling grey literature for systematic and scoping reviews. Alberta Gambling Research Institute Annual Conference: Virtual Conference, Apr. 27-29.

These two publications are cited in this thesis to illustrate basic differences between the two bodies of literature, but otherwise the work of those publications and the larger project are not presented in this thesis.

The citation analysis project presented in Chapter Two of this thesis was previously published in the following sole-authored article:

Baxter, D. G. (2022). Grey literature citation and inclusion rates in gambling review articles: Opportunities for improvement. The Grey Journal, 18(2): 95-110.

The introduction, reporting of the results, and the discussion in Chapter Two are substantially changed from the published article to fit the political science audience of this thesis.

The interviews conducted for Chapter Three and quoted throughout the thesis were approved by the University of Alberta Research Ethics Board, Project Name “Revealing Gambling’s Grey Literature” (Pro00107486). Pseudonyms are used for all quotes.

DEDICATION

This thesis is dedicated to the gambling research community. I hope I have adequately characterized your efforts and challenges and have made some small contribution to your genuine endeavours to reduce harm from commercial gambling.

ACKNOWLEDGEMENTS

Completing a graduate thesis entirely during the COVID-19 pandemic was an isolating and often unpleasant endeavour. I have many people to thank for making my success possible.

Thank you to the Alberta Gambling Research Institute for the graduate scholarship to pursue this project. It takes courage for a gambling research sponsor to fund a critical political study of gambling research sponsorship. This research project also would not have happened without Dr. Rachel Volberg. Early in my work in gambling research I had a conversation with her about gambling reports set me on this course to better understand and educate about gambling research published as grey literature. I must also acknowledge my former employer GREO and in particular Dr. Margo Hilbrecht. My work on GREO's Research Snapshot program allowed me to build the network that made the interview portion of this project possible.

A big thank you to my supervisor Dr. Fiona Nicoll for inviting me to work with her and supervising a project of primarily library and information science methods. You helped me develop skills as a political researcher and expertly pushed me through times of severe doubt. It will take some time for me to adequately express my gratitude. Thank you also to our colleague Dr. Murat Akçayır for your enthusiastic collaboration, and for together with Fiona helping to conduct my interviews. It is hard to believe we never met in person!

I sincerely thank Dr. Ruth Herd and the 21 anonymous interview participants for their generosity in sharing their experiences with me despite the challenges of the pandemic. I felt like I had another 22 teachers, which is more than anyone could ever ask for.

From what I was able to see of it, the UofA Department of Political Science is a strong and positive community. Thank you to Dr. Jared Wesley and Dr. Yasmeen Abu-Laban for your

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INTRODUCTION

*Sometimes, but reasonably rarely, grey literature is like diplomacy:
“war by other means.”
–John, Australia*

This thesis investigates the poorly understood “grey literature” of gambling research. Commercial gambling is a growing public health concern and much of the gambling research that governments fund is published in government reports rather than academic journals and books. Although grey literature research may be heeded by the commissioning organization and is often freely published, it is not indexed in most scholarly databases which makes it difficult for the research to be discovered and reused by other researchers and policymakers. This limited dissemination also creates the impression that the research is lower quality because it is not “published” in the traditional academic peer-reviewed channels. However, the quality of this research has not been investigated.

LITERATURE REVIEW

Gambling as a public health issue

Commercial gambling is expanding in many countries and gambling is increasingly viewed as a public health issue (Price et al., 2021). Commercial gambling has been called a “dangerous commodity” similar to tobacco or alcohol, where the product presents addiction issues and other social harms that are disproportionately borne by “vulnerable communities”, i.e., those already experiencing other social or economic disadvantages (Markham & Young, 2015). Harm from expanding commercial gambling is appropriately viewed through the critical public health lens of commercial determinants of health, defined as “strategies and approaches used by the private sector to promote products and choices that are detrimental to health” (Kickbusch et al., 2016). In order to realize changes to gambling policy that will actually protect the health of

the public, we must overcome the rhetorical tactics of gambling corporations to maintain the status quo of gambling expansion, which include sophisticated marketing campaigns, political lobbying, and libertarian rhetoric (van Schalkwyk, Petticrew, et al., 2021). A recent national study in Canada found that 0.6% of the population met screening criteria for problem gambling, with another 2.7% being classified as “at-risk” gamblers (Williams et al., 2020). Problem gambling is more prevalent in poor and racialized communities (Abbott et al., 2004), and in North America is most prevalent in Indigenous populations (Williams et al., 2011).

Many others are harmed by gambling besides those with gambling problems: one person’s problem gambling negatively impacts their close relations (Goodwin et al., 2017), and there are many more people who gamble and experience gambling-related harms but do not reach the threshold for a clinical diagnosis of problem gambling (Browne et al., 2016).

It is important to study gambling through a political science lens because of the unequal distribution of harms resulting from regulatory decisions about where and how gambling opportunities are supplied. Electronic Gambling Machines (EGMs, i.e., slot machines) are the form of gambling most associated with gambling harm (Binde et al., 2017; Mazar et al., 2020), and geographical studies have found EGM density to be positively correlated with socio-economic deprivation (Raisamo et al., 2019; Wardle et al., 2014), and bankruptcy (Badji et al., 2020; Goss & Morse, 2004). Until the mid 1980s casino floors primarily consisted of table games with slot machines as a side attraction, but by 2003 EGMs grew to dominate casino floors, accounting for approximately 85% of casino profits (Schüll, 2014, pp4-5).

A 1997 Canadian report on the public costs and benefits of gambling predicted that while provincial governments would benefit from increased revenue from casino creation, the municipalities hosting those casinos would be the “losers” bearing the brunt of the costs and

harms (Smith & Azmier, 1997). One study specifically found that proximity to a casino reduces a community's social capital and that casinos tend to be found in communities with low social capital (Griswold & Nichols, 2006). With gambling in Canada being regulated at the provincial level and casino expansion being led by provincial gambling corporations, this suggests a NIMBYism issue: most communities do not want a casino, but rich communities have the means to resist having gambling foisted upon them. For this reason, critical gambling scholars have suggested that the marginalized populations experiencing higher gambling availability and thus higher rates of gambling harms are not “vulnerable”, but rather “targeted” through local casino developments as well as the marketing and promotion of gambling products (Nicoll, 2019). This speaks to the broader political role the state plays in the regulation of dangerous commodities such as gambling.

Political challenges in gambling research

These political issues about commercial gambling extend into how gambling research is conducted (Livingstone et al., 2018). McGarity and Wagner (2008b) describe how private corporations use unethical tactics to “bend” science on policy-relevant topics to serve their interests, giving many examples from other dangerous commodity industries including tobacco and drugs with harmful side effects. These tactics include commissioning research designed to find favourable outcomes, waging PR campaigns that cast doubt on credible studies and researchers, and creating expert advisory groups comprised of industry representatives. Empirical investigations into the bias of industry-sponsored research are most mature in tobacco, where the WHO has created policies and briefs regarding industry interference (World Health Organization, 2012), and are also well-developed and circulated for alcohol (McCambridge & Mialon, 2018) and sugar (Bes-Rastrollo et al., 2014).

However, when it comes to gambling research, critical appraisals of conflicts of interest are still nascent. An international multidisciplinary panel of gambling research experts agree that there are a variety of cultural, social, psychological, biological, political, and gambling-specific factors that contribute to harmful gambling (Hilbrecht et al., 2020), but in practice, gambling research is heavily focused on the psychology of individual gamblers through the lens of “responsible gambling” (RG). The Reno Model of Responsible Gambling (“the Reno Model”) was published in 2004 as a framework for “industry operators, health service and other welfare providers, interested community groups, consumers and governments and their related agencies” to meet their collective responsibilities to realize responsible gambling initiatives (Blaszczynski et al., 2004, p. 301). Gambling researchers are mentioned in the Reno Model as responsible for accurately conceptualizing, measuring, and reporting gambling harm, but are not considered “key stakeholders” responsible for actually reducing gambling harm. The Reno model has two axioms for RG programs:

(1) the ultimate decision to gamble resides with the individual and represents a choice, and (2) to properly make this decision, individuals must have the opportunity to be informed. Within the context of civil liberties, external organizations cannot remove an individual’s right to make decisions. (Blaszczynski et al., 2004, p. 311).

Thus, the Reno Model’s position is that every opportunity to decide to gamble is a civil liberty that should not be infringed upon, so anyone who endorses this model would not pursue or investigate changes to gambling product supply or design that would appreciably reduce gambling availability or revenue.

Although it implicates many stakeholder groups, the Reno Model has been criticized for primarily framing the responsibility for gambling harm on the individuals doing the gambling (Hancock & Smith, 2017a). Stated another way, the Reno Model acknowledges several groups’

responsibilities but in practice most research examines the aspects which are the individual gamblers' responsibilities, resulting in ineffective policies for addressing gambling harm. This critique was a flashpoint that yielded five response commentary articles, including an incendiary response from the original Reno Model authors (Shaffer et al., 2017), and a response to the commentaries calling for a robust public health approach (Hancock & Smith, 2017b). Subsequent empirical studies support Hancock and Smith's critique: industry-led RG campaigns, which invariably focus on individual responsibility, are not effective at preventing harmful gambling (Chóliz & Marcos, 2022; van Schalkwyk, Maani, et al., 2021). In addition to being ineffective they also have negative effects in that they reinforce the notion that avoiding gambling harm is a personal responsibility (Savard et al., 2022), which in turn reinforces negative stereotypes and self-stigma for people experiencing problem gambling (Miller & Thomas, 2017, 2018).

Thus, many in the gambling research community is currently polarized into one of two camps regarding its purpose:

- The Reno Model camp, mostly in psychological scientific disciplines (i.e., psychology, psychiatry, and neuroscience), who believe gambling research should describe and minimize gambling harm at the individual level through RG interventions that don't reduce gambling availability.
- The regulation camp, including public health disciplines, who believe gambling research should minimize gambling harm through active public health policy interventions targeting the whole population.

Although not always framed as such, this argument aligns with broader positions on neoliberalism, where the Reno Model aligns with neoliberal values of deregulation.

There have been some empirical investigations to inform these debates about the biasing effects of gambling research funding sources. The 2013 "Fair Game" report found that most funding for gambling research is mediated through specialized agencies with vested interests,

and that researchers were pressured to research politically “safe” topics such as problem gambling instead of broader issues that implicate how gambling is provided (Cassidy et al., 2013). This narrow focus of psychological and psychiatric perspectives on problem gambling was replicated in two bibliometric mapping reviews of thousands of gambling research articles, one of which I led (Akçayir et al., 2021; Baxter et al., 2019). Only two quantitative empirical reviews of gambling research have specifically investigated the effect of gambling industry funding on research bias and found no significant differences between industry and non-industry funded research (Ladouceur et al., 2019; Shaffer et al., 2019). However, these studies were themselves directly funded by the gambling industry and should be interpreted with caution: On the topic of another harmful commodity, sugar, systematic reviews that had a financial conflict of interest with the food industry were five times more likely to find no relationship between sugar consumption and weight gain compared to reviews with no industry conflict of interest (Bes-Rastrollo et al., 2014).

The above reviews all share a significant limitation: they only review research published in journal articles and exclude the research evidence published in academic books and the grey literature. Scholarly books on gambling, while important, are few and far between because gambling research is dominated by the health sciences and psychological sciences, disciplines which strongly favour journal articles over other forms of publication when compared to the humanities and social sciences (Nederhof, 2006). However, due to the funding structures of gambling research, a significant portion of gambling research is published as grey literature (Baxter et al., 2021a), and yet this body of research is often ignored in debates between the two gambling research camps, thus warranting the present investigation.

Grey literature and gambling research

“Grey literature” is a concept devised in the discipline of library and information science (LIS), referring to documents that are challenging to find and manage due to the way they are published. The definition of grey literature most recently adopted by the International Conference on Grey Literature—the “Prague Definition”—is as follows:

“Grey literature stands for manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by library holdings or institutional repositories, but not controlled by commercial publishers i.e., where publishing is not the primary activity of the producing body.” (Schöpfel 2010)

The essence of grey literature is sufficient quality paired with limited distribution, which makes its management and discovery more challenging and labour intensive.

Grey literature publications include both “knowledge translation” materials (Grimshaw, 2010) of previously published academic research (e.g., a consumer health brochure) as well new knowledge creation (e.g., a research report self-published by a project sponsor). Together, both types of grey literature form a valuable complement to the primary academic literature as they can cover different topics, provide different levels of detail, and are often free, among other benefits (Bonato, 2018; Gul et al., 2020).

Examples of gambling research published as grey literature include research reports, white papers, or bulletins published by governments, NGOs, and industry trade organizations. Gambling as a field of study has a strong tradition of publishing research as grey literature because governments often sponsor gambling research programmes when they legalize or expand gambling, and the research is normally published in government reports. The total body of gambling grey literature is quite sizable: My systematic search of gambling grey literature published in Australia, Canada, New Zealand, the United Kingdom and the United States found

that grey literature comprises over 22% of total gambling research publications (Baxter et al., 2021b). For that analysis, Canada, USA and the UK were selected because they are the three largest producers of gambling journal articles in English, while Australia and New Zealand were added as they also have strong sponsored gambling research programmes and international collaborations with the other three nations. This thesis continues investigation of Canada, Australia, New Zealand and the UK¹.

Concerns about gambling grey literature

Because grey literature complements the “primary literature” of academic journal articles and books, it is an established best practice in health sciences to include grey literature in scholarly knowledge syntheses² such as systematic reviews³ (Hopewell et al., 2007). Guidelines have been developed for systematic searches of grey literature, however it is still often excluded from knowledge syntheses because it is labour intensive and requires specialized knowledge to search it thoroughly (Godin et al., 2015). This exclusion is likely to persist in the gambling field specifically, where the only two available umbrella reviews⁴ found gambling systematic reviews to generally be of poor methodological quality (McMahon et al., 2019; Velasco et al., 2021).

¹ The USA was excluded from this thesis for scope as the nation with the lowest proportion of grey publications on gambling and a complex array of gambling policies and provision, from prohibition to deregulation.

² “knowledge synthesis” refers to “the contextualization and integration of research findings of individual research studies within a larger body of knowledge or topic”. Knowledge syntheses can take the form of scholarly review articles geared towards academic audiences, or in other formats (often published as grey literature) geared towards non-academic audiences such as policy makers, practitioners, or the general public (Grimshaw, J. (2010). *A guide to knowledge synthesis: A knowledge synthesis chapter*. <https://cihr-irsc.gc.ca/e/41382.html>)

³ “systematic review” refers to a type of review article where the authors search for, summarize and critically appraise *individual research studies* on a relatively specific topic by employing a formalized, comprehensive, reproducible literature search method (see Grant & Booth, 2009)

⁴ “umbrella review” (sometimes called “review-of-reviews”) refers to a type of review article where the authors search for, summarize and critically appraise *other review articles* on a topic by employing a formalized, comprehensive, reproducible literature search method (see Grant & Booth, 2009).

The quality of grey literature can vary widely due to the sheer range of organizations that produce it. Much of it does not undergo the same blind peer review process that is expected of academic journals, but some organizations, for example the Intergovernmental Panel on Climate Change, employ very rigorous scientific methods and review processes for their publications. The “Shades of Grey” model can be used to estimate the credibility of grey document based on two factors: 1) the reputation of the organization that produced it, and 2) the amount of editorial effort and control that went into the document (Adams et al., 2017). More is better on both factors. Some industry-funded gambling researchers and research organizations have cast doubt on the trustworthiness of gambling grey literature (Ladouceur et al., 2017; Reilly, 2017), however these arguments are based on an erroneous and irrelevant characterization of grey literature as never being peer-reviewed, and a conflation of grey literature with “file drawer” studies that are not published anywhere (see Rosenthal, 1979).

Although the editorial rigour of gambling grey literature has not been investigated before this thesis, doubt about its overall quality is not grounds to exclude it from systematic reviews; it is the responsibility of the authors of a systematic review to assess the quality of all in-scope studies they can find. It is likely, however, that the exclusion of grey literature from gambling review articles would likely result in missing relevant studies. My thematic analysis of recent gambling research found that, while there was some overlap in topics covered in both journal articles and grey literature, studies published as grey literature tended to focus on broader population health and well-being aspects of gambling, whereas studies published as journal articles tended to focus on the individual characteristics of people who gamble (Baxter et al., 2021a).

Since the grey literature professional community is based in the LIS discipline, most research on the topic of grey literature is concerned with how it is managed, retrieved, and evaluated. There is very little research on what motivates academic researchers to produce grey literature. Most research on the topic of grey literature motivations has been produced by one research group and is confined to the field of marine conservation (Cossarini et al., 2014). An important issue in grey literature production is that it often does not count as a publication in the “publish or perish” model of academic assessment. A recent survey of university faculty from various disciplines found broad variation in how grey literature is produced across different disciplines (Cooper et al., 2019). A subsequent semi-structured interview study from the same research group found that faculty most often produce grey literature because of the faster publication process (i.e., preprints), and/or to communicate research findings to the public (Marsolek et al., 2020). These studies did not focus on the types of grey literature prevalent in gambling research (i.e., technical reports for governments, NGOs, or think tanks), so there remains a gap in knowledge as to why gambling researchers produce grey research.

RESEARCH QUESTIONS

1. Does government-sponsored gambling grey literature investigate potential harm reduction interventions, or merely describe the nature and extent of gambling? When interventions are studied, do they tend to be public health policy responses to gambling, or “Reno Model” approaches that address gambling harms at the individual level? Do these outputs differ when the research is sponsored by different government departments?
2. Do systematic review articles on gambling follow the established best practices of including grey literature in their search strategies? Are appropriate sources of grey

literature searched? Is grey literature adequately represented as a result of current practices?

3. What are gambling researchers' opinions on the methodological rigour and editorial processes of gambling's grey literature compared to academic journal articles and books on gambling?
4. For gambling researchers, what are the costs and benefits of producing gambling grey literature rather than focusing exclusively on producing academic publications?

GOALS AND ORIGINAL CONTRIBUTION OF THESIS

Gambling's grey literature is poorly understood beyond the local knowledge of the groups that produce or commission it. This thesis aims to create a holistic understanding of gambling's grey literature by collecting and presenting evidence from four comparable countries where gambling expansion has stimulated production of gambling grey literature.

The findings will support policymakers in gambling and related fields by providing a broader evidence base to inform policymaking. The inclusion of Indigenous publications and approaches to gambling harms may reveal innovative and otherwise overlooked policy options.

The findings are also instructive for the gambling research community in three ways. The systematic search methods and results supports researchers who know the value of grey literature but do not know how to find grey literature they are not aware of. Secondly, a comprehensive mapping of sponsored grey literature will provide empirical evidence to advance retrenched debates in the gambling research community about the effects of sponsors' conflicts of interest on the chosen approach to addressing gambling harm. Thirdly, by expanding the perspective of research disciplines that can be applied to gambling, this work helps to create more space for

humanities and social science approaches, including political science, to contribute to a field that has been dominated by psychology, psychiatry, neuroscience, and health sciences.

This work lays a foundation for further comparative political science scholarship by carefully cataloguing the dominant themes of gambling research funded by different governments. Research programmes can indicate a government's values and aspirations in a way that implemented policies do not. Gambling research is just one aspect of governments' complex and conflicted relationship with legalized gambling, wherein they are dependent on gambling revenues while also having a duty of care to those who are harmed by gambling expansion. Adams (2016) describes this as "moral jeopardy", which "is generated when individuals or organizations opt to accept the proceeds from addictive consumptions in ways that [...] jeopardize their purpose, autonomy and integrity" (p. 40). For a stark gambling example,

"[In Victoria, Australia], by 2009, the proportion of state tax income from gambling had crept up to 13 percent [...] It would take an exceedingly brave state government to sell to their public other forms of taxation to offset major dips in problem gambling" (p. 43)

In practice, this does not play out well. It is well documented that in the United States, state lotteries are deployed and targeted to poor Black communities to avoid increases to income or property taxes that would affect richer citizens (Hendricks & Embrick, 2016).

The diffusion and individualization of responsibility for preventing gambling harm proposed by the Reno Model and enacted in many neoliberal Western countries may contribute to a public "accountability failure" (Church et al., 2018). The Reno Model was developed in 2004 by academic researchers from Australia, Canada, and the United States, nations where neoliberal policies had dominated for a over a decade previously. Gambling enabled governments to raise significant revenues, in lieu of the more politically costly options of increasing income taxes and corporate taxes. The Reno Model identifies various stakeholder

groups share responsibility for reducing gambling harm, but creates no structure for accountability mechanisms nor assigns ultimate accountability for gambling harm. If anything, it implies that gamblers are ultimately accountable with its first axiom: "the ultimate decision to gamble resides within the individual and represents a choice" (Blaszczynski et al., 2004, p. 311). This scattered responsibility-without-accountability is observed in the recent academic literature on gambling harm, where responsibility is often ascribed to healthcare service providers and policymakers, but also variously ascribed to the gambling industry, educational institutions, gamblers, and gambler's families (Akçayir et al., 2021).

Of the four study countries, Canada currently presents the greatest lack of public accountability for gambling harm. Canada has had no national public inquiry into gambling operations since gambling liberalization, whereas New Zealand and the United States have both had one, and Australia has had two. Additionally, New Zealand has attended to the issue of gambling accountability in its legislation: The 2003 Gambling Act ascribes responsibility for gambling harm to the Ministry of Health and requires evaluations of its interventions (Government of New Zealand, 2003, sec. 317).

In Canada, there are also disconnects between federal and provincial gambling regulations. Gambling is illegal in the Criminal Code of Canada with the exception that provincial governments have the exclusive right to conduct and manage allowable forms of gambling (Government of Canada, 1985, sec. 207). Despite this, gambling operations have steadily privatized in Ontario, where the Ontario Lottery and Gaming Corporation has outsourced casino operations to private gambling operators since 2016, and privately-operated online casinos were fully allowed in January 2022 (Dobby, 2021). With the recent assent of Bill C-218 which allows provincial governments to conduct and manage single event sports betting,

Ontario has begun licensing private gambling companies to operate sports betting as well (Yau, 2021). The results of this study therefore provide a useful basis for comparative analysis of actual gambling policies and their implementation in Canada and other nations.

Finally, as this thesis makes a unique contribution to political science by using LIS methods, it also makes a unique contribution to grey literature studies by bringing a political approach to topic usually endemic to LIS professionals. The critical analysis of government publications on a controversial topic will offer a more nuanced understanding of pertinent conflicts of interest to those who manage these documents and contextualize them for others.

STRUCTURE OF THESIS

This thesis proceeds in three chapters, employing mixed methods which collectively address the four research questions. Chapter One addresses Research Question 1 by using a systematic mapping review⁵ of government-sponsored gambling grey literature from Canada, Australia, New Zealand and the UK from 1994 to 2018. The mapping review method is ideal for identifying high level trends across a large number of research publications. In this case, it allowed me to categorize over 1000 research publications with reference to the framework for policy applicability of government-sponsored gambling research put forth in the Australian Productivity Commission's 2010 gambling inquiry report ("APC2010", Productivity Commission, 2010). This framework has six categories which are described as low, medium, or high policy relevance. Those of low relevance don't study any intervention or policy change.

⁵ "Mapping review" refers to a type of review method where the authors search for literature on a relatively broad topic (such as gambling) and categorize the documents according to key features to "map out" the existing literature on the topic. The typical purpose of a mapping review is to identify shortcomings or gaps across a body of knowledge. Mapping reviews employ formalized, reproducible search methods but may or may not be as comprehensive as a systematic review. The synthesis may be presented narratively and/or quantitatively (see Grant & Booth, 2009).

Those that do investigate a policy change or intervention are then mapped to either a “Reno Model” or public health approach to addressing gambling harm, and trends are compared between jurisdictions.

Chapter Two employs citation analysis to answer Research Question 2. Looking at a sample of 100 recent academic systematic review articles on gambling, I analyze how often a grey literature search is employed in systematized search strategies, which sources of grey literature are searched, and what proportion of documents cited are grey. There are a small number of similar studies in other fields to which the present results are compared, showing that citation rates for gambling grey literature in review articles are unusually low. Potential reasons for this are discussed.

Chapter Three addresses the remaining two research questions through close analysis of semi-structured interviews with 22 gambling researchers who produce both primary and grey research publications on gambling. Interview questions revolve around the participants’ contributions to primary and grey research publications, their opinions on the relative quality of two bodies of literature, their motivations, and the costs and benefits of producing grey literature research on gambling.

The thesis closes with a conclusion that summarizes the findings and provides suggestions for how researchers, research sponsors, and policymakers can improve the gambling research environment and produce higher quality research to guide ethical gambling regulation.

CHAPTER ONE: MAPPING REVIEW

“I think Canada is probably one of the most well-funded countries for gambling research [...] I was asked to review grant proposals from Canadian funders and some of these proposals were absolutely asking for way more money than they needed. And the thing was, the Canadian funding agencies needed to spend this money otherwise they wouldn't get it the next year, and that resulted in a lot of what I've called low quality research being funded.”

—David, UK

INTRODUCTION

The purpose of this chapter is to map and examine the subtopics of gambling studied in government gambling research—which is nearly always published as grey literature—in four jurisdictions. This includes gambling research conducted or commissioned directly by government bodies as well as research from arms-length government-funded gambling research organizations, but excludes most gambling research funded by general research councils or other academic sources. The mapping of topics focuses on whether these publications ask research questions that can inform public health policy responses to gambling at a population level, generate more individualized responses to gambling harm per the Reno Model, or do not address gambling's harms at all.

Government sponsored gambling research is funded directly from gambling revenues with the stated objective to help treat and/or prevent gambling harm (or problem gambling specifically), or to encourage “responsible gambling” (RG). The majority of these gambling revenues come from people who are experiencing moderate or severe harm from their gambling⁶. Because gambling research is generally funded from the gambling losses of people experiencing

⁶ An Ontario study estimated that people meeting the clinical threshold for problem gambling (4.8% of the population) accounted for 36% of gambling revenues, including 61% of slot machine revenue (Williams & Wood, 2007), and many more gamblers experience harm from gambling without meeting the clinical threshold for problem gambling (Browne et al., 2016).

harm from gambling, there is a normative imperative for that research to be done in a way that effectively assuages and prevents those harms. As academic gambling publications largely use the individualized Reno Model approach, and RG programs have been the most popular and least effective strategies for reducing gambling harm (Williams et al., 2012), it would be more ethical for governments to sponsor more public health framed gambling research.

However, RG is a popular concept amongst governments and gambling operators and is mentioned explicitly in some grey reports. For example, the “Manitobans and Gambling” report series surveys Manitobans as to what it means to them to ‘gamble responsibly’. Responses like “not spending more than you can afford” and “setting a spending limit” were most common, while responses such as “there’s no such thing as responsible gambling” and “not gambling at all” were considered “incorrect” responses (Manitoba Gambling Control Commission, 2010, p. 7).

Beyond the grey publications, much of the academic published literature on gambling also originates from grey literature sponsored research grants (as discussed in Chapter Three). Thus, this review will also reveal some of the non-academic influences that shape the academic body of knowledge on gambling.

Scope of investigation

This chapter will examine gambling research published as grey literature from the years 1994 to 2018 in Canada, Australia, New Zealand and the UK, with greater attention to Canada and Australia. The examination focuses on what type of government body sponsors each publication, and what type of policy intervention each publication investigates (if any).

Canada is of interest because it is a strong source for government gambling research funding, yet Canadian gambling research has not been considered or evaluated on a national

level as it has in the other countries. Australia is of interest because it is most advanced in terms of a national approach to increasing gambling regulation after a period of broad deregulation. Australia has the world's highest gambling losses per capita (Letts, 2018) and independent politicians Nick Xenophon and Andrew Wilkie have been elected on anti-EGM platforms.

Australia has had two national inquiries into gambling. The 1999 inquiry resulted from concerns by public health academics and community organizations on the impact of large casino developments and the rapid expansion of EGMs into hotels and clubs from the early 1990s (Productivity Commission, 1999). This inquiry called for the formation of a government gambling research body, leading to the creation of Gambling Research Australia (GRA), a consortium representing Australia's national and subnational governments. Despite the creation of GRA, the intensity of gambling losses from EGMs only increased, leading to a second inquiry in 2010 (APC2010), which also critically examined government-sponsored gambling research production. (Productivity Commission, 2010). The APC2010 report created a framework of six categories of gambling research that have varying applicability to gambling policymaking. The report was critical of Australian government gambling research in general, and was especially critical of research sponsored by the GRA consortium for merely describing the nature, extent, and impacts of gambling and as such, being "not directly relevant to the design of better policies" (p. 18.13). It recommended a more publicly accountable research institute, which led to the creation of the Australian Gambling Research Centre (AGRC) within the national Department of Social Services in 2012. The Australian analysis pays particular attention to research published by AGRC and GRA since 2010 to see if they have responded to the criticisms of the inquiry report.

Finally, New Zealand and the UK provide useful comparators as nations with similar governing systems and different gambling research approaches. Gambling and gambling research expanded in both countries in 2003 and 2005 respectively with the passage of new Gambling Acts, but New Zealand's 2003 Gambling Act is unique in that it explicitly assigns responsibility for gambling research to the Ministry of Health and requires that it be conducted from a public health perspective (Government of New Zealand, 2003, sec. 317). Thus, it is predicted that New Zealand's post-2003 grey literature is more likely to endorse public health approaches to gambling harm.

METHODS

This chapter employs a mapping review method (Grant & Booth, 2009). The search strategy is based on Godin et al.'s (2015) methodology for searching public health grey literature for systematic reviews. Thus, the search strategy has the thoroughness and rigour of a systematic review. The complete search strategy is presented in Appendix 1.

Inclusion criteria

For inclusion in the dataset, documents had to be primary research publications on some aspect of gambling (i.e., not necessarily gambling-related harms) published by a government body or government-organized NGO. Documents where gambling was not the primary focus were included if they contained a chapter or section on gambling. Publications must be considered "first tier" or "second tier" grey literature types per the "Shades of Grey" model (Adams et al., 2017)⁷. For the purposes of this study, the distinction between first and second tier

⁷ Higher tier documents comprise those where there is higher source expertise and publishing outlet control. Examples given for first tier include government reports and think tank reports; examples for second tier include corporate publications and NGO studies; examples for third tier include blog posts and tweets. The tiers are intentionally fuzzy as source expertise and editorial control will be different in different domains.

publications is not important, but the exclusion of third tier is because they are very unlikely to represent research evidence not represented elsewhere in the dataset; their unique contribution would be personal opinions, institutional politics, and mis- and disinformation. Gambling researchers' opinions of different grey literature publication types will be revealed in Chapter Three.

Due to language limitations, only English-language documents were included, meaning some documents from Quebec were excluded. This limits the present study's understanding of Quebec's gambling grey literature.

Document coding and synthesis

The national and subnational (i.e., state/province/territory) jurisdiction for each document was coded based on the publisher. Publisher and sponsor were recorded. The sponsor and publisher are usually the same for grey literature but were found to be often different in gambling grey literature. To code these data, the document and the website on which it was published were consulted for a funding acknowledgment to determine if the sponsor was different from the publisher. If no acknowledgment is found, then the publisher was assumed to be the sponsor.

Each document's research topic was coded to one of the six categories of the gambling research framework presented in Chapter 18 of the Productivity Commission's 2010 inquiry report ("APC2010 framework", Productivity Commission, 2010). For each document, the executive summary, study objectives, methods, and other similar sections were consulted to assign a topic area. The framework categories are presented in Table 1. The categories are taken verbatim from the report, while the ranking of "low", "medium", or "high" policy relevance is inferred from the discussion of the report. Research on the "nature & extent of gambling" and "impacts of gambling" are described as of low policy relevance as they merely describe the

problem without considering policy solutions. “Support services” research is moderately relevant as it informs treatment but not prevention, while the remaining three categories are high relevance because investigate actual potential harm prevention policies.

Table 1: Framework of gambling research topics from the Australian Productivity Commission 2010 gambling inquiry report

Policy relevance	Gambling research topic
Low	<ul style="list-style-type: none"> • Nature & extent of gambling • Impacts of gambling
Medium	<ul style="list-style-type: none"> • Support services
High	<ul style="list-style-type: none"> • <i>Ex-post</i> evaluations of harm reduction measures • Analysis of potential harm reduction measures • Early intervention and education

If a gambling policy or program is studied, it is coded as an “RG” intervention if it does not strictly reduce gambling opportunities, whereas those that do are considered “public health” interventions⁸.

Analyses are presented in separate sections for each country. In lieu of a quantitative analysis I opted for a more detailed narrative synthesis for each country. While this precludes statistical comparisons between jurisdictions, it serves to better describe and contextualize the strengths, weaknesses, and potential biases in each jurisdiction’s body of evidence. This local knowledge will be of more value to researchers and policymakers who have the power to shape gambling research production in those jurisdictions. Librarians and information professionals who are responsible for managing this body of literature and guiding others through it would also

⁸ Examples of RG are modest interventions that nudge people to gamble less (e.g., displaying a clock in a slot machine or a pop-up message suggesting the gambler take a break) or “soft barriers” that provide an opportunity to opt out of gambling (e.g., an option to set a daily betting limit, or “voluntary self-exclusion” programs that allow one to ban oneself from a gambling venue). Examples of public health interventions are “hard barriers” that necessarily reduce gambling opportunities, such as reducing hours of operation, removing ATMs from gambling venues, or removing venues altogether. Refer to the section “Political challenges in gambling research” in the thesis introduction for more information about the concept of RG.

benefit from this more accessible, narrative representation of similarities and differences between national bodies of grey literature.

As the APC2010 framework was developed in 2010 to critique Australian government-funded gambling research, I begin by analyzing Australian research with attention to research published since 2010. This is followed by analyses for the other countries.

RESULTS

Australia

The Australian search yielded 324 government publications. The APC2010 report concluded that up until 2010, too much gambling research was focused on the nature & extent and impacts of gambling, and weak *ex-post* evaluations, while not enough research focused on “analysis of potential harm reduction measures”. In response to the APC2010 report, a new national research body called the Australian Gambling Research Centre (AGRC) was formed in 2012, and at the time of writing, the AGRC has produced 25 research publications. Compared to the APC2010’s results for pre-2010 research, there were still many research publications focused on nature & extent of gambling (8), although they often have an impact component. There were more impact-focused studies (4) and only marginally more studies on evaluating actual harm reduction measures (4).

The previous national gambling research body, Gambling Research Australia, had also reformed and continued to publish research since the APC2010 report. Of the 13 studies it has commissioned since then, its trend largely continues but there is some improvement. Studies on the nature & extent and impacts of gambling are still most popular (6 and 5 reports respectively), although two of the “impacts” reports have an experimental component investigating the potential harm reduction effects of changing the structural characteristics of gambling products

(Rockloff et al., 2016; Rockloff et al., 2014). Among state-level gambling research sponsors, research evaluating potential harm reduction measures is also the rare exception rather than the rule: the sample contains 101 state-level gambling research publications published from 2011 to 2018, and only two empirically evaluated potential harm reduction measures, while another six evaluated treatment programs.

State-level prevalence studies are popular in Australia, and it is worth noting that the Victorian Responsible Gambling Foundation did sponsor the first major prevalence study to account for gambling harms experienced by people under the clinical threshold for problem gambling (Browne et al., 2016). This report inspired shifts in the public health approach to gambling in other jurisdictions.

Overall, there have been some improvements since the 2010 inquiry, but research on the nature & extent of gambling, which does not explore actionable policy options, appears to be an irresistible topic for Australian government-sponsored research. This echoes the findings of the UK-focused Fair Game report, where gambling research tends to focus on “safe” questions when the sponsor has vested interests (Cassidy et al., 2013).

Canada

The Canada searches retrieved 565 research publications. The most notable and unique aspect of Canada amongst the study countries is that it has government monopoly crown corporations operating gambling. Although the Criminal Code states that only provincial governments may “conduct and manage” gambling (Government of Canada, 1985, sec. 207), the operation of casinos and online gambling since 2010 has increasingly privatized as attested by Ontario Lottery and Gaming’s “modernization” plan (*OLG's Modernization Project Status*, n.d.; Ontario Lottery and Gaming Corporation, 2012).

In the government monopoly format, gambling revenues from crown corporations are transferred to general revenue, with a portion set aside for problem gambling treatment, prevention and research. For example the Ontario agreement prior to 2019 was that 2% of forecasted slot machine revenue (approximately \$38M in 2016) was directed to the Ministry of Health and Long-Term Care for problem gambling research, prevention and treatment (GREO, n.d.). In some provinces the research is commissioned or conducted directly by government bodies, while other provincial governments organize and fund independent gambling research not-for-profit organizations. Some organizations that are primarily responsible for gambling harm prevention and education, such as the Responsible Gambling Council in Ontario, also produce research.

As gambling is a provincial responsibility with no treatment in national legislation beyond the Criminal Code, there are no federal-level government bodies dedicated to gambling. Instead, provincial organizations have formed consortia for these purposes, including the Canadian Consortium for Gambling Research (CCGR) and the Canadian Partnership for Responsible Gambling (CPRG). Below I summarize the main producers of government gambling grey literature from each Canadian jurisdiction and the main themes they cover, with more detailed information presented in Appendix 2.

National/Federal

Of 44 federal-level publications, 32 were attributed to interprovincial consortia. CPRG produced an annual Canadian Gambling that describes the nature & extent of gambling in each province, while CCGR's reports focused on developing problem gambling measurement instruments.

The other 12 reports came from truly federal level organizations, including gambling one-offs from several departments. From 1997-2004, Statistics Canada published eight articles concerning gambling, progressing from interest in its economic benefits to its harms. There was no interest in further national-level gambling study has been rekindled 15 years later with the Alberta Gambling Research Institute (AGRI) National Project (ANP), a collaboration with Statistics Canada.

Alberta

The scan yielded 71 Albertan government-funded reports, including 24 from the Alberta Gambling Research Institute (AGRI, formerly Alberta Gaming Research Institute) and 47 published by government bodies.

Over half of Albertan government reports were sponsored by the Alberta Alcohol and Drug Abuse Commission, which had a strong focus on accessing the nature & extent of gambling as well as improving treatment services. The gambling regulator Alberta Liquor and Gaming Commission published policy review and evaluations while Horse Racing Alberta produced reports enumerating the economic benefits of horse racing industry.

The 24 funded reports from the Alberta Gambling Research Institute stand out in the Canadian sample. Unique approaches to gambling include studying sociocultural aspects of gambling and its social benefits, and measuring gambling impacts in interesting ways such as through police reporting. In addition to reporting on the nature & extent of people's gambling, AGRI also reported the nature & extent of gambling itself, such as directories of casinos and other gaming venues. No AGRI-sponsored research investigated RG interventions.

British Columbia

Government gambling research in British Columbia is primarily sponsored by the British Columbia Lottery Corporation (BCLC, gambling operator), followed by the gambling regulator Gaming Policy and Enforcement Branch (GPEB). BCLC's report topics include evaluations of gambling operations (employee surveys, anti-money laundering) and RG programs. Reports on the impacts of gambling are heavily focused on reporting gambling's economic benefits. GPEB sponsored more balanced assessments of the socioeconomic impacts of gambling, as well as prevalence studies. Only one report came from a health branch, namely the Office of the Provincial Health Officer.

Manitoba

Various Manitoba government organizations produced 58 gambling research documents. The largest producers were the Addictions Foundation of Manitoba (AFM, 1999-2008) and the Manitoba Gambling Research Program (MGRP, 2014-2018), which was administered through the Manitoba Lottery Commission (MLC). AFM research focused on gambling prevalence, treatment, RG, and school education programs, while MGRP was very focused on psychological study of gambling as an addiction.

Other publishers include the MLC (measuring gambling impacts), the gambling regulator (measuring gambling prevalence and RG campaign effectiveness), and the central government (policy reviews for First Nations gaming and lotteries).

Ontario

The search for Ontario publications in the Gambling Research Exchange Ontario (GREO) Evidence Centre retrieved 293 grey literature documents in this project's scope. Nearly 85% of these came from three publishers: The Ontario Problem Gambling Research Centre

(OPGRC, n=194), Gambling Research Exchange Ontario (GREO, n=55), and the Responsible Gambling Council (RGC, n=20). The remaining 24 publications come from various small publishers that are not detailed here.

OPGRC operated from 2000 to 2013 and administered millions of dollars in research grants per year. It had clear emphases on studying the nature & extent of gambling and problem gambling. Many studies focused on the risk factors and comorbid disorders for problem gambling in the general population, youth, and older adults, and improving problem gambling measurement tools. OPGRC also sponsored many studies investigating psychological phenomena in people with problem gambling (such as belief in luck) and psychological responses to the “addict[ive] by design” (Schüll, 2014) features of slot machines such as “near misses” where a machine disproportionately shows losing results of two matching symbols followed by a symbol right next to the third (Harrigan, 2008).

Less common were OPGRC-sponsored studies on the treatment and prevention of problem gambling, social factors (such as parent-child relationships), gambling laws and regulations, and RG interventions. Although OPGRC’s research was highly focused on the psychological aspects of gambling harm, in 2013 it coordinated and published the internationally authored Conceptual Framework of Harmful Gambling (Abbott et al., 2013), which frames eight factors that contribute to gambling related harm: gambling environment, exposure, types, and resources (i.e., treatment and prevention); and cultural, social, psychological and biological factors.

In 2014, OPGRC became Gambling Research Exchange Ontario (GREO). The name change to “Research Exchange” demonstrates its functional shift from funding research to knowledge translation and exchange (KTE), while the shift from “problem gambling” to “gambling” indicates a broadening scope. From 2014 to 2018 GREO produced 55 publications

revised editions of its Conceptual Framework of Harmful Gambling in 2015 and 2018, and overall demonstrated more even attention to the eight framework factors in this time. Standard research reports covered the nature & extent of gambling, while white papers covered a broad variety of topics from RG interventions to social determinants of health. “Project snapshots” for community grant projects demonstrate the impact of community-level gambling interventions.

GREO produced reports that both supported and challenged gambling expansion in the province. “Evidence exchange” reports and briefs reviewed current research and how gambling is provided in other jurisdictions, including forms of gambling under consideration for legalization in Ontario (many of these were ultimately legalized). On the other hand, some reports directly implicated the provision of gambling as a source of gambling harm, such as 24-hour gambling venues, and duty of care to gamblers experiencing cognitive decline.

The Responsible Gambling Council (RGC) started in 1981 as a grassroots NGO called the Canadian Foundation for Compulsive Gambling and rebranded as the Responsible Gambling Council in 2001 following a major funding partnership with the Ontario government (*RGC History*, n.d.). As their name suggests, RGC focuses strongly on RG interventions, especially self-exclusion (i.e., the option to ban oneself from a gambling venue). Two reports are *ex-post* evaluations of RG measures, while only one turns the lens onto gambling itself, specifically the features of slot machines most likely to cause gambling problems (White et al., 2006).

Quebec

The search retrieved eight English-language reports from Quebec, which is likely to be an incomplete representation of government-sponsored gambling publications from the province. All reports are concerned with monitoring the nature & extent of gambling. The main sponsors were the *Institut national de sante publique du Québec* in collaboration with the Cree Board of

Health and Social Services in James Bay, and the *Institut de la statistique Quebec. Loto-Québec* was not found to publish any gambling research although it has been a sponsoring member of CCGR. No research publications were found from its arms-length RG organization *Fondation Mise sur toi*, which was shut down in 2013 as part of sharp drop in *Loto-Québec*'s overall spending on RG initiatives (Gagnon, 2015).

Saskatchewan

Five government reports were retrieved from Saskatchewan sponsored by either the central government, Saskatchewan Health, and the Saskatchewan Tourism Authority, all focused on monitoring gambling. Saskatchewan appears to be an early adopter on this matter as it produced reports on the social and economic impacts of gambling in 1994 and 1997 and was the first jurisdiction in Canada to conduct a prevalence study using the Canadian Problem Gambling Index in 2002.

Atlantic Canada

The four Atlantic provinces produced 39 research publications, with two thirds being produced by Nova Scotia. After three early parliamentary committee reports on the impacts of forthcoming casinos, Nova Scotia gambling grey literature is chiefly produced by the Department of Health and the Nova Scotia Gambling Corporation. The Department of Health's reports focus on measuring gambling prevalence and evaluating treatment services and awareness campaigns, while the gambling corporation's research was largely focused on investigating potential RG features. Both departments often commissioned the Halifax-based Focal Research Consultants to conduct this research, which is interesting as one might expect the gambling research needs of the health department and the gambling operator to be sufficiently different to hire different consultants. Based on the topics of the reports and Focal Research's

stated expertise in responsible gambling analytics, a possible reason is that the Nova Scotia health department is invested in the RG paradigm, or there may simply not be other gambling research capacity in the province.

The remaining six reports from Newfoundland & Labrador, five reports from New Brunswick, and two reports from Prince Edward Island were all prevalence studies except for one Video Lottery Terminal⁹ (VLT) program review in New Brunswick in 1997, which did make some general recommendations for restriction gambling including not cashing cheques or granting credit at gambling venues and regulating hours of operation. New Brunswick gambling reports were sponsored by the Department of Finance, which regulates gambling, while Newfoundland & Labrador and Prince Edward Island sponsored all their reports through their respective departments of health.

Territories

The scan retrieved four gambling government reports from Yukon, from Northwest Territories, and zero from Nunavut. In 1994, the Yukon Council on the Economy and the Environment conducted a public consultation on introducing VLTs and expanding casino gambling in the territory. There was overwhelming opposition to gambling expansion and the recommendations were heeded. The remaining reports from Yukon (2008-2013) and Northwest Territories (2016-2018) were concerned with auditing and evaluating how lottery revenues are disbursed.

⁹ A video lottery terminal is a gambling device very similar to a slot machine, except it is connected to a central network so it can be monitored and managed by the lottery corporation. They are usually found in bars and hotels rather than dedicated gambling establishments.

New Zealand

For New Zealand, I retrieved 150 government-sponsored gambling reports in the 1994-2018 time frame. What is noticeable in this sample is the dominance of a relatively small number of publishers. Over half (78) are sponsored by the Ministry of Health, 34 are from the Department of Internal Affairs, which is responsible for regulating gambling, and 17 are from the Health Promotion Agency. The Department of Internal Affairs published research reports on the impacts of gambling as well as use of problem gambling services until 2003 (the year of the new Gambling Act), but since then their reports shifted to focus almost exclusively on how gambling proceeds are distributed. The Health Promotion Agency's publications focus on the nature, extent, and impacts of gambling based on analyses of their Health and Lifestyles Survey.

Interestingly, the search also found a few studies commissioned by Auckland City Council and other local government groups, which were commissioned in response to the Gambling Act's new requirement for local governments to make policies for "Class 4" EGM venues. This is rather unique in our sample (aside from one gambling-related publication from the Local Government Association in the UK and three impact reports from local authorities in Alberta), although I did not specifically search for local-level publications so there may be others. Finally, and notably, only one research publication was sponsored by the New Zealand Lotteries Commission. The minimal involvement of the government gambling corporation in publicly funded gambling research is very different from what we saw in Canada.

As in Quebec, New Zealand has a small number of reports on gambling impacts that were led by Indigenous organizations. Two research projects were sponsored by the Ministry of Health and conducted by *Te Rūnanga o Kirikiriroa Trust*, a Māori and Pacific Peoples local health promotion agency (Levy, 2015; Wātene et al., 2007), while another was funded by the

Māori research organization *Ngā Pae o te Māramatanga* (Dyall, 2009). The latter uses a Māori framework for gambling host responsibility and makes policy recommendations for limiting overall gambling opportunities and inducements, including reducing hours of operation, refusing entry to self-identified problem gamblers, and restricting advertisements.

The two other reports are also strongly and deliberately informed by Māori culture. *Te Rūnanga* aims “[t]o conduct and complete all research projects based on Kaupapa Māori research methodologies and frameworks” (Levy, 2015, p. 15), with a research programme oriented toward *whānau ora*, meaning health and well-being at the *whānau* (extended family) level rather than the individual level. *Kaupapa* and *whānau ora* inform the 2015 report’s “strengths-based approach” recognizing the abilities, aspirations and true potential of Māori communities, which is are much different from what is seen in typical settler-led research that views Indigenous Peoples as “vulnerable” rather than a source of strength. Furthermore, the very structures of the reports themselves do not follow the typical Western format; they proceed in nine sections modeled after rituals of the *pōwhiri* (formal Māori welcoming ceremony).

United Kingdom

For the UK, we retrieved 98 government funded grey literature evidence publications in the study period, plus 49 sponsored by the gambling harm mitigation not-for-profit GambleAware. In Canada, Australia, and New Zealand, the major gambling-specific research bodies are either government funded NGOs or directly government-run. The UK’s equivalent organization GambleAware is an NGO that exists in a liminal space between government or industry. According to their website: “GambleAware is wholly independent and has a framework agreement with the Gambling Commission to deliver the National Strategy to Reduce Gambling Harms within the context of arrangements based on voluntary donations from the gambling

industry.” (*For professionals*, n.d.). In addition to the voluntary contributions, GambleAware had at least one gambling industry representative on its board of trustees since its inception until late 2018 (House of Lords, 2020), so it has greater influence from the interests of the gambling industry.

A unique theme in GambleAware’s research is that many reports analyze gambling industry data from online gambling or EGMs, representing nine of 49 publications. As gambling operators are not required to share data with researchers, this suggests a high level of trust between the gambling operators providing that data and the researchers selected by GambleAware.

Another eight reports focus on RG interventions including self-exclusion. Even research on EGM characteristics is explicitly framed an unwillingness to affect existing gambling opportunities and experiences: The 2013 Gaming Machines Research Programme’s stated objectives are “Can we distinguish between harmful and non-harmful gaming machine play? [and] if we can, what measures might limit harmful play without impacting on those who do not exhibit harmful behaviours?” (Responsible Gambling Trust, 2013). Research into the operator-based approaches to harm minimization exclusively considers RG interventions.

Nine more reports study the psychology of people with problem gambling, including two which study the psychological interactions with machine characteristics such as bet size. Thus, the research on gambling products themselves is still framed around the psychology of the people who are harmed by it.

Other topics researched include exposure to gambling through advertisements (three reports), social media (one report), and physical proximity to gambling venues (one report); online gambling (four reports); and gambling in youth (three reports), families (two reports),

older adults (one report) and the Chinese community (one report). There were no studies on problem gambling treatment, although there was one that investigated barriers to accessing problem gambling services.

Finally, and notably, there is only one report on gambling policy. It is authored by two Australian psychologists—one of whom is a Reno Model author—and argues that policy changes to restrict or further regulate gambling should only be based on empirical evidence and not public opinion (Blaszczynski & Gainsbury, 2017). This argument works well with GambleAware’s body of research to serve the gambling industry’s interests: the only empirical evidence available from their research programme is on modest RG interventions while none investigates the effects of actually restricting gambling opportunities, and thus the argument makes restricting gambling impossible.

Of the 98 government-sponsored publications, over a third (35) were published or commissioned by the Gambling Commission (regulator), with another third from other government bodies that have responsibility to either regulate gambling or address its harms, such as the National Health Service, the Responsible Gambling Strategy Board (RGSB), the All Party Parliamentary Group (APPG) on Fixed Odds Betting Terminals, and the Department for Digital, Culture, Media, and Sport (DCMS). Although some of these are high quality and detailed studies, particularly those administered by the National Centre for Social Research (NatCen), virtually all except three investigate the nature, extent, and/or impacts of gambling. Most of the remaining third are parliamentary research briefs or reports regarding gambling legislation.

DISCUSSION

This chapter mapped 25 years of gambling published outside of the primary literature of academic journals and books — i.e. grey literature publications — from Canada, Australia, New

Zealand, and the UK. Of the total 1,298 publications retrieved from the scan, approximately 92% (1,189) were funded from government sources, including 49 from the unusual organization GambleAware, which is government organized but is funded by the gambling industry. As most gambling revenues come from people experiencing gambling harm, this review aimed to investigate whether this research is done in a way that better serves to assuage and prevent the gambling-related harms experienced by those gamblers (i.e., through public health approaches). Specifically, research is considered to be more constructive when it investigates a harm prevention intervention, or to a lesser extent, treatment and support services for those already experience serious gambling harm. Amongst different types of interventions, those that take a public health approach are considered more constructive, while those that take a modest “Reno Model” approach are less so. Reno Model harm minimization approaches place the accountability of researchers, gambling providers and governments onto citizens who are actually or potentially at risk from commercial gambling. When researchers limit their focus to describing and quantifying problem gambling, the question of how all citizens are impacted by gambling expansion is displaced by that of how to make individuals more accountable for their gambling choices.

In these four nations, gambling research directly sponsored by government most often comes from ministries or departments that have some ongoing gambling related responsibility: Departments of health or social services are responsible to mitigate gambling’s harms; Gambling regulators or departments of justice regulate gambling (i.e. balance social harms with economic benefits); Departments of finance determine gambling revenue’s role in government budgets and distributes those revenues; and in the case of Canada, gambling operator corporations have a primary role of generating gambling revenue. Occasionally, gambling research is also sponsored

by the legislature in the form of inquiries, consultations, or parliamentary committee reports, or other offices when gambling is of incidental interest.

The review bears out a clear pattern that the research sponsored by different government departments aligns with their responsibilities: Health and social service departments are concerned with understanding, treating, and preventing gambling harm, whereas departments of finance or gambling operation are concerned with maintaining gambling revenues through modest RG initiatives. Gambling regulators and justice departments fall somewhere between as their purpose is balance, with some leaning more one way or the other in different jurisdictions. Legislative reports are concerned with high-level issues such as overall gambling policy reviews and inquiries, casino placement and gambling revenue disbursement.

However, even gambling research funded through health departments is rarely the actionable harm reduction research that was recommended the APC2010 inquiry: Even the AGRC, which was formed specifically to address this shortcoming, produced more research describing the nature, extent, and impacts of gambling rather than evaluations of potential harm reduction policies.

Clearly there are barriers preventing government departments from produce informative, actionable research to reduce gambling harm even when that is the department's responsibility. This lack of action by government departments appears to be an "accountability failure", defined as:

"...occurring when the stated vision, mission, objectives, structures, governance, and leadership behavior of systems and organizations fail to produce desired results and instead produce results that are negative to the point of being fatal and catastrophic. Accountability failure includes, but goes beyond, the behaviors of individuals and organizations to encompass broader system factors, including decisions and policies that fail to provide the necessary checks, balances, and oversight required to recognize and prevent needless suffering or deaths. Accountability failure can result in 1 death or

serious injury, many deaths or injuries, or circumstances that place individuals or the public at unnecessary risk.” (Church et al., 2018, p.664)

Although accountability failure was conceptualized in relation to public health care service delivery, it is applicable to gambling policy and gambling research’s role therein. The specific reference to death is germane to gambling policy as death by gambling-related suicide has been reported in several countries with legalized gambling, including Canada (Andreeva et al., 2022).

New Zealand appears to have a functioning accountable system in this regard. Legislation assigns responsibility and accountability for gambling harm research and response to the Ministry of Health, and requires it to take a public health approach. Furthermore, the legislation also entrenches a levy to fund the Ministry’s public health gambling strategy, removing the potential concern that funding could be reduced or eliminated if research findings called for restricting gambling provision.

Not surprisingly, this accountable structure results in New Zealand more often producing gambling grey literature that examines improvements to gambling treatment, community-based harm reduction programs, and even evaluating a program which reduced the number of gambling machines in the country. Although this chapter does not investigate the actual deployment of public health interventions in New Zealand, its Gambling Act also requires and guarantees funds for evaluations of the Ministry’s gambling interventions, which would presumably create accountability to ensure that its gambling research was put into action.

On the other hand, the other three study countries lack many of these accountability structures. Gambling research funding streams are not guaranteed, research is not required to be policy-relevant, and there are no evaluation structures. This review finds that when these accountability structures are absent, government-sponsored gambling research tends to merely

describe the current state of gambling, or investigate modest Reno Model interventions rather than fulsome public health ones. This suggests that accountability failure is linked closely to “comfort-seeking leadership”. Governments dependent on gambling revenue appear unwilling to fund research that might conclude that gambling harms can only be significantly reduced by significantly reducing revenues, as the mere existence of that evidence might create public pressure to act on it.

Beyond the government departments that commission gambling research directly are government-organized-and-funded “independent” gambling research organizations. Canada provides some insight into how these organizations’ relationships with their funding governments may shape their research programs: The MGRP was administered through the lottery corporation and largely focused on the psychology of problem gamblers, as noted by another critic (Pelletier, 2022); OPGRC and RGC in Ontario were funded through the Ministry of Health and Long-term Care and focused research on understanding problem gambling and its treatment, and RG interventions respectively. GREO’s mix of publications that both support and challenge gambling expansion suggest a degree of independence tempered by its reporting relationship with the Ministry of Health and working relationship with OLG. In the UK, GambleAware’s primary focus on RG, behavioural economics and data analytics to reduce gambling harm without reducing gambling itself demonstrates a stronger influence by gambling industry interests through its funding structure and board representation.

Conversely, in Alberta, AGRI’s governance is most removed from government and gambling compared with any other government-organized gambling research organization in this review. AGRI’s research programme is shaped by academics. It is governed by a consortium of three universities and a board of directors who are majority academics. At the time of writing the

board consists of five professors, one academic librarian, and two external “public” members (*Meet our Team*, n.d.). Thus, the programme is furthest removed from the interests and benefits of gambling revenues (although not completely so: gambling researchers derive potential job security from the existence of gambling research funding). AGRI’s research reports are also unique in that they take a higher-level view of social, political, and economic aspects of gambling, do not study RG interventions, and much more often study *gambling* and how it is provided as the potential problem, rather than *gamblers* as the source of the problem. The university consortium model presumably also serves to facilitate collaboration and cooperation between universities and prevents any one university from building preferential funding relationships with gambling operators (government or private) and assuming those conflicts of interest.

The variety of government research sponsors and their differing publication volumes also demonstrated that the distribution models of government gambling research funds vary between the four countries and the provinces and states therein. In Canada and Australia, where gambling is primarily regulated by subnational governments, there is much variety as to whether gambling research is sponsored primarily by a department responsible for gambling regulation, operation, harm mitigation, or an independent research organization.

The UK model has come under the harshest criticism for channeling gambling research funds almost exclusively through the gambling regulator and an industry-funded not-for-profit (House of Lords, 2020). However, there are signs of improvement since the study period; the Gambling Commission adopted a public health informed approach to reducing gambling harm in 2019, and GambleAware no longer has gambling industry representatives on its board of directors.

On the other hand, New Zealand is often lauded for its legislated integrated public health approach to gambling research since 2003. This review found that New Zealand often produces grey literature that considers and evaluations public health oriented interventions, suggesting that the legislation is achieving its goals. It must be noted that the success of New Zealand's gambling public health programmes and even the original inclusion of public health in the 2003 Gambling Act relied on the enduring work of Māori public health workers (many of them women) to enact and push for better protection from gambling harms (Herd, 2021; Raeburn & Herd, 2004). Māori gambling researchers and public health workers have aptly described these tireless efforts as akin to housework: “a time consuming activity which is often done by a few for the good of many and generally not appreciated until no activity occurs” (Dyall et al., 2012, p. 746).

These differences in countries' gambling research programmes inform at least two issues of current interest in the gambling research community. The 2019 *Nature* editorial “Science has a gambling problem”, which focused on gambling research in the United States, called to give explicit responsibility for gambling research to a particular department. This review suggests that giving full and explicit responsibility to a health or public health department would best serve those experiencing gambling harm, as in New Zealand. It is also promising to direct research funds to independent gambling research NGOs, but this is contingent on *bona fide* independence of those organizations, which ministry the NGO reports to, who sets the research agenda, and how easily the government of the day can reduce their funding.

The findings also address the issue of moral jeopardy (Adams, 2016). The government has an inherent conflict of interest in receiving gambling revenues while also being responsible for protecting its citizens from that harm. But governments can remove this conflict of interest in

the gambling research realm by giving sufficient agency over the research programme to a health or social services department, or a sufficiently independent gambling research not-for-profit. However, if they are given the agency to research and enact policies that will actually reduce gambling harms, then this will *a priori* result in lower gambling revenues according to the total consumption model (Sulkunen et al., 2019).

The remaining issue implied by the above is that the gambling research sponsors need sufficient independence or political capital to produce research that can inform beneficial policy changes. As described in the APC2010 report, this means evaluating potential harm reduction measures, which involves actually restricting gambling in a pilot study or on a larger scale to determine if the intervention works. This appears to be challenging because such research is very rare, even from sponsors primarily responsible for mitigating gambling harm. A good example from this review is the studies on the removal of ATMs. None of the reports that claimed to study the effect of removing ATMs actually involved proactively removing ATMs from gambling venues: one in New South Wales Australia simply interviewed gamblers and industry representatives for their opinions on removing ATMs; one in Ontario moved ATMs off the gambling floor but kept them within the gambling venue; a later one in Victoria reactively evaluated the effect of removing ATMs after the removal was legislated and enacted.

Thus, even when a health department has well funded research programme, they may not have the means to enact and evaluate pilot projects of actual harm reduction measures that restrict gambling opportunities. This may require further legislation that removes the need for cooperation from government or gambling bodies that have an interest in maintaining the status quo. An example of this is the requirement in some jurisdictions for online gambling operators to make gambling data freely available to all researchers. This was enacted by the French online

gambling regulator ARJEL and was called for in the 2020 British gambling inquiry (House of Lords, 2020). Thinking more broadly, the framing of government gambling research around the assumption that gambling revenues must be maintained or increased is guided by the broader Western paradigm of economic growth. It would be extremely interesting to see the gambling research produced by a government that followed a “degrowth” paradigm that centres human wellbeing instead of GDP (see Kallis et al., 2018).

In the next chapter, we step away from the topics researched in gambling grey literature to consider another issue: do people access this research after its published?

CHAPTER TWO: CITATION ANALYSIS

“One of the problems with systematic reviews is to get it published in a regular gambling journal, you'll get reviewers like me who know the psychology but don't really know... What is there to actually critique in a systematic review? It kind of is what it is. [...] Maybe that's my naïve take on something that I do very little in research. Maybe I just don't understand the nuances.”
—Aaron, Canada

INTRODUCTION

This thesis argues that gambling grey literature is a public good paid for from the losses of gamblers, and that this research should effectively minimize harm to those gamblers. In the first chapter I considered whether government research funds are used to ask research questions that can inform policy decisions about how gambling can be provided in a way that reduces gambling harms. We saw that although there have been promising improvements in recent years, government-sponsored gambling research tends not to investigate potential harm reduction policies, but rather to merely describe the nature, extent, and impacts of gambling. When they do investigate interventions, they are usually modest “Reno Model” individual-level programmes aimed at those with existing problems or considered at risk of developing them rather than public health approaches, the latter of which would be more effective at ultimately preventing gambling harms.

In this chapter, I consider the grey literature’s task to advance the public good from another angle. Rather than examining whether valuable research questions of interest to public health are asked in these research publications, I use citation analysis to determine the extent to which the information in these documents circulates and is re-used. Just as there is an ethical imperative to ask research questions that create evidence that will help protect gamblers from harm, it is also imperative to heed that research, and to make efforts to find existing relevant research.

Specifically, this chapter examines the extent to which gambling grey literature is included in “knowledge synthesis” journal articles, also known as “review articles”, such as systematic reviews and scoping reviews (Grant & Booth, 2009). These types of articles are a useful focus; they will show to what extent gambling grey literature is incorporated into the academic body of knowledge on gambling as well as its relevance from the policymaking perspective. Government policy actors and decision-makers rarely read single research studies and more often rely on research evidence being summarized and brought to their attention. Review articles have more political power than single research studies because they are meant to represent the current state of evidence on a subject and form the basis for policy decisions. As such, reviews more fully represent the state of evidence when they include grey literature.

Systematic reviews, like primary research, have methodological standards and best practices, which in this case fall under the disciplinary purview of academic librarians and information specialists (see Foster & Jewell, 2017). The inclusion of grey literature in systematized review articles is considered a best practice and a measure of quality in prominent review methodologies (Higgins et al., 2021; Kugley et al., 2017). Unfortunately, two studies that assessed the quality of systematic reviews on gambling do not give a good report card: one found that primary research articles and systematic reviews on gambling were of low methodological quality in general (McMahon et al., 2019), and the other avoided doing a quality assessment altogether as “most of the studies would have been rated of weak quality and eliminated” (Velasco et al., 2021, p. 4). It is possible that a contributing factor to low quality is insufficient inclusion of grey literature.

Why is gambling grey literature worth including in review articles?

The reason grey literature is often not included in systematic review articles is its defining feature of limited distribution: because it is not widely published, it is more labour intensive and requires more specialized knowledge to confidently search the grey literature on a topic. This may raise the question of whether searching the grey literature is worth this extra time and effort. Regarding the gambling field specifically, the AMSTAR systematic review assessment tool only requires a grey literature search “where relevant” (Shea et al., 2017). So is grey literature “relevant” in the gambling field? I argue it is for the following reasons.

Firstly, grey literature makes up a significant portion of all research published on gambling. This is in part evidenced in Chapter One where we see 1,298 research publications from Canada, Australia, New Zealand, and the UK over a 25-year period. In my previous work that compared the grey literature dataset from Chapter One to journal publications on gambling during the same period, we found that grey literature comprised over 22% of total publications in those four countries (Baxter et al., 2021b), and our comparative thematic analysis found that, while there was some overlap in topics, the grey literature and journal literature on gambling take different approaches to the “problem” being studied (Baxter et al., 2021a). In that sense, gambling’s grey literature provides additional perspectives not represented in the journal literature, which is sufficient reason to include it in review articles.

Secondly, a notable value of grey literature is that it provides a “unique global perspective” (Bonato, 2018, p. 28). This is important in gambling because context-specific research is more likely to be published as grey literature, so grey literature maybe be the only source of information for novel approaches to gambling regulation. Bonato gives the example of cannabis, where there is limited published research on the drug as it is still illegal in many

jurisdictions but jurisdictions that have legalized it provide valuable information in the grey publications. For a gambling example, the Australian Productivity Commission's two inquiry reports on gambling (Productivity Commission, 1999, 2010) are highly regarded and well-cited internationally despite their focus on Australian gambling, as they present highly detailed political and economic analysis with an explicit government policy focus, which is extremely rare in academic journal articles on gambling.

Finally, previous citation analyses in health topics have found grey literature to be a strong contributor to systematic reviews. A study sampling review articles that employ the same grey literature methodology used in Chapter One found that grey literature made up 23% of documents cited (Severn et al., 2017). This figure jumps to 47% for horizon scanning reports on non-drug health technologies (Farrah & Mierzwinski-Urban, 2019), although it is reduced to 33% when excluding manufacturer information, which would have limited applicability in reviews on gambling harm topics. For additional context, one other grey literature citation analysis study found that grey literature made up 18% of citations in research publications (not limited to systematic reviews) on education topics (Češarek & Merčun Kariž, 2019). Together, these studies provide a benchmark range of 18-33% indicating how well we should expect grey literature to be utilized in gambling review articles.

I have outlined several reasons why grey literature ought to be included in systematic reviews, and some signs that it may not be included to the extent it ought to be. The following citation analysis of recent gambling review articles seeks to answer the following questions:

- To what extent are grey literature sources included in the search strategies of systematized review articles?
 - When included, are appropriate and adequate grey literature sources searched?
- To what extent are grey documents cited in gambling review articles?

METHODS

Search strategy

Bibliographic data were collected from the Web of Science (WoS) scholarly database. Of the three large multidisciplinary databases Scopus, WoS, and Google Scholar, WoS was chosen because it was the only one to that included “cited references” in bibliographic downloads, which expedited data processing. The topic “gambl*” was searched across all WoS indexes, limited to document type “review” and years 2016 to 2020¹⁰. The initial search was performed December 9th, 2019 and the follow-up search was performed November 9th, 2021.

Inclusion criteria

Articles were included if they were review articles that investigated gambling or gambling harm (including problem gambling, gambling disorder, and pathological gambling). Reviews that had a scope of gambling and one other condition or activity (e.g., comparing problem gambling and alcohol use disorder) were also included, but articles with a scope of three or more conditions or a scope of all addictions or addictive behaviours were excluded. Review protocol articles were included if the corresponding completed study was not yet published.

Articles were excluded as out of scope if the topic met any of the following criteria:

- Gambling is the method of investigation only. The most common example is the “Iowa Gambling Task”, a laboratory task used to assess decision-making ability that does not resemble any real gambling situation.
- Gambling problems as a side effect of treatment for brain disorders such as Parkinson’s disease
- Gambling in animal models such as rats
- Otherwise unrelated to gambling (e.g., mentions a person with surname “Gamble”, describing a government’s decision as “a gamble”, etc.)

¹⁰ The smaller, more recent timeframe of 2016-2020 is used as we are interested in a snapshot of current grey literature usage, rather than the 25-year period used in Chapter One to examine research trends over a period of gambling expansion and inquiries.

Coding and analysis

Each article was coded for type of review according to Grant and Booth's (2009) typology of reviews, and divided into systematized reviews (SRs) and non-systematized reviews (NSRs) according to whether or not they employ a systematized search methodology. The most common types of SRs are systematic or scoping reviews, while NSRs are most commonly referred to as literature reviews, narrative reviews, or critical reviews. SRs had additional data collected as described at the end of this section.

For all articles, the References section was reviewed to determine how many grey literature works were cited. Greyness was determined in accordance with the Prague Definition of Grey Literature¹¹, and if greyness could not be confidently determined based on the citation, the original work or other records of the title were consulted. If no other records of the original work could be found, the item was excluded. The number of grey references and total number of references were recorded.

For systematized reviews, additional data were collected. The list of studies included in the article's synthesis was reviewed, and the number of grey items and total items included were recorded. The search strategy was also read and all databases potentially containing grey literature were recorded. A source was not recorded if the eligibility criteria excluded all grey literature, or if it was searched in such a way as to exclude grey literature. Data sources could be named databases (e.g., OpenGrey) or generic methods (e.g., snowball searching¹² or contacting

¹¹ "Grey literature stands for manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by library holdings or institutional repositories, but not controlled by commercial publishers i.e., where publishing is not the primary activity of the producing body" (Schöpfel, 2010)

¹² Snowball searching refers to taking all relevant articles found in one's original searches, and then checking all the references cited in those articles to for additional relevant material

subject matter experts). Generic methods were only counted as a grey literature source if either 1) the review explicitly states the purpose was to find grey/unpublished work, or 2) grey literature was present in the included studies.

RESULTS

The searches yielded 512 hits for the years 2016-2020. After ineligible articles were excluded, a sample of 174 gambling review articles remained. When coded for review type, 100 reviews had a systematized search strategy (SRs), while 74 were not systematized (NSRs).

Do systematized review search strategies include grey literature?

For the sample of 100 SRs, Table 2 shows how often grey literature sources are included in the search strategy. Just over half of the SRs included grey literature (54 of 100). There is no trend in grey literature inclusion increasing or decreasing over this timeframe, neither in raw numbers nor as a proportion of all SRs.

Table 2: Systematized review articles on gambling retrieved from the Web of Science database, 2016-2020 (n=100), summarized by year and grey literature inclusion.

<i>Year</i>	<i>Includes grey literature</i>	<i>Excludes grey literature</i>	<i>Proportion including grey literature</i>
<i>2016</i>	9	6	0.6
<i>2017</i>	11	11	0.5
<i>2018</i>	14	8	0.64
<i>2019</i>	10	10	0.5
<i>2020</i>	10	11	0.48
<i>All years</i>	54	46	0.54

What grey literature sources are searched?

Across the 54 reviews that included grey sources, 89 different sources were searched. The two most popular grey literature sources were Google (n=17), and Google Scholar (n=12), while several gambling-specific organization websites were also commonly used (e.g., GREO, n=11; Responsible Gambling Council, n=10; GambleAware, n=8). A few general grey literature

sources were popular, including ProQuest for theses and dissertations (n=11), two registries for unpublished clinical trials (n=10), OpenGrey for general grey literature (n=8), and snowball searching (n=10) and contacting subject matter experts (n=5) to find grey material. The complete list of sources is presented in Appendix 3.

Figure 1 summarizes how many grey literature sources were searched in each article. Of the 54 SRs that searched grey literature, nearly 60% (32 of 54) only searched one or two grey sources, most commonly a simple query of Google or Google Scholar or a snowball search, which would not be considered adequate by grey literature search standards. This is in addition to the remaining 46 systematized reviews that did not search grey literature at all.

However, there were also some thorough grey literature search strategies employed. Seven articles searched over 10 grey literature sources, while three searched over 20.

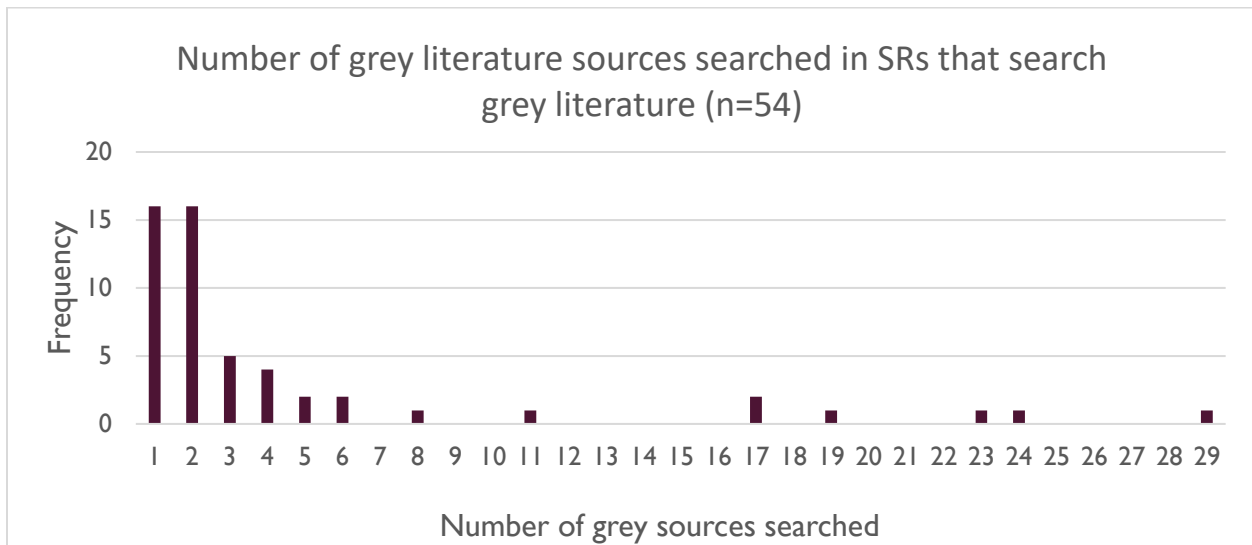


Figure 1: Distribution of number of grey literature sources searched in gambling systematized reviews that include grey literature, 2016-2020 (n=54)

To what extent is grey literature cited?

Of the 54 SRs that included grey literature in the search strategy, nearly three quarters (40 of 54) ultimately found and included one or more grey publications. This is encouraging considering that 32 (nearly 60%) of these reviews only searched one or two grey literature

sources, so the proportion of gambling topics for which relevant grey literature exists is likely higher than what is reported here.

When looking at individual studies included in the 100 systematic search strategies, a total of 3961 citations were made. Of these, 352 were citations of grey literature, or approximately 9.5%. This increases to 14.75% when only the 54 SRs that included grey literature are considered (352 of 2,385 included citations). When considering the full references list of systematic gambling reviews, grey literature represents 10.75% of all works cited (828 of 7704 citations). For SRs that do not search for grey literature, the average drops to 7%; for those that do, it increases to 14%.

DISCUSSION

My previous work has shown that grey literature constitutes a sizable and unique portion of research produced about gambling (Baxter et al., 2021a). This chapter extends that work by analyzing how that grey literature evidence base is incorporated into knowledge syntheses (i.e., review articles) about gambling. Grey literature was found to play an important but underutilized role in knowledge syntheses.

Although grey literature was searched in just over half of SRs on gambling (54 of 100), most of these grey literature search strategies were not comprehensive. Grey literature represents 14.5% of relevant works retrieved in those search strategies. However, when you include the other 46 which implicitly or explicitly excluded grey literature, it represents only 9% of relevant works retrieved. Both these figures are lower than the 18-33% benchmark established earlier in this chapter.

Why are grey literature citation rates lower for gambling reviews? It is possible that the lower grey literature citation rate in gambling is because there is simply less relevant grey

literature available, but this is unconvincing as it is already established that grey literature makes up considerable portion (an estimated 22%) of all published gambling research. It is more likely that the less thorough search methods are a contributing factor. In Severn et al.'s (2017) sample a grey literature search methodology and checklist was always used, whereas in the present sample, grey literature searches were only employed in just over half of systematized reviews, and were usually not thorough. Despite these limitations, at least one relevant grey document was found in nearly three quarters of gambling reviews that searched for it. Taken together this suggests that if comprehensive grey literature search methodologies were always used for gambling systematic reviews, the proportion of grey literature retrieved and cited would very likely increase, and I expect would fall within the range of other topic areas.

Another potential reason for low citation rates relates to the Reno Model debates presented in Chapter One. It is interesting that in their recent systematic review, Ladouceur et al. (2017) —many of whom are authors of the Reno Model— explicitly exclude grey literature on the grounds that it cannot be trusted, even though most of the authors have themselves produced sponsored grey literature. As those who ascribe to the Reno Model believe that the government should have minimal interference in gambling opportunities, they perhaps do not put much stock in government-produced gambling literature and exclude it from reviews (although they are willing to be paid to produce it). The matter of gambling researchers' trust in government grey literature is explored further in Chapter Three.

As this chapter has focused on academic journal articles, the opportunities for improvement lie with the study authors, journal editors, and peer reviewers. For this reason, attention should be paid to the journals in which gambling research is published. A mapping review of 2,266 articles investigating antecedents to harmful gambling found that gambling

research is overwhelmingly published in gambling- or addiction-specific journals (Hilbrecht & Baxter, Under review). Similarly, of the 23 “generally of low quality” review articles in the two available umbrella reviews on gambling (McMahon et al., 2019; Velasco et al., 2021), all but two were published in a gambling or addiction journal. Although detailed analysis is not presented here, 29% of the systematized reviews in this chapter’s sample were published in gambling journals, while another 31% were published in addiction or behavioural addiction journals, and the rest distributed across psychology, psychiatry, neuroscience, medicine, public health, and social sciences journals. Thus, it is possible that grey literature methods are not as well understood and utilized in gambling and behavioural addictions research communities as they are in the broader health research community.

My conclusion from this chapter’s investigation is that grey literature is inadequately cited in gambling systematic reviews because grey literature search methodologies are poorly understood by study authors and not enforced by journal editors and peer reviewers. However, there are possible alternative explanations if there are unique characteristics of gambling grey literature, such as being of exceptionally low quality or relevance. These possibilities are explored in the following chapter where I interview experienced gambling researchers about the editorial rigour of sponsored gambling grey literature.

CHAPTER THREE: GREY LITERATURE PRODUCERS' EXPERIENCES, MOTIVATIONS, AND JUDGEMENTS

It sounds like something that makes your stomach turn. Like, "Ugh, I'm going spend an hour talking about grey literature?", but it was much more interesting than I thought.

—William, Australia

INTRODUCTION

It is one matter for a library and information scientist to map the major topics of a multidisciplinary body of literature such as gambling grey literature, as I have in Chapter One, or to measure citation and reuse rates of such literature, as I have in Chapter Two. It is entirely another to contend with claims about the overall level of quality of this diverse body of research. This task is beyond my expertise or that of any one person or monodisciplinary team.

The only way for a graduate student to approach such an inquiry into gambling grey literature is to enlist the expertise of those who have done the work to create it and also have similar experiences to compare it to. Thus, for this chapter I conducted in-depth interviews with gambling researchers from multiple disciplinary backgrounds who have published work in both academic literature and grey literature formats.

In addition to gaining expert opinions about the quality of gambling grey literature, this approach reveals the experiences and processes of producing grey literature that cannot be determined from the documents themselves, and the costs and benefits researchers experience from these projects.

METHODS

This investigation employed in-depth interviews with researchers who published gambling research in both academic and grey literature venues.

Participants were recruited directly through my professional network as well as my supervisor's. In my previous work in gambling research I developed a network of acquaintanceship with many gambling researchers worldwide, thus I was able to identify and recruit enough suitable participants (i.e., those with whom I did not have a previous significant working relationship or conflict of interest) and achieve a high response rate. 20 of 26 (73%) of non-Indigenous invitees responded affirmatively and ultimately participated in the study.

Interviews normally took place as one Zoom call 60 to 90 minutes in length, but ranged from 30 to over 120 minutes. For three participants a synchronous Zoom call was not possible and instead they sent their responses by email or voice recording. Interviews were conducted by myself and two colleagues, and interviewers were assigned to participants in such a way that ensured no one interviewed any participant with whom they had a previous working relationship.

Interview questions revolved around the following three themes:

1. The participant's contributions to academic and grey research
2. Opinions on the relative quality of grey literature
3. Motivation and compensation for participating in grey literature

Zoom interviews were recorded in Zoom then transcribed using the Otter.ai automated transcription service. I then reviewed the materials to correct the transcriptions and remove identifying information. Participants de-identified except for country, gender, and Indigeneity, and assigned a pseudonym.

The interview prompts led to interesting discussions on many aspects of gambling research culture and the production of gambling research. However, to fit the scope of the present master's thesis, this chapter reports only on findings directly related to the perceived

quality of gambling grey literature and the costs and benefits of producing it, specifically that which is sponsored by government organizations.

Indigenous participants

It is imperative that a study of knowledge production in settler-colonial nations endeavour to reflect the knowledge, expertise, and experiences of Indigenous experts. Simply put, it would be racist not to. Thus, I made additional efforts to recruit Indigenous experts who were willing to share their knowledge.

Because there are so few Indigenous experts on gambling harm, and fewer still that publish in both academic and grey literature, we removed the academic publication requirement and sought Indigenous experts who have contributed their knowledge about gambling harm to projects or initiatives that had some sort of publication outcome. Still, few candidates were identified and the response rate was lower: Invitations were sent to six identified experts and only two interviews were conducted.

De-identification of participants

The global gambling research community is small, and thus many details were removed to adequately de-identify participants. Each participant was assigned a pseudonym. Profiles of all 22 participants including their pseudonyms and reported characteristics are presented in Appendix 4.

For non-Indigenous participants, their gender, country of residence, research discipline category, and non-Indigenous status are reported. Gender was not originally planned to be included but was found to be important factor in some people's careers. However, since the gambling field is small, this required the removal of some additional details about participants' work, particularly for women participants.

Research discipline is classified as either “psychology”, “humanities and social sciences”, or “public health”. These categories are necessarily broad to prevent identification, and although “psychology” and “humanities and social sciences” generally overlap, within gambling research they are sufficiently distinct and the distinction is well understood in the community. All participants agreed with the classification they were assigned

To adequately protect the identities of Indigenous participants, their country of origin was removed in the de-identification process. However, one Indigenous participant insisted on being identified. This participant, Dr. Ruth Herd, is a Māori woman who completed her PhD on the topic of Māori youth gambling in 2018 but has worked with Māori community action groups to reduce gambling harms for 20 years. When I explained my intentions to anonymize the interview, she asked instead to be identified and taught me about the native Hawai’ian scholar Dr. Manulani Aluli Meyer. In her PhD thesis on Native Hawaiian Epistemology, Dr. Meyer interviewed 20 Hawaiian cultural leaders and identified them all by name and place in the text for the following rationale:

“Citing names on each of the quotations validates the findings from a Hawaiian ontological and epistemological base. Although this belief may clash with mainstream expectations of anonymous qualitative data, it is absolutely fundamental if this work is to be taken seriously in our Hawai’i community.”
(Aluli Meyer, 1998)

To Dr. Herd, it was important to follow this Indigenous methodology as it would bring more validity to her words. Also speaking to the dearth of Indigenous gambling experts, she stated quite pragmatically, “There’s only three of us [Māori gambling PhDs], so it’s better for people to know it’s me than to guess.” (personal communication before interview recording).

RESULTS

A note on sponsor types

Before discussing themes of grey literature quality, I will make a note about the different types of research sponsors. Although only government-sponsored gambling grey literature was analyzed in Chapter One, the full scan for gambling grey literature revealed three other main sponsor types: gambling industry, think tanks, and grassroots NGOs. However, government organizations fund a large majority of these research publications.

The interviews revealed two additional methods of gambling research sponsorship that could not have been captured in a grey literature scan. The first is grants from national Research Councils. When discussing the quality of grey literature, there was wide agreement amongst participants that Research Council funding is ideal for creating research of academic interest and merit, but sponsored gambling research is a much less competitive and therefore more reliable source for bringing in grant money that university faculty are pressured to generate and rewarded for securing. Only a couple of participants reported success in getting grants for gambling research from general Research Councils, while most others reported focusing on getting grants from gambling-specific sponsors. Some even specifically reported not bothering to send gambling proposals to Research Councils because they don't see it as their responsibility to fund gambling research:

Because we have a mandatory levy on the gambling industry, the money goes to the Ministry of Health and then they fund [gambling research]. So the big funding bodies like our Health Research Council generally won't even consider a gambling grant [...] I've given up trying with the mainstream because the response always is, "Well, the Ministry [of Health] funds gambling so we can put our money towards funding research in other health issues".

–Patricia, New Zealand

Industry-funded *academic* gambling research funding is the second type of sponsorship not revealed in Chapter One. Two participants who routinely take research from industry sponsors, Ken (Australia) and David (United Kingdom), describe how the primary output from these research projects are academic journal articles rather than grey literature reports. This journals-first approach is also seen in the United States-based funder International Center for Responsible Gaming (*About ICRG*, n.d.) and is unique amongst gambling research sponsor types. Potential reasons for this approach are explored in the Discussion section.

General impressions of gambling grey literature

Nearly all respondents made qualified comments about the overall quality of gambling grey literature, saying that it is highly varied but overall comparable or equivalent to peer reviewed journal articles.

It was revealed in these interviews that a large portion of gambling journal articles originate from government-sponsored research projects or grants from government-organized gambling research organizations, where portions of the larger project are suitable to be adapted for a journal article.

For the most part [the quality] is equivalent, because it's often the same research that's get getting reported on, right? It's often more verbose, but that's really just a presentation thing.

—John, Australia

In these cases, the methodological quality would be effectively equal if it is the same research being written up for different audiences, but the editorial standards could be different.

A few participants did argue that grey literature is fundamentally higher or lower quality. Ken (Australia) argued that government-sponsored work is of lower quality because the participating researchers and peer reviewers have less agency: the sponsor's policy agenda for the research question constrains the researcher, and that even when government research is peer-

reviewed, the peer review process is more opaque, and the sponsor can override peer reviewer comments. Rose raised similar limitations, noting that the sponsor's boundaries on the research question are limited not only by gambling policy interests and goals, but in protecting the revenue source for the research itself:

The New South Wales Office of Responsible Gambling, they're funded through a levy on the Sydney casino, so that's a constant source of resources to do research. One of the problems with that is often, if they're setting the terms of reference for a particular topic, they're not necessarily asking the most interesting question. It's kind of, the question that will be less dangerous to the revenue stream.

—Rose, Australia

On the other hand, Brian (Canada) argued that gambling grey reports are “fundamentally better than journal articles” and “much better quality”, detailing how over the past 20 to 30 years, grey literature standards have somewhat increased while the standards for peer-reviewed journal articles have steadily decreased due to the proliferation of niche gambling journals, and journals using fewer and/or less experienced peer reviewers, and as a result “everything gets published now”. Eileen (UK) noted she purposely avoids publishing her work in gambling journals for this reason.

It is worth noting here that in a systematic sample of gambling journal articles with Canadian contributors over half of those articles (at least 53.5%) were published in gambling- or addiction-focused journals (Hilbrecht & Baxter, Under review), so Brian's criticism of research published in niche journals applies to a significant portion of gambling articles. This criticism was echoed by several participants who, when stating that grey literature quality varied and some was not so good, immediately pointed out that they have seen gambling journal articles that are just as bad:

Some of the grey literature is not great, but [...] I've read academic journal articles where I've also thought they were hideous. [...] So just because

something is in an academic journal doesn't mean it's good. Likewise, just because it's in grey literature doesn't mean it's bad.

–Christine, UK

I think it's generally approximately equivalent, it's fine. I mean, I don't think the standard of literature in gambling is very good compared to other fields. [...] it's a pretty low bar getting past peer review in a lot of journals, especially gambling journals.

–John, Australia

Another participant also specifically noted the limitation that much of the peer reviewing for journals is done by graduate students:

I have worked for journals, and in the last 12 months, since COVID, it's impossible to get reviewers [...] But even when you get graduate students, you always think, "Oh, yeah, they'll do it" [...] But it doesn't mean... is it really a "peer" review then? [...] Not that I'm saying there's anything wrong with it, but graduate students will be different. One of my recent grey reports was clearly reviewed by professors and people that were experts in what they were doing. And then you look at my last journal publication, it was clearly reviewed by someone that was new to the field and didn't know what they're talking about.

–Jessica

As a final note for this section, when asked about gambling grey literature, Peter unexpectedly brought up technical documentation produced by gambling operators that describe how their games work. This is certainly grey literature but was unexpected in the interviews as it is not gambling “research” *per se*; they are technical documents created for marketing or licensing purposes, but nevertheless provides reliable factual evidence that can serve as the basis for academic publications and cannot be found anywhere else. In Chapter Two I had dismissed manufacturer information as a useful source of gambling grey literature, but it is perhaps an untapped trove. In his words, “It’s been one of my most valuable sources for understanding how games are designed. [...] I almost feel that in the field of problem gambling, you can build a career upon searching for and finding [this type of information]” (Peter, Canada)

Opinions of government gambling grey literature from experiences creating it

Effects of sponsor's initial involvement on research quality

Neutral opinions

When asked about the relative quality of gambling research published as government-sponsored grey literature, participants had a variety of opinions. There was wide agreement that gambling research destined for grey literature has more involvement from the sponsor than academic gambling research, but attitudes about the sponsor's involvement varied. Many researchers discuss the involvement neutrally as a matter of course for the research project. Here is a representative quote from a researcher who routinely works on government-sponsored projects:

You don't do commissioned research for academic freedom. You're commissioned to do a prevalence study or something, and it's their prevalence study [...] I would imagine that it's easy to think about that as interference or anything like that, but I don't really see it like that because it's their project [...] I don't mind that so much with the commissioned stuff. Because in the end of it, with the grant research stuff, that's more attributed to us, whereas with this stuff, we are able to say that the funding body has made some of these decisions and it wasn't on us.

–Douglas, Australia

Aaron (Canada) described a key difference in sponsored research questions being of direct policy relevance rather than “curiosity driven”. In his experience, there is some dialogue with the sponsors to teach them research methods and improve the study design. His sentiment was less detached than Douglas's. The process can work well but can also result in “compromises” that render the study of lower quality than his other work:

Some funders occasionally did these things and said, "We want to know what the effects of X in a gambling venue is, so can you do that research to answer that targeted question [...] So then you try to show them the appropriate experimental design to do this. [...] You are kind of caught, when it's a source of your regular funding to do all your peer-reviewed research and they ask you as a kind of favour to do this targeted research. [...] They're the ones footing the bill and say "Well, I really want to see what happens when you do it this

way." So you make compromises that allow you to fulfill the contract, but aren't necessarily the best route for getting the high impact publications.

–Aaron, Canada

Negative opinions

Participants who were most critical of government-sponsored gambling research were those who also routinely accepted research funding from the gambling industry. They described government involvement in sponsored research negatively as “interference” as suggested by Douglas above, and found industry-sponsored research to be of higher quality because there was less interference from the sponsor, both in the research design and in the final editing stages before publication.

“In our experience [the] industry may provide us with data or access to participants. But the methodology is determined by ourselves. We then prepare the manuscripts, we publish the manuscripts, and then submit the published manuscript to the industry body. In contrast, with the government funded projects we see examples where the methodology has been done in collaboration in quotes, ‘collaboration’ with the researchers, which means they were instructed to change the methodology or to include or delete certain questions, and then they have to provide a copy of the manuscript for approval prior to submitting for publications. So consistently, the government interference is, in my view, much greater than the industry in this current state.

–Ken, Australia

Another participant who preferred working with industry sponsors held that well-funded government prevalence studies were high quality research, but questioned their value for informing [problem] gambling policies:

[Most prevalence studies in the grey literature] will be peer reviewed, and they're of high quality. [...] But you could argue that prevalence surveys [don't really move the field forward]. A typical British Gambling Prevalence Survey for example costs maybe a million pounds, and out of that, these are the kinds of reports where you base public policy for things like problem gambling, but if it surveyed a nationally representative sample of 8,000 people, basically you've got 50 or 60 problem gamblers in that sample. And then the whole of your policy for the whole country is based on these 50 or 60 problem gamblers. And I often ask myself "is that good value for money?". Wouldn't interviewing 50 problem gamblers be more valuable than the survey data from

the 50 in a representative sample of 8,000 people across the country? [...] There needs to be dedicated services, helplines, treatment facilities, because we know that a small but certain significant minority of the population are problem gamblers and need help. Whether it's 1.8% or 1.6% do you need to spend a million pounds to see what the difference is?

–David, UK

Positive opinions

On the other hand, one researcher described the government sponsor involvement very positively, as something that is ultimately beneficial. Christine, based in the UK, has found she does not need to “compromise” research methods quality with the sponsor, and instead can “co-produce” something better:

Christine: I'm quite used to dealing with clients where you think that they haven't quite asked the right question and then working with them to refine what it is they're doing [...] My observation would be that a lot of academics doing grey literature work perhaps aren't as used to that kind of co-production. It's a form of co-production. [...] In my experience [...] we took a brief, we'd go back to the brief, we go back to the client and say, "These are the elements of your brief that makes sense. These are the elements of your brief that don't make sense. This is what we think you should do." [It] worries me a little about how academics who aren't used to doing that, who are much more wedded into "I write a research grant, and then I work on my own package of work." [It could be like] "Oh, I've been funded to do this for this client, they are a client, they want me to do this, I'm just going to do what they want me to do." [But] sometimes you have to stand up to the clients [...] gently telling them that what they think they want isn't actually really what they want, because what they want is a bit daft.

–Christine, UK

The editorial process is not the same, but is comparable

Comparable quality

Most commonly, participants described the level of quality of grey literature editorial processes, including peer review, as being comparable to published journal articles.

Vanessa compares grey reports to academic journals in a positive way, explaining that government-sponsored grey reports have increasingly added peer review components that, like a good academic journal, improves the quality of her work.

A lot of my earlier reports were not necessarily peer reviewed. But more recently, some gambling funders I've worked with were set up to include a peer review process for making grants, you know, reviewing proposals and deciding which ones to fund. But then also the reports were all peer reviewed, [...] it's an iterative process before any of the reports for that body could be finalized, and I thought that was really valuable. It's a similar process to what I went through with all of my academic publications. But I felt it really strengthened the research to be able to have that.

–Vanessa, USA

Likewise, Patricia trusts grey literature to be almost on par with journal articles when it is peer-reviewed by academics, but doesn't have that trust for other types of grey research publications:

I would say, [government sponsored] grey literature that is peer reviewed by academics [...] would be on par with probably mid-level journals, in terms of quality. But of course you've mentioned all sorts of other grey literature, like data and reports produced by industry. Some government organizations here do these little grey literature sort of very "soundbite" type things, and I don't know that they're peer reviewed. [...] And so therefore, I would say it could not be considered to be at the same quality as journal articles.

–Patricia, New Zealand

Some participants raised the important distinction that grey literature peer reviewers are often paid for their labour, while academic journals rely on unpaid labour for reviewers. Jessica raises both positive and negative aspects of this difference: grey literature is able to attract expert senior researchers as reviewers because of the financial compensation, but when the reports are very long the reviewer cannot review them with the same thoroughness as for a journal article.

The problem if you have a 300-page report, then it is not possible for a reviewer to review that report as you would a 6000-word journal article. [...] I've done a lot of reviews for gambling research funders, and it is not possible, when someone's giving you basically a day's pay, to properly review a very lengthy report. [...] You have to do it in the parameters of the time. [...] But then I've had many journal articles that they struggle for peer reviewers now. The peer reviews often aren't very good, particularly at a not high-level journal.

–Jessica

From his experiences doing and receiving peer review of grey literature, John too mentions the challenge of properly reviewing a long report, but also notes that he has provided “picky” or generally unimportant criticisms on otherwise good reports because he felt like he had to give a lot of feedback to earn the payment:

I wouldn't say [paid peer review is] 'better' necessarily, just more picky. It's a psychological thing. I've been in the same boat myself where a government agency has kindly said, "We want you to read this tremendously tedious 400-page report and give us your critical review. We'll pay you a couple thousand dollars to do it." And it's like, well, I can't just go "It's fine." even if it is, you know? I need to earn my money.

–John, Australia

As with general impressions of grey literature quality, many who discuss the editorial challenges of grey literature are quick to acknowledge that academic journals have comparable issues. William articulates that both literatures vary in quality but the editorial processes of journal publications eliminate some of that variability, keeping out some of the worst work as well as some of the “most important” gambling research.

I think it's fair to say that editorial processes with grey literature are very ad hoc. Depending on the piece of work, it may be properly peer reviewed, it may have no peer review, it may draw on things that have been peer reviewed elsewhere. I think some of the most important pieces of gambling research I've read have been grey literature that for whatever reason never found its way into an academic publication. I've also read a lot of really crap grey literature that clearly was written to fulfill a contractual obligation and little more. And so I think probably the biggest difference in terms of quality and standards is the variability of standards between academic literature and grey literature. [While] there might be gatekeeping around issues which we think there shouldn't be [...] it's pretty clear what they are and so there's a certain level of predictability involved [in the academic literature].

–William, Australia

Higher quality

Regarding the quality standards of the peer-review and editorial processes, a few participants strongly held that the processes were more rigorous for grey reports they produced.

Brian describes peer-review editing for grey reports as being more thorough and a collaborative process resulting in a higher quality product, using the terms “interactive”, “two-way conversation”, and “thoughtful discourse” to describe the experience. He also reflects on how the experience is different for the peer reviewers themselves, who may have less power than in journal peer reviewers:

When you do get something reviewed by academic reviewers in a journal, the tendency is to agree with everything they say (laughs) [...] and that's not very fair to academic quality. What happens in grey literature [is more] interactive. For example, I did a report and got tens of pages of critique from six different reviewers. [...] Collectively, you actually work towards a better quality, better honed product. It's a much more positive experience for the submitter. Maybe not for the reviewers, because reviewers are used to saying "do this, this and this" and it gets done. Reviewers generally don't like pushback, but it's a more satisfying process and produces a better quality work in the end.

–Brian, Canada

While Vanessa complimented the grey literature review process for being similar to peer reviewed journals, she goes further to say that grey literature contributions should receive more recognition because the amount of revision and iteration is much greater for peer-reviewed grey literature than for academic journals. The following quote also demonstrates how the author can be more assertive with the peer reviewers than in the academic journal context:

I have done grey literature reports and academic publications. And I would say, at least in the last 10 years, that the process of getting those reports published has been, by far, more challenging in terms of the review process than any of the academic publications. [...] An academic publication only goes through about two rounds of review. Well, one of my reports went through five rounds of review, and it was back and forth and back and forth, and it came down to one section, that the reviewers said, "You can't put this in." And I said, "You can't tell me I can't put this in, it has to be in [for these reasons] ". And we went back and forth about how something was measured and whether it should be reported.

–Vanessa, USA

In another vein, a UK researcher raised an important point about how the editorial process for government grey literature can have other qualities that are more concrete than

academic journal peer review processes, such as quality standards for the UK's Office of National Statistics kitemark:

Most of the [grey literature reports] I've worked on have all been peer reviewed. [...] I have done grey literature work that was not peer reviewed but did meet very stringent reporting standards set out by the Office for National Statistics to be designated as national statistics. And then they have a massive level of oversight within government to ensure that they are of the highest quality so that you can have a national statistics kitemark. So under those circumstances, you can see why peer review isn't necessary, because there is a quality framework that underpins those reports.

–Christine, UK

Lower quality

Some who were involved in providing peer review for grey literature experienced the review process as being inferior. Ken (Australia) had a lower opinion of peer reviews that were not blinded, which happens occasionally, although more often they have a single- or double-blinded review process. Serving in the role of the peer reviewer, Ken was also disappointed when his comments and feedback were not heeded in the way that is expected in academic journals.

What you don't see is, having been a bit involved in peer reviewing some of this grey material myself, you provide the feedback to the funding body and the funding body contacts the authors, they have a discussion, and they work out what needs to be addressed, and they proceed to publish it. Whereas in a proper peer review, the review goes [directly] back to the authors and the authors have to address it, indicating exactly how they've addressed that particular criticism for the referees. It often goes back to the referees for additional further comments to make sure that they changes have been made according to their initial feedback. A lot of that is absent within the grey material”

–Ken, Australia

As for participants who had their work peer reviewed in this way, there were other complaints. Although no one else mentioned concerns about the blindedness of reviews, a common sentiment was a dislike for when sponsors employ peer reviewers who are not academic

researchers, who thus do not provide a true “peer” review. There was a range of responses to this issue illustrated with the following two quotes.

First, we have Rose who did not like that her peer reviewer was a non-academic who works closely with the gambling industry but acknowledges that the reviewer did give some valid and useful comments.

One of my reviewers was a non-academic who worked in gambling space [...] They were someone that I knew has been quite complimentary and close to the industry. Some of their comments were good and helpful and valid, and we incorporated them, but other comments were not so much. I don't think they've published much, so I don't think a journal would send a report like that to someone like them for peer review.¹³

–Rose, Australia

In a more dramatic example, Vanessa notes that the reviewers may have conflicts of interest or may not have the correct expertise, and recounts dealing with “hostile” reviewers and struggling to negotiate with the reviewers and sponsor to ultimately include the data she thought were important.

None of these reviewers were gambling researchers [...] They were government bureaucrats. They all deemed themselves experts on surveys, but none of them had ever done a gambling survey, [...] they didn't know anything about measuring gambling. After that back and forth I felt like... "Ugh, these reviewers! They just don't know what they're doing." So there's a different kind of rigour [issue] compared to when you're dealing with peer reviewers in academic journals, here you're dealing with potentially hostile stakeholders, right? Who have the power to review your studies, and the power to suppress them or suppress results. Of all the hideous review stories that I have, that was probably the worst.

–Vanessa, USA

David raised a complaint not with the peer review process but with both government and grassroots NGO sponsors’ final editorial control over what is written in the report and any press

¹³ In this example, Rose explains that it was a blinded review but due to an administrative error the identity of the reviewer was revealed to her

releases. Echoing Ken's praises for gambling industry sponsors' non-involvement in research design, he exclaims that industry sponsors are so uninvolved in the publication process that "they don't even want to read what we've done" until after it's published:

If you exclude the Research Council grants [that] everyone tries to get, [...] in terms of interference with reports, it's with the government funded reports, numerous times we get called in to meetings and every sentence is scrutinized and will not be released until the funder has said "this is how it's going to be" and they've told us "in the media, this is what you're going to say and what you're not going to say." [...]

Whereas of all the papers that I've said "this has been funded by the gambling industry.", there has been absolutely no interference whatsoever, and they don't even want to read what we've done. Well they do want to read it but there has been no feedback in terms of "you can't publish this", because basically the contract we've signed is that we can publish anything from the data that you give us. [...] In terms of interference by the funder, I've had less with the gambling industry, than I've ever had from government or charities.

–David, UK

Other publication challenges

When a peer reviewer recommends “rejecting” the study

Brian's criticism that “everything gets published” in the academic gambling literature raises the question of whether the same is true of grey literature. This topic sometimes came up during the interviews. Two participants had served as peer reviewers and recommended not publishing the report; for one the sponsor published it anyway, and for the other the sponsor heeded his advice:

Nothing generally gets rejected [in peer-reviewed grey literature]. The peer reviewers very rarely would go back and say "No, this is no good, don't publish this." I did that actually, once, but the organization published it anyway, of course, because it was paid for and you can't just... that's a big deal.

–John, Australia

I have peer reviewed some grey literature stuff and really ripped it apart, because it was quite poor, really. And it didn't end up getting published. [...] I wouldn't say there's much published from our funding bodies that is terrible or anything like that. I don't think there's a huge issue with quality of grey

literature, at least out of the places where we do it.
–Douglas, Australia

Douglas also observed that a study is only likely to be of insufficient quality if it is poorly funded (“\$15,000 rather than \$1,000,000”) in which case it is easier for the sponsor to cut their losses on what was already a smaller expense and lower priority in the first place.

When the sponsor doesn’t like the research findings

As noted earlier by Rose, some government-funded sponsors avoid posing critical research questions because they may threaten the organization’s future funding. Others noted that even if sponsors do fund critical research questions, they may be reticent to publish critical findings. As illustrated in the following two quotes, sponsors may publish such reports with delays and without drawing attention to them, or formally impose an embargo on publication.

They are very risk averse. They're a statutory authority so they're nominally independent of government, but obviously they rely on government appropriations for their existence. [...] So the peer review process was okay, that wasn't an instrument of distress, but it took them forever to publish this particular thing, and in the end they gave it as little fanfare as they possibly could as compared to some other reports that they've trumpeted quite loudly. [They] did everything they could to avoid drawing attention to it because I think it was politically disadvantageous for them at the time. Having said that, I note that they have cited it when they needed it.

–Jason, Australia

If they [the government] don't like it, they'll raise the issue [and sometimes] it's really controversial. I remember once we had to go meet with the government representative and talk to him and he wasn't pleased. He wanted an embargo on it for a month or two. We checked with the funder and they said "Okay, that's fine, two months." But then we heard that they went looking for other researchers that might challenge the findings. I don't know if they actually did or not, but nothing came of it.

–Randall, Canada

When third parties don’t like the report’s findings

In the previous quote, Randall mentions the possibility of a third party aiming to challenge a published study; in his case it was the government who was not the direct sponsor of the study. This is a compelling topic and is a tactic used in other fields with strong vested

commercial interests such that there is a whole chapter dedicated to it in *Bending Science* (McGarity & Wagner, 2008a), titled “Attacking Science”.

In Chapter One’s mapping review I found only a few examples of grey publications which were directed “attacks” on other gambling research publications, and they are usually sponsored by gambling operators, which have an obvious vested interest in undermining studies that threaten their means to operate gambling with minimal regulation. Although the apparent attempt to challenge Randall’s study did not come to fruition, two other participants raised examples of this:

It was a report that the gambling industry commissioned which was basically a hatchet job attacking my research, they paid an organization that does PR-type work for other industries. Because from the industry's point of view we were exaggerating the impacts of gambling and making a big deal out of it. So they commissioned a big report [...] that wouldn't have gotten published in a journal because it was so obviously just a political exercise. But that's grey literature, right? But nobody cares or cites it because it's just obvious what they've done. So that's an interesting little example. It's unusual though, I think. Most grey literature isn't like that, but that's one example. [...] there's obviously a lot of money at stake in gambling just as with other industries like that, and where there's a lot of money at stake, they play hardball [...] they gave that to the government and demanded that they retract our project, the study, and so on. And the government told them to get stuffed, and it was great.

–John, Australia

At one point the gambling industry paid people to examine some of my grey literature research to see if it was biased, and they didn't find anything. I was initially quite annoyed (laughs), but in retrospect I am quite grateful that they did it because it told me that what I was doing was probably up to pretty much the peer review standards.

–Vanessa, USA

It appears that direct attacks on studies and individual researchers are not as common a tactic used by gambling vested interests as by other industries as illustrated by McGarity and Wagner (2008a), although there are examples of attempts which appear to fall flat. The arena for attacks on gambling research may instead be the editorial sections of gambling journals, where

researchers who are well-funded by the gambling industry periodically make arguments that attempt to undermine political and public health research on gambling. Examples include criticizing sociopolitical research for its use of politicized language and “creat[ing] the impression of a conspiracy enacted by a large and unified global gambling industry” (Delfabbro & King, 2017), or arguing that public health researchers should not advocate for the health of the public or promote their research findings on social media (Delfabbro & King, 2021). Some participants raised the issue of doing “advocacy dressed up as research” as is sometimes requested by grassroots NGOs, but that is very different from arguing that researchers cannot also be advocates outside of their research activities.

Costs and benefits of producing grey literature for academic researchers

Costs

Participants widely agreed that grey literature is not as highly regarded as academic publications when one is evaluated as a university-based researcher. As plainly stated by John (Australia), “we don't really want to write reports, we want to write academic articles, but the organizations that fund the research want a report.” Thus, the central challenge of producing grey literature is that the time spent producing grey reports takes time away from academic research and publications that further one’s career.

Many participants expressed frustration with this hierarchy while acknowledging it was an acceptable cost for securing research funding. Some also felt they incurred a true career cost from pursuing this route:

Interviewer: You said it has perhaps affected your career. But I also notice, if you've done a majority of these peer reviewed grey reports, it is possible still to have a career in this area.

Patricia: Yeah, it is, but I've probably advanced slower than I would have done if I'd been a traditional academic just publishing in journals.

–Patricia, New Zealand

A technique that was popular amongst participants was to adapt portions of sponsored research reports into journal publications so they could maintain an academic publication record. Patricia (New Zealand) also noted the benefit that journal articles help build recognition and reputation internationally as grey literature reports don't get much attention outside of one's own country. Most participants spoke about adapting reports into journal articles as a very natural matter of course, however Ken (Australia) warned it can be an issue for the many journals that do not accept content that has been published elsewhere. William (Australia) noted that if one is savvy, they can get around this by building into sponsored grants additional research questions that are of academic interest and could be published as their own papers.

Even when using this adaptation method, however, there is still a cost in having to write a report for one audience and then rewrite for a different academic format. Some participants have started negotiating with government sponsors to lower these barriers. For example, John (Australia) asks for the right to write and publish papers during the project instead of an embargo requiring the grey literature report be published before any articles can be pursued. Jessica has taken it further by proposing to not write a report at all and instead write academic articles with a project executive summary:

No funder ever reads the whole document, that's the problem. They mostly just read the executive summary. I worked on one of those big reports and only one or two papers came out of it, which makes you wonder why there's a hundreds-of-pages report with only two papers. The bottom line was that I think they just didn't get time [to write the papers] [...] and that's why with that last project I said, "I'd prefer not to write a traditional report, I'm giving you this". And I told them I was going to put a longer executive summary on the front for them, and that it was going to be separate papers with a discussion, and this was accepted.

—Jessica

Taking a simple approach, Patricia recently started making her grey literature reports less technical and detailed. This has benefitted her as she spends less time writing the report and also

makes the report more readable by the non-academic sponsor, but renders the report less useful for other researchers who would benefit from the higher level of technical detail.

Benefits

Despite the costs to one's academic publishing record, the nearly unanimous benefit of producing grey literature research is the relative ease of securing the grant funding compared to Research Council funding. Douglas noted further that once you get one grant and do a good job, the sponsor may come to you directly for future projects, meaning the funding stream can become more steady and even dependable. Several participants noted that their universities value the amount of grant money they bring in as much or more than the academic publication record, so overall the effect of securing more funding but producing fewer academic publications may serve one's career just as well, if not better:

Grey literature is somewhat recognized in promotions, although it has some lower cachet than journal publication. [...] Grant money is a primary metric for promotion, particularly to the higher positions of Associate Professor and Professor

–Tyler, Australia

Secondly, although grey literature is not always recognized as a “publication” *per se*, it can still contribute to one's career if you have an opportunity to demonstrate or describe the impact of one's research in one's evaluation. Some participants, including Aaron, Brian, and Randall in Canada, noted that they had some leeway within their university to have a conversation about how their grey literature was important, for example if it was highly cited in Google Scholar or had some policy impact. Speaking from the United Kingdom perspective with specific reference to the Research Excellence Framework (REF), David described how, although grey literature was not counted as publications in the Framework, it can factor heavily into the “Impact” portion:

REF is still fundamentally about the amount of money you bring in and your journal publications, but the impact agenda was brought in by REF. So for the REF, about 20% of our rating depends on impact. [...] For instance, I could show that my work had changed laws, that it changed policies, that it changed day to day practices. [...] Quite often it's a piece of grey literature that is at the heart of showing your impact in a particular area.

–David, UK

Looking beyond one's own career, several participants noted that grey literature can present a bigger opportunity to make a positive societal impact, and this can be well worth the challenges that can come with it. Aaron noted that the wider dissemination and audience targeting of grey literature makes it a bigger driving force of policy change than academic publications:

[This interview] opened my eyes as to how much the impact of our work depends on the grey literature in terms of policy changes. This thing I've been relegating as second tier may turn out to be the most important in terms of the grand scheme of things. I've called for policy changes in my articles, but it may be the grey literature, or knowledge translation journalism pieces, YouTube pieces, that are actually the driver of that. So ultimately, it's a good thing.

–Aaron, Canada

Peter felt it was a matter of responsibility for any publicly funded researcher to give back to that public:

For producing grey literature, and I would include in that public presentations where I do a PowerPoint show at the library for example, is sort of giving back to society. We are funded by the government, funded by the people, and problem gambling is not well understood so I welcome the opportunity. I go out of my way to [...] try to make the public more aware of what's going on with respect to gambling.

–Peter, Canada

For Christine, the opportunity for impact is not necessarily in the broader dissemination of the work, but by being in direct conversation with the government and policymakers and being able to negotiate or “co-create” the research to make it more useful.

A lot of times you're doing these reports with government and that means you've got a direct conversation with the government, with the policymakers, you're there at the coalface to be able to then generate the impact.

–Christine, UK

Acknowledging that grey literature is important for driving policy changes, Eileen argues that there should be better (non-monetary) recognition for doing such work, so that you can attract “good people” to do it:

You want good people to be doing the grey literature work. You want people who are enthusiastic and driven and motivated. [And] you don't really want them to be doing it only for money, because there's usually compensation involved with those pieces of work. It would be nice if they were academically rewarded for that as well.

–Eileen, UK

Randall, who enjoys gambling himself, is in part motivated to help make this activity he enjoys be provided better in his country:

When I write articles or reports that are critical, the purpose is to make gambling better. I'm not anti-gambling, I gamble myself. It's not saying to limit gambling or cancel it; it's saying let's make it more legitimate and make it fair. It shouldn't be such a money maker like it is now because it makes the government willing to look the other way.

–Randall, Canada

Other participants also wanted to see their work have a positive impact on society but saw their role differently. John, Douglas, and Ken all saw the purpose of their work as researchers was to reveal the facts and not to take a position as an advocate for or against gambling. John further stated that a researcher can also do advocacy in popular media and has done so himself, but cautions researchers to keep those activities separate:

I also do psychology research on non-gambling stuff, and for instance I wrote a magazine article to help counter current misinformation. [I did it] because they made me angry (laughs). Well in that case, [I did it] personal reasons. You know what I mean? It's connected to my expertise. [...] If one is doing advocacy then that's great, [...] but my opinion is: keep that separate from doing scientific work. Keep those two things in separate boxes in your mind. Otherwise, you'll be doing a kind of scientism, going through the motions of

doing evidence-based research when actually what you're doing is advocacy.
–John, Australia

Indigenous experts' experiences

In the interviews, the two Indigenous experts were additionally asked to reflect on differences in their experiences contributing to Indigenous-led and settler-led projects. Ruth cited several challenges in working on settler-led projects. When working as an Indigenous representative on an expert panel for a gambling research project, she struggled to secure the basic financial support she needed to attend the meetings:

I was a doctoral candidate, and [...] I was a struggling student, so I could barely afford to take time off work to come to these long meetings. [...] And [my university] charged the world for parking. I was like [...] "Can you get me a car park?" And the struggle just to get that sort of support to attend the meetings was like, "Are you kidding me?" You know? (laughs). You're not getting a gratuity, but you can't even afford to park. So those were the struggles [...] that were flavouring my experience of being part of that expert advisory group. [...] That's not how experts should be treated, but it happens.

–Ruth, Māori gambling expert

Some of the other challenges she discussed were directly attributed to racism. In one project she was responsible for doing focus groups with Māori and when the project organizers wanted to recruit more Māori participants, rather than raising this concern to Ruth they had hired a second Māori woman to do more focus groups and didn't tell them about each other.

I was also asked to support the research and get a group of people together [for focus groups], and they paid me to do that part and I willingly did that part. There was a new worker [on the project] and she was kind of running all her anxiety at me because there weren't enough Māori. [...] so she went off on her own without talking to me and recruited another person at another Māori gambling provider to run another focus group. [...] So I pulled them up. I actually sat down with the head of that Centre and the researcher and just said, "Listen, this is not how you do things when you're working with Indigenous people." So they got told off. And so then they pulled back from me and became all indignant about it. [...] I actually had to go and do some relationship repair damage there because they didn't realize I was also part of the project, and so they were like, "Oh, how come Ruth didn't come and see us?"

Furthermore, at the end of the project when the report was being finalized, it “added insult to injury” to see that the two Māori researchers who organized the focus groups were only “acknowledged” rather than credited as authors, with no adequate explanation given. This experience turned her off from doing future work with that organization:

That's why now, when a subsequent researcher comes along and doesn't know me, sees my name in a Google search, and on comes on to my LinkedIn [...] I see who it is looking (laughs). I pay for LinkedIn Premium because I want to know who's looking at me. And then someone called me and asked me to be on a panel with that organization. [...] So I [declined] and told her exactly why. I said "I'm not interested unless I have naming privileges on the papers that are produced, and that the consultation with Māori community is not done behind my back." [...] That's just common courtesy to any researcher, but when it happens to Indigenous [researchers] it's more of a kick in the teeth.

Another notable issue that came up was preservation of Indigenous-led grey literature. Preservation and management is a defining challenge of grey literature and was raised by one other participant (Christine, UK). But where Christine described difficulty in finding her older reports online, Ruth described a report she worked on being all-but-lost, having not been preserved even by the original sponsors and the only known copy being a hard copy in her possession. The report in question was the *Te Ngira* workplan (Raeburn & Herd, 2004), an important framework that represents Māori women’s leadership in public health approaches to gambling.

There were only 100 copies printed, because the field was so small at the time. We gave a few out to all of the providers, like maybe eight or ten copies went out. And I kept one and I've still got it. [...] I did have the original electronic documents and of course, I left them behind when I left. [The organization] didn't archive very well because they ended up with no copies. People were asking them for a copy and [...] I was like, "I'm pretty sure I've got it on a disk somewhere" (laughs).

As a result of our conversation, Ruth digitized her hard copy and I deposited it in Greo’s *Evidence Centre* gambling research library where it is now preserved and freely accessible.

When asked about motivations in contributing her knowledge about gambling to grey literature projects, Ruth was very clear that there were different motivations for participating in Māori-led vs non-Indigenous-led projects, as a matter of self-determination:

I'm less motivated to contribute to non-Māori-led things. Because, you know, we talk about "mana motuhake", which is autonomy, and "tino rangatiratanga", which is part of the treaty, self-determination. We're less [self-]determining when we're not controlling the space. You're less self-determining, when its other people determining and defining us, which is a problem.

Ruth also found that Māori leadership had a sense of equity for all its communities in New Zealand, which was not seen in European-led projects. She shares a story of a Māori woman who, much to the surprise of the New Zealand government, shared her grant money with other Māori groups.

To get her to shut up [the government] kind of threw some money toward her. This is how she describes it herself. [...] and I think they thought she was just going to keep it all to herself. It was quite a sizable amount of money. And instead, she divided it up among different areas and gave it out to the whole of the North Island and some of the South Island. There were consistently 14 Māori providers or more [...] She just decided to form a reference group, to get all the people around the table, and then they divided up this chunk of money and formed the group so that there was a caretaker for that particular fund rather than it just being her and being subject to the criticism that would eventually come with her "empire building" (laughs). Yeah, she decided to create the empire and make it, you know, not a Game of Thrones, but actually "Here I have some money, go and do this work, and do it how it's going to suit your community."

The other Indigenous expert participant had a very strong focus on public education for his communities: "It's not really explicitly a policy framework. It's more of an education framework, and more of a new approach to understanding gambling within a community perspective" (Thomas). He saw that it was his role as a university-based researcher to provide these educational opportunities for the public, and emphasized that it was a two-way conversation with the interested public rather than a one-way transfer of his knowledge. While

many non-Indigenous participants mentioned being motivated to produce grey literature to inform beneficial policy changes, only one explicitly referenced a sense of duty as a publicly funded researcher to educate the general public (Peter, Canada).

DISCUSSION

When asked about the quality standards of gambling grey literature, participants primarily discussed benefits and drawbacks in two stages in the research process: 1) setting the research question and methodology, and 2) the editorial stages of finalizing the research report, including peer review.

Participants agreed that the sponsor of a grey literature research project has a lot of control over the research question and design, especially compared to usual academic research. Many saw this as a matter of course as part of getting research funding, and not a serious problem. Those participants believed it doesn't affect the quality of their work, and that the resulting research is of value because it is of policy relevance and may lead to constructive policy changes.

Other participants felt that they had to make compromises in the research design when working with government sponsors, and a few had an even more negative view that government sponsors meddle with the methodology, or circumscribe the research topic so that evidence that could inform health-promoting policy changes cannot possibly be gathered. On the other hand, one participant who was an experienced research consultant, held that she was able to co-produce higher quality research design with the sponsors through that process.

As for later in the research process when it comes to peer-review and other editorial processes, participants more often had a positive view of grey literature. Some markers of higher

quality include having more peer reviewers on a report and having more experienced peer reviewers who are financially compensated.

More participants also spoke positively about having greater agency in the editorial process, arguing that this contributed to a higher quality product because of the “two-way” dialogue between authors and peer reviewers, rather than acquiescence of authors to peer reviewers as can happen with academic journal articles. Brian contended that this acquiescence does not always produce the best research. He posited this as a common practice and one other participant did admit to making changes that he did not agree with for the sake of publishing an article.

At the final stages of the writing and editing process, there is also more internal editorial control on the part of the sponsor, which is quite different from academic journals where the editing is largely negotiated between the authors and the peer reviewers. Sponsored research introduces a third editing party on the part of the sponsor/publisher itself.

Although some participants discussed liking the deeper and more iterative conversations at the editing and review stage, the two participants who regularly take research funding directly from gambling operators took issue with this model for government-sponsored research as “interference” and preferred the non-interference of industry sponsors. These views are noteworthy as they run contrary to the second dimension of the “Shades of Grey” model (Adams et al., 2017), which holds that grey literature is more credible if the publisher has 1) a good reputation and relevant expertise, and 2) exercised higher levels of editorial control.

The topic of organizational reputation came up sometimes in interviews although is not explored in detail in this chapter. However, regarding the topic of relevant expertise, it was a common opinion that it is not appropriate to use non-academic peer reviewers. However, when

academics with relevant experience served as peer reviewers, participants tended to trust the government sponsored grey literature as much as they would peer-reviewed journal articles, with various concerns enumerated for both types of publications.

Regarding editorial control, we have an interesting situation in the gambling field where there are some issues of trust regarding the level of editorial control exerted by the sponsor (i.e., many participants would not agree that “more is always better”). Many participants had a baseline trust in government editorial control over grey literature, but this was absent in participants who do sponsored research for the gambling industry, which follows a completely different publishing model which avoids grey literature altogether. This also raises interesting questions about the purpose of industry-funded gambling research and its unique publishing model, which could be explored in future work.

Grey literature motivation and compensation

I asked participants what motivated them to participate in grey literature projects despite the presumption that grey literature does not normally count in the “publish or perish” academic evaluation model. Possible reasons were that grey literature is more highly recognized in the gambling field, or that grey literature sponsorship is a more important source of funding for gambling researchers. The latter was expected because the lack of gambling research funding sources is often mentioned in academic gambling editorials and has been used by some to justify accepting research sponsorship from the gambling industry (Louderback et al., 2021).

This motivation was indeed commonly mentioned. Many discussed how publications are an important metric of their academic careers and how grey literature publications tended to count for less, although some more than others were able to leverage kudos from their grey publications. But this issue was overshadowed by the matter of securing research grants in the

first place: bringing in large amounts of research money to the university is most important to the university, with little regard to where those funds come from and what publications they produce. Demonstrating the positive social or policy changes resulting from one's work has some bearing on one's academic evaluation, but some participants noted the work can ultimately come at a career cost. Such participants were able to enjoy the positive contributions grey literature makes to their communities beyond the confines of their academic career.

The primacy and pressure to bring in research funding reflects Giroux's (2009) understanding of the "corporate university" where research and inquiry are focused on (corporate) utility. The case of gambling research is a bit different because the largest sponsor of gambling research is government bodies. In this case, the sponsored research can usually be framed as a public good, especially when openly published as grey literature. Researchers who can reliably secure these gambling research grants appear to reap manifold career rewards: they are bringing in grant money, which pleases the corporatized university, but the work itself is on a topic relevant to the public interest (i.e., gambling) and is assumed to be a public good and thus provides a good "research impact" story. Furthermore, even if the project is not considered academically or scientifically interesting, savvy researchers still write in or "carve out" project portions of academic interest that can be published in papers, further supporting their academic reputation.

This scenario is quite rosy except for one important wrinkle. As noted by some participants and supported by the analyses in Chapter One, the gambling research sponsored by government bodies often does not serve the purported purpose of providing sufficient evidence to inform beneficial public health policy changes. Thus, its true value as a public good is questionable, and likely overestimated overall.

Advocacy and politics in gambling research

A few participants understood their role as a gambling researcher was to reveal what they understand to be the objective truth about gambling rather than advocating for particular gambling policy changes. Perhaps not surprisingly, these participants all study gambling from psychological scientific perspectives. On the other hand, researchers who study gambling from a public health perspective most strongly advocate for policy changes that would improve the health of the public, because it is a normative position of that discipline that the health of the public ought to be protected and promoted, and that researchers share in that responsibility rather than being unconcerned third-party observers.

The following two quotes from researchers based in Australia highlight this well, with Jason arguing that public health research is a necessarily a political activity, and Ken arguing that gambling is not a public health issue.

I think it's important to be upfront and tell you that, because I'm in a public health field, I have this strong view, and I think many colleagues share this, that public health is an intrinsically political activity. It relies on defending the interests of the population against vested interests, and increasingly so as we see the spread of non-communicable disease, which is often powered by commercial forces, hence, the interest in commercial determinants of health. What we have to understand is that that's very political activity, and always has been. It's about getting the resources directed away from private interest towards public good.

–Jason, Australia

The issue effectively is that 95% of people gamble responsibly. A small percentage of people [...] for a variety of different reasons gamble to excess... It doesn't fit a public health model, in my view, because everyone who's exposed to it is not exposed equally to the risk as you would be with COVID. COVID is a public health issue, everybody's at risk for COVID. With gambling, only a minority of people with specific vulnerabilities tend to be at risk, then the risk is fairly limited to themselves and their family members. Apart from criminal activities, it doesn't generally impact on other people to any great extent.

–Ken, Australia

This opinion that gambling is not a public health issue extends beyond one participant's opinion to the editorial decisions of gambling journals: One researcher shared a story of ultimately pulling an otherwise acceptable article from a gambling journal because the editor insisted that they would only publish the article if she changed the statement "gambling is a public health issue" to "*problem* gambling is a public health issue", because the editor believed the former was "advocacy language" (Thomas, 2018).

The insistence that gambling is not a public health matter is striking, and Jason notes a potential motivation for this insistence: If gambling is a public health matter, then it is necessarily political, and if gambling is political then it is legitimate to do political research and take political action on gambling. A small but very vocal group of industry-funded gambling researchers, including the original Reno Model authors, lobby to maintain the status quo of gambling research by arguing that it should be apolitical. They distinguish their work as being based on "scientific" (i.e., psychological, i.e., supposedly "objective") values, and attempt to diminish the value of other legitimate research traditions in the humanities and social sciences, particularly political science (see e.g. Delfabbro & King, 2017; Delfabbro & King, 2021).

Fifteen years after the publication of the Reno Model, its authors have attempted to dismiss critical ethnographic studies of gambling research as mere opinion, describing their conclusions as "remain[ing] to be supported by empirical evidence" and "rest[ing] more in ideological and personal opinions than on evidence-based arguments" (Ladouceur et al., 2019) (p.728). One Reno Model author has used his editorial platform as a journal editor to cast doubt on public health gambling research, arguing that that when public health research recommends increasing gambling regulation, it may be biased by the researchers' religious or ideological belief that all gambling is immoral (Blaszczynski & Gainsbury, 2014). In truth, many critical

gambling scholars enjoy gambling themselves (see e.g., Nicoll, 2019; Rak, 2022) and can envision and work toward better gambling provision for all, just as Randall describes. As a fellow optimistic enjoyer of gambling, I will conclude this thesis with my own suggestions for improving the gambling research environment so it may better inform ethical gambling provision.

CONCLUSION

So yeah, it's alllll grey.

–Jessica

SUMMARY OF FINDINGS

Governments make billions of dollars annually from legalized gambling and many direct millions from that revenue towards gambling research for the stated purpose of addressing and reducing gambling related harms. This research is normally published as “grey literature” such as government reports. This thesis set out to understand the topics studied in this literature, which government bodies commission it, the extent to which it is reused, and the perceived quality of its academic standards and editorial processes.

Chapter One mapped 1,189 publications from four countries using the Australian Productivity Commission’s 2010 gambling inquiry report’s typology of gambling research as a lens of analysis. It found that government sponsored research often does not investigate any specific intervention for reducing gambling harm, and when an intervention is studied, it is usually a “Reno Model” responsible gambling intervention and rarely a public health response that restricts gambling opportunities or inducements. Taken together, this suggests an accountability failure whereby there is no mechanism ensuring that the research is germane to policy responses that will effectively reduce gambling harm. Sponsored research tended to be more public health oriented when those who set the research agenda are less dependent on gambling revenue. Most other organizations have their research agenda set by government representatives, where the government has a conflict of interest insofar as it is dependent on maintaining or increasing gambling revenues. There were also some extremes: at one end GambleAware (UK) had gambling industry representatives on its board of directors until very recently, while on the other the Alberta Gambling Research Institute (AGRI, Canada) has a

board comprised of academics and members of the general public. One other way to increase public health oriented gambling research is to make it a legislated requirement, as in New Zealand.

In Chapter Two I used citation analysis methods concluding that grey literature is underutilized in knowledge syntheses (i.e., systematic reviews) in the gambling field, because grey literature citation rates were lower than in other domains and most reviews had inadequate grey literature search strategies. This comparative conclusion assumes there no exceptional reason that gambling grey literature ought to be excluded from review articles. A potential issue raised by Ladouceur et al. (2017) and considered in Chapter Three is that gambling grey literature may have markedly inferior editorial processes, including absence of peer review, thus warranting its exclusion.

Chapter Three presented interviews with 22 researchers who have published both primary and grey literature in the gambling field to discuss the gambling research field and the quality standards and editorial processes of sponsored grey literature publications. What was revealed is that much of gambling grey literature is peer reviewed or undergoes other rigorous editorial processes, especially in the past ten years. As a result, gambling's grey literature was believed by participants to be of overall comparable quality to its peer reviewed journal articles. Many participants noted that while grey literature has considerable potential quality concerns, academic journal articles on gambling have comparable problems. Furthermore, participants who have experience doing research in other fields often mentioned that the quality standards of journal articles on gambling are relatively low.

These findings allow us to confidently conclude that there is no compelling reason for grey literature to be excluded from systematic reviews and other syntheses on gambling topics.

Recommendations to review authors, peer reviewers, and journal editors for improving gambling grey literature search methods are presented in Baxter (2022), which includes additional analyses of the Chapter Two dataset.

Looking further out, however, this thesis also revealed deeper issues in the gambling research community. Although the grey literature tends to meet the quality standards of the primary literature, the standards set by the primary literature appear to be quite low, raising more fundamental questions about the research process for all gambling research regardless of its mode of publication. Additionally, government sponsored research largely does not approach gambling as a public health issue, and more public health-oriented gambling research is needed for governments to understand how they are providing gambling and to meet their accountability responsibilities.

HOW SPONSORS CAN BETTER ATTRACT AND SUPPORT GAMBLING RESEARCHERS

We see that the world of gambling research, whether published as primary or grey literature, faces some considerable challenges in meeting its purpose of improving the health of the public. Despite these challenges, it is still important—as noted by Eileen—to have “good people” doing sponsored gambling research to address these challenges. Participants identified several costs of doing sponsored research as well as some strategies to allay these costs. Broader adoption of these strategies could improve the career prospects of gambling researchers who produce grey literature, and thus better attract good people to these endeavours.

First and foremost is the matter of producing academic publications. Although some gambling researchers have forged careers as private consultants, many work in universities and must “publish or perish”. I recommend that gambling research sponsors, where possible, think beyond the traditional monolithic report format and consider involving the academic publication

system. As demonstrated in Chapter Three, when gambling researchers work on a sponsored project they are concurrently thinking about how they can produce academic articles based on the work at hand. A point of emphatic agreement among participants who otherwise had major disagreements was to not participate in projects if the sponsor intends to restrict what you can publish, so that is a necessary first step to attracting good researchers.

The next step would be to not impose embargoes on adapting the research for academic publication. Participants who experienced this said they accepted it once but would not tolerate it again. The academic publication process is already slow, so sponsors ought not slow down this process further, particularly for research funded from the public proceeds of gambling.

A bolder step would be to forego the monolithic report altogether. This was described by Jessica who had negotiated to publish the research directly as articles and then provide the sponsor with the articles and a full executive summary. A more recent example of this is the AGRI National Project (ANP), an ongoing Canada-wide gambling prevalence study. As of June 2022, the ANP team has published “16 articles and counting” and when the project is completed the final report will be a compendium of all the published articles with an executive summary (Williams, 2022). This model has allowed the junior and senior researchers on this project to maintain their publication records while working on a sponsored gambling research project of national interest and potential policy relevance.

SUPPORTING ACCESS TO SPONSORED RESEARCH

Researchers benefit from their work appearing in academic journals, however the academic publication industry itself creates expensive barriers to publication and subsequent access to research. These issues are beyond the scope of this discussion but are worth considering in the recommendations.

An important value of grey literature is that it is usually free to access, whereas academic journals are normally prohibitively expensive for members of the general public, especially those experiencing financial harms from gambling. Public accessibility of government-sponsored project findings should not necessarily be given up for the sake of improving researchers' career prospects.

One potential solution that addresses both issues is for researchers to publish the articles in open access journals, however doing so usually costs the authors thousands of dollars per article. The exception to this is “diamond open access” journals which are free both for readers and writers and whose operating costs are covered by grants or institutions. Currently two such gambling journals exist—*Journal of Gambling Issues* and *Critical Gambling Studies*—however these types of journals are few and far between. Encouraging sponsored researchers to publish their articles in such venues is an option, however a more supportive alternative would be for well-funded project budgets to cover open access publication fees for a certain number of articles. This practice keeps the research publicly accessible while also providing the necessary incentives to attract high-quality researchers, particularly those who are at earlier stages in their careers.

If researchers plan to publish in non-open-access journals, a potential issue is that many journals have copyright restrictions that prevent them from accepting research that has been published elsewhere, such as in a freely available grey literature report. If a full grey literature report cannot be published in addition to journal articles, the sponsored project could additionally produce and publish knowledge translation and exchange (KTE) products of the research, such as plain language summaries, for public consumption. These serve a dual purpose of sharing

research findings with the public who has funded the research and providing the researchers themselves with materials demonstrating the importance of their work on the project.

An important note before we leave the topic of producing academic publications is that the needs for publication will be different in different jurisdictions. The UK rewards those with a large number of publications, while in New Zealand researchers are limited in how many past publications they can list on grant applications and thus are incentivized to produce fewer, higher quality publications. In Australia there have been recent major changes in the National Health and Medical Research Council whereby grant applicants are now evaluated based on a maximum of 10 publications from the past 10 years (*Changes to Publication Assessment, 2022*). This new approach has been lauded as an emphasis on research quality compared to Canada's "obsession with research quantity" (Sousa & Clark, 2022). Within the Canadian context, this is another major issue in the culture of academia that is larger than what can be addressed by grey literature sponsors.

The above recommendations are largely what research sponsors can do to support the career needs of sponsored researchers. I encourage researchers themselves to advocate for these models, and to be aware of and utilize the additional negotiating power that one may have in the peer review process of sponsored projects. This is the opportunity to exercise "pushback" to further iterate and hone the product, and if one is also submitting the work to a journal, that provides a separate and complementary opportunity for improvement through the traditional peer review process.

Finally, I recommend that both research sponsors and contracted researchers embrace the notion that they are "co-producing" the research, a concept that implies the product is more valuable than what either party could produce on their own. In practice, this an exercise in

collaborative negotiation that requires being more open with one's own ideas, needs and values while also being more receptive to the those of the other party.

NAVIGATING THE POLITICS OF PRODUCING GAMBLING RESEARCH

Interview participants unanimously agreed that sponsored grey literature research projects have more involvement from the funder than traditional academic research, however they variously had negative, neutral, or positive sentiments towards this involvement, referring to it as “interference”, “involvement”, or “co-production” respectively. I embrace and recommend the positive approach as an optimist who believes positive gambling policy changes can be made. This optimism is supported by the findings of Chapter One which show some improvements in gambling research's public health policy relevance over time, and Chapter Three interview participants' descriptions of how gambling research is itself a political exercise where researchers and sponsors have agency.

Besides the issue of producing rigorous research, gambling researchers also face political issues as most available research funding comes from sponsors that have some sort of conflict of interest, and the community is currently quite polarized regarding what types of research funding are acceptable. Chapter One confirms that most gambling grey literature is government funded, meaning one of its fundamental issues is governments' moral jeopardy, whereby they have become dependent on gambling revenues and are disincentivized from investigating policy options that would reduce gambling revenues, even if those are the only ones that can actually reduce gambling harms.

In Chapter Three I discussed the insistence of a small but vocal group of influential gambling researchers—almost universally from psychological or biomedical backgrounds—that politically motivated or public health research into gambling does not meet a standard of

evidence to make policy decisions, or that it must be tainted by the researchers' religious or ideological beliefs that all gambling is immoral. These critics apparently have a rather narrow view that the only way gambling can be provided is the minimally regulated and thus societally harmful commercial gambling that is currently prevalent in the Western world. Insisting on meeting certain scientific standards of evidence rather than evaluating research programmes on their actual health and policy outcomes reinforces a lack of accountability for gambling research funding to actually protect the health of the public that pays for it.

On the other hand, many interview participants—particularly those who work in humanities, social sciences, and public health research fields—can imagine less harmful and more enjoyable alternatives to Western gambling's current over-commercialized state. I encourage all gambling researchers and sponsors regardless of discipline to open their minds and imaginations to the less common approaches to understanding gambling and the possible futures they reveal. An excellent recent example of political scientific inquiry into gambling regulatory issues is Van Schalkwyk et al. (2021). Such research should be taken seriously in the body of gambling evidence, and gambling research sponsors that are truly concerned with improving the health of the public should also commission and heed more research of this type.

GOVERNANCE MATTERS AND SPONSORING ORGANIZATIONS MATTER

The mapping review and interviews in this thesis have shown that the outcomes of gambling research programmes are largely determined by the type of organization or department responsible for funding the research, and its governance for setting the research agenda. I will close by suggesting some ways that conflicts of interest in gambling research can be allayed.

First and foremost, government gambling research funds should be administered by a ministry or department whose mandate is protecting or improving the health of the public, such

as a Ministry of Health. This has been explicitly legislated in New Zealand since 2003 and has resulted in that country consistently producing government-sponsored gambling research that investigates public health interventions to reduce gambling harm. Legislated requirement for public health-oriented gambling research has also been successfully applied in Massachusetts with their Social and Economic Impact of Gambling in Massachusetts (SEIGMA) research programme (Commonwealth of Massachusetts, 2011, sec. 71).

When possible, gambling research sponsorship should be relegated to independent bodies, ideally those with some academic governance or directors. This study's findings suggest that these "independent" research bodies are not completely independent, so to minimize conflicts of interest in their research agendas they should be accountable to health-related ministries and their funding streams must be protected. AGRI was unusual in the sample in that it sponsored research on the sociocultural aspects of gambling and avoided "responsible gambling" topics. In other words, it is aligned with a public health approach of studying *gambling* and its provision, rather than *gamblers* as the source of the problem. These valuable research outcomes may be attributed to two unique aspects of AGRI: It is a consortium of universities, and its board of directors is comprised of academic and public members thus having relatively little conflicts of interest.

Although AGRI is one of the best examples in my sample for good governance for government gambling research funding, we must not be constrained to settler ways of knowing. This thesis has benefitted greatly from the compelling interview with Dr. Ruth Herd, one of the Māori women who laid the groundwork for New Zealand's public health approach to gambling and continues to fight for justice over gambling's harms to Māori youth through a Treaty of Waitangi claim (Herd, 2021). In addition to sharing difficult personal experiences that

demonstrate racist behaviours we should not repeat, she also told an important story about a Māori woman who, much to the surprise of the settler government, shared the money she was granted with all Māori health providers instead of keeping it for her own organization. Let this story open our imaginations for equitable and just ways that the revenues from gambling can be distributed, whether it be for gambling research or other ways of countering gambling's harms. The emerging field of Critical Indigenous Gambling Studies may be a source of further guidance (Manitowabi & Nicoll, 2021).

Finally, I will acknowledge that many of my findings have been complimentary of AGRI, the government-funded gambling research institute which sponsored the graduate scholarship for this thesis. This constitutes a potential conflict of interest but I believe the causality is reversed: this critical study does not find AGRI to have good research governance because they funded it, but rather AGRI funded this critical study because they have good research governance.

As discussed above, moral jeopardy dissuades many publicly funded gambling research organizations to challenge the status quo of gambling revenues, making it very unlikely they would sponsor a comparative critical political analysis of their own body of work. I have described how public health is necessarily political and some gambling research is sponsored from a public health perspective, but I am unaware of any organization besides AGRI where government gambling research funds have been directed to investigate political aspects of gambling.

In summary, I believe it is AGRI's good research governance that gave it the courage to fund this project that turns the lens around and examines gambling research funders themselves. Yes, AGRI fared well, but this study has also revealed that government sponsored gambling research programmes have shown several signs of improvement over the past 25 years in their

role of informing gambling changes that will improve the health of the public. For this reason, I hope that AGRI and other gambling research programmes will continue to enlist the expertise of political scientists and related disciplines to approach the problems of commercial gambling more holistically.

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APPENDICES

Appendix 1: Search strategy and list of grey literature sources searched for systematic mapping review

The search strategy follows Godin et al.'s methodology for grey literature searching, which includes four search sources: 1) Grey literature databases, 2) Google custom search engines (CSEs), 3) Targeted websites, and 4) Consultation with contact experts.

For #1 (Grey literature databases), I identified all searchable databases dedicated to gambling literature from multiple publishers. Five gambling-specific grey literature digital libraries were identified (two Canadian, one Australian, one New Zealand, and one Slovenian), however only the two Canada-based databases were still in operation at the time of search. For #2 (Google CSEs), no gambling-specific CSEs were identified, but three were found that contained unique gambling literature (one Canadian, one American, one international). For #3 (Targeted websites), the scope for targeted website searches included organizations from the study jurisdictions that fit one of the following criteria:

1. Any organization whose mandate is to fund or perform gambling research, including university-based research centres with a gambling focus.
2. National or subnational government agencies or government-sponsored agencies with one or more of the following mandates:
 - Regulating gambling
 - Collecting or reporting statistics about gambling
 - Reducing problem gambling/harm from gambling
 - Publishing government reports generally
 - NGOs and think tanks, with or without gambling-specific mandates, known to have published gambling-related research

Searches were performed between August 4th and September 21st, 2020. The complete list of databases, CSEs and targeted websites searched, totalling 187 sources, is provided below. If the website had a search engine or a designated area for research documents, that was also used for the search. Otherwise, Google was used to perform a site search limited to PDF

documents from that site. If the website had a gambling focus (e.g., the Manitoba Gambling Research Program), then all documents were retrieved and reviewed for inclusion; if the website had a broader scope (e.g., a parliamentary library), then a keyword search for “gambling” or similar, depending on the available search functionality, was employed and the search results were reviewed for inclusion.

Item #4 (Consultation with contact experts) recommends consulting with experts to suggest grey literature sources and documents the author may have missed. I consulted with two subject-matter experts in each country, who were either senior researchers with knowledge of the country’s grey literature or persons with a role in managing gambling literature, including librarians.

Ultimately, 187 grey literature sources were searched. The complete list is presented in the following table

Country	State/Province if applicable	Organization/Website Name
Canada	National	Statistics Canada
Canada	National	Government of Canada Publications
Canada	National	Library and Archives Canada
Canada	National	Canadian Consortium for Gambling Research
Canada	National	Canadian Mental Health Association
Canada	National	Canadian Centre for Substance Use and Addiction
Canada	National	Western Canada Lottery Corporation
Canada	National	Atlantic Lottery Corporation
Canada	National	Interprovincial Lottery Corporation
Canada	National	Canadian Gaming Association
Canada	National	Canadian Pari-Mutuel Agency (CPMA) (Division of Agriculture and Agri-Food Canada)
Canada	Alberta	Alberta Gambling Research Institute
Canada	Alberta	Alberta Gaming, Liquor and Cannabis
Canada	Alberta	Alberta Health Services
Canada	Alberta	Alberta Legislature Library Online Catalogue
Canada	Alberta	Alberta Open Government Program: Publications
Canada	Alberta	Critical Gambling Studies Blog

Canada	Alberta	Horse Racing Alberta
Canada	Alberta	Problem Gambling Resources Network Alberta
Canada	British Columbia	BC Responsible & Problem Gambling Program
Canada	British Columbia	British Columbia Lottery Corporation
Canada	British Columbia	Government of British Columbia Website - Gambling Policy and Enforcement Branch
Canada	British Columbia	Office of the Provincial Health Officer
Canada	Manitoba	Addictions Foundation of Manitoba
Canada	Manitoba	Digital Collection of Manitoba Government Publications
Canada	Manitoba	GetGamblingFacts.ca (by Addictions Foundation of Manitoba)
Canada	Manitoba	Liquor Gaming and Cannabis Authority of Manitoba
Canada	Manitoba	Manitoba Gambling Research Program
Canada	Manitoba	Manitoba Liquor and Lotteries Corporation
Canada	New Brunswick	Gaming, Liquor & Security Licensing, Department of Public Safety
Canada	New Brunswick	Legislative Library of New Brunswick
Canada	New Brunswick	MarketQuest Research
Canada	New Brunswick	New Brunswick Department of Health and Wellness
Canada	New Brunswick	New Brunswick Lotteries and Gaming Corporation, Department of Finance and Treasury Board
Canada	Newfoundland & Labrador	Department of Finance
Canada	Newfoundland & Labrador	Department of Health and Community Services
Canada	Newfoundland & Labrador	House of Assembly Legislative Library Catalogue
Canada	Newfoundland & Labrador	Service Newfoundland
Canada	Northwest Territories	Government of Northwest Territories website
Canada	Northwest Territories	Northwest Territories and Nunavut Lotteries
Canada	Northwest Territories	NWT Legislative Assembly documents
Canada	Nova Scotia	Focal Research Consultants Limited
Canada	Nova Scotia	Gambling Awareness Nova Scotia
Canada	Nova Scotia	Nova Scotia Alcohol and Gaming
Canada	Nova Scotia	Nova Scotia Department of Health and Wellness
Canada	Nova Scotia	Nova Scotia Gaming Corporation
Canada	Nova Scotia	Nova Scotia Legislature Library

Canada	Nunavut	Nunavut Legislature
Canada	Ontario	Alcohol and Gaming Commission of Ontario (AGCO)
Canada	Ontario	Carleton University Gambling Lab
Canada	Ontario	Gambling Research Lab, University of Waterloo
Canada	Ontario	Gambling, Gaming and Technology Use Knowledge Exchange (formerly Problem Gambling Institute of Ontario), Centre for Addiction and Mental Health
Canada	Ontario	Greo Evidence Centre
Canada	Ontario	Greo publications (formerly Gambling Research Exchange Ontario, formerly Ontario Problem Gambling Research Centre/OPGRC)
Canada	Ontario	Ontario Lottery and Gaming Corporation (OLG)
Canada	Ontario	Problem Gambling Research Group – University of Windsor
Canada	Ontario	Responsible Gambling Council (Ontario)
Canada	Prince Edward Island	Government of PEI website
Canada	Prince Edward Island	Legislative Assembly of PEI
Canada	Prince Edward Island	PEI Government site search via Google
Canada	Quebec	Centre québécois d'excellence pour la prévention et le traitement du jeu (CQEPTJ), Université Laval
Canada	Quebec	Fonds de recherche en santé du Québec
Canada	Quebec	Institut de la statistique Quebec
Canada	Quebec	International Centre for Youth Gambling Problems and High-Risk Behaviors, McGill University
Canada	Quebec	Kahnawake Gaming Commission
Canada	Quebec	Liquor, Racing and Gaming Board
Canada	Quebec	Loto-Quebec
Canada	Quebec	National Assembly Library
Canada	Quebec	Publications Quebec
Canada	Quebec	Research Chair on Gambling, Concordia University
Canada	Saskatchewan	Publications Saskatchewan
Canada	Saskatchewan	Saskatchewan Indian Gaming Authority (SIGA)
Canada	Saskatchewan	Saskatchewan Liquor and Gaming Authority (SLGA)
Canada	Saskatchewan	Saskatchewan Ministry of Health
Canada	Saskatchewan	Saskatchewan Problem Gambling Helpline
Canada	Saskatchewan	SaskGaming
Canada	Yukon	Lotteries Yukon
Canada	Yukon	Yukon Government Documents
Australia	Australian Capital Territory	Access Canberra

Australia	Australian Capital Territory	ACT Gambling and Racing Commission
Australia	Australian Capital Territory	ACT Gambling and Racing Commission Research
Australia	National	Analysis & Policy Observatory
Australia	National	Anglicare
Australia	National	Australian Gambling Research Centre
Australia	National	Australian government publications
Australia	National	Australian Institute of Criminology
Australia	National	Clubs Australia
Australia	National	Department of Social Services
Australia	National	Gambling Research Australia
Australia	National	Gaming Technologies Association
Australia	National	National Association for Gambling Studies (NAGS)
Australia	National	Productivity Commission
Australia	Australian Capital Territory	Australian National University - Centre for Gambling Research
Australia	New South Wales	Office of Responsible Gambling
Australia	New South Wales	University of Sydney - Gambling Treatment and Research Clinic
Australia	Northern Territory	Department of the Attorney-General and Justice
Australia	Queensland	Anglicare Southern Queensland
Australia	Queensland	CQU Experimental Gambling Research Laboratory
Australia	Queensland	Department of Justice and Attorney-General
Australia	Queensland	Queensland Anglican Church Social Justice Research Unit
Australia	Queensland	Queensland Government Statistician's Office
Australia	Queensland	Queensland Publications
Australia	Queensland	Southern Cross University - Centre of Gambling Education and Research
Australia	South Australia	Attorney-General's Department
Australia	South Australia	Consumer and Business Services
Australia	South Australia	Flinders Centre for Gambling Research Group
Australia	South Australia	Independent Gambling Authority
Australia	South Australia	South Australian Centre for Economic Studies
Australia	South Australia	University of Adelaide - Independent Gambling Research Consortium
Australia	Tasmania	Anglicare Tasmania
Australia	Tasmania	Department of Communities Tasmania
Australia	Tasmania	Tasmania Treasury
Australia	Victoria	Department of Justice and Community Safety

Australia	Victoria	Turner Institute, Monash University
Australia	Victoria	Victorian Commission for Gambling and Liquor Regulation (VCGLR)
Australia	Victoria	Victorian Responsible Gambling Foundation
Australia	Western Australia	Department of Local Government, Sport and Cultural Industries
Australia	Western Australia	Racing and Wagering Western Australia
Australia	Western Australia	WA Government Publications
New Zealand		Abacus Counselling, Training & Supervision
New Zealand		Asian Family Services
New Zealand		Auckland City Council
New Zealand		Centre for Gambling Studies, University of Auckland
New Zealand		Data.gov.nz
New Zealand		Department of Internal Affairs
New Zealand		Gambling and Addictions Research Centre, National Institute for Public Health and Mental Health Research, Auckland University of Technology
New Zealand		Health Promotion Agency
New Zealand		Hepai Te Hauora
New Zealand		Malatest International
New Zealand		Mapu Maia
New Zealand		Marsden Fund
New Zealand		Ministry of Health online library
New Zealand		Ministry of Health website
New Zealand		National Addiction Centre, University of Otago
New Zealand		New Zealand Gambling Commission
New Zealand		Problem Gambling Foundation of New Zealand
New Zealand		Salvation Army New Zealand
New Zealand		TDB Advisory
New Zealand		The Lion Foundation
New Zealand		The New Zealand Initiative
New Zealand		True Legal
New Zealand		Waitangi Tribunal
United Kingdom		Adfam
United Kingdom		Advisory Board for Safer Gambling
United Kingdom		bacta
United Kingdom		Beacon Counselling Trust
United Kingdom		Betknowmore UK
United Kingdom		Better Futures
United Kingdom		Betting and Gaming Council

United Kingdom	Department for Communities, Northern Ireland
United Kingdom	Department of Health and Social Care
United Kingdom	Economic and Social Research Council
United Kingdom	Financial Conduct Authority
United Kingdom	GambleAware
United Kingdom	Gambling Business Group
United Kingdom	Gambling Related Harm All Party Parliamentary Group
United Kingdom	GamCare
United Kingdom	GamFam
United Kingdom	Gordon Moody Association
United Kingdom	Gov.UK main website search
United Kingdom	House of Commons Library
United Kingdom	House of Lords Library
United Kingdom	Industry Group for Responsible Gambling
United Kingdom	Labour Party website
United Kingdom	Local Government Association
United Kingdom	National Casino Forum (NCF)
United Kingdom	National Centre for Social Research (including ScotCen)
United Kingdom	National Health Service Digital
United Kingdom	National Health Service England
United Kingdom	National Institute for Health Research
United Kingdom	National Lottery Commission
United Kingdom	National Problem Gambling Clinic
United Kingdom	Northern Ireland Statistics and Research Agency
United Kingdom	Parliamentary Business Papers ("Deposited Papers")
United Kingdom	Parliamentary Office of Science and Technology
United Kingdom	Public Health England
United Kingdom	Samaritans.org
United Kingdom	Scottish Government Publications
United Kingdom	The Bingo Association
United Kingdom	The Gambling Commission
United Kingdom	The Senet Group (2014-2020)
United Kingdom	UK Data Service
United Kingdom	UK Parliament: Commons Business Papers
United Kingdom	UK Parliament: Department of Digital, Culture, Media, and Sport Select Committee
United Kingdom	We Are With You
United Kingdom	YouGov.uk
United Kingdom	Young Gamers & Gambling Education Trust

Appendix 2: Detailed review of Canadian gambling grey literature

National/Federal

Of the total 567 Canadian grey gambling publications, only 12 were attributed to national government organizations, and another 32 are attributed to inter-provincial government efforts. Of the latter, 18 are attributed to the Canadian Partnership of Responsible Gambling, most of which are the Canadian Gambling Digest, published annually from 2004-2018 and providing descriptive statistics about the extent of provincial gambling industries. Ten more are published by the CCGR and concern instruments for measuring or assessing gambling impacts in youth or the general population. Two more reports consist of the National results from a one-off “Parents as Partners” project investigating the role of parental involvement in youth gambling, which was co-sponsored by gambling operator, regulator, research, and harm mitigation organizations from six provinces. A series of four think tanks on youth gambling was co-sponsored by AB, MB and SK government organizations and planned by health/addiction branches from the three governments, but only the proceedings from the fourth think tank (1999) could be retrieved.

The remaining 12 publications come from truly federal-level organizations. From 1997-2004, Statistics Canada published eight articles concerning gambling. Interestingly, they progress from an initial focus on gambling as entertainment spending and its economic benefits, to the harms of problem gambling and gambling-related crime, and then apparently divested from the issue after publishing their last gambling-related report in 2004¹⁴. However, interest in

¹⁴After gambling expanded in Canada the early 2000s, the federal government no longer saw gambling as its responsibility which is why we see so few federal publications. Statistics Canada's ongoing "Canadian Community Health Survey" has a problem gambling module which was administered nationwide in 2002, but after that it was an optional module that provinces could opt in to, thus making it a provincial responsibility that the federal agencies didn't report

a national-level gambling study has been rekindled 15 years later with the Alberta Gambling Research Institute (AGRI) National Project (ANP), a collaboration with Statistics Canada. Finally, the Canadian Tourism Commission, Law Commission of Canada, National Council on Welfare, and Royal Commission on Aboriginal Peoples each produced one report on gambling related to their mandates.

Alberta

The scan yielded 71 Albertan government-funded reports, including 24 from the Alberta Gambling Research Institute (AGRI, formerly Alberta Gaming Research Institute) and 47 published by government bodies. Note that earlier material for Alberta may be better represented than other provinces due to the research repository role served by AGRI since its inception in 2000.

Over half of the government reports were sponsored by the Alberta Alcohol and Drug Abuse Commission (AADAC), the body responsible for addiction treatment that became part of Alberta Health Services in 2009. It was more actively publishing before 2000, when their role in producing gambling research was likely succeeded by AGRI. Its reports are strongly focused on assessing the nature & extent of gambling in various subpopulations, as well as a few research reports on how to improve treatment resources. They also produced a report in 1997 on a population health approach to substance and gambling addiction treatment, which is quite early for public health approaches to gambling, especially in Canada (Szava-Kovatts, 1997).

The gambling regulator Alberta Liquor and Gaming Commission (AGLC, formerly Alberta Lottery and Gaming) published 6 policy reviews and evaluations on regulatory matters

on: e.g., the Ontario Problem Gambling Research Centre funded some analyses based on CCHS data when Ontario opted to do the problem gambling module.

such as licensing, disbursement of gambling revenues, and Video Lottery Terminal (VLT) responsible gambling interventions. They also co-sponsored two reports with health bodies on preventing problem gambling/encouraging responsible gambling. A crown corporation responsible for both regulating and promoting gambling, Horse Racing Alberta, published three reports in 2001, 2009 and 2017 which enumerate the economic benefits of the horse racing industry in the province.

Five other publications came from other provincial government bodies: 3 committee reports from the legislative assembly on gaming policy including first nations gaming, 1 report to the central government on the mental health treatment system, and one report from the Office of the Information and Privacy Commissioner regarding the collection of personal information by casinos. Finally, there were three publications from local authorities (specifically Edmonton Community and Family Services; Chinook Health Region, and Calgary Policy Service), all concerned with gambling's negative impacts.

The topics of AGRI's 24 institute-funded reports stand out from the Canadian sample and are worth exploring in detail. AGRI had an early interest in the sociocultural, economic and policy aspects of gambling, starting with two policy reviews, two reviews on sociocultural aspects, and a pathological gambling report interested in biopsychosocial variables. The policy framing/interest continued in the poker policing report (Hosgood, 2003) and VLT gambling report (Smith & Wynne, 2004).

Other studies into gambling's impacts either attempted to be comprehensive (Humphreys et al., 2011; Williams et al., 2011) or took a more balanced, less problematizing view of gambling in specific populations and considering its potential benefits (Munro et al., 2003; Williams, 2008), as well as creative approaches to measuring impacts (Smith et al., 2003). They

also funded two reports on psychological factors, two evaluations of harm reduction pilot programs (Robson et al., 2006; Williams, 2002), and one market research study on casino tourism (Hinch & Walker, 2003). Their longitudinal cohort study of gambling, the Leisure, Lifestyle, and Lifecycle Project (LLLP) (el-Guebaly et al., 2015), along with Ontario's Quinte Longitudinal Study (Williams et al., 2015) are held up as exemplars of such studies (Abbott et al., 2018, p. 117).

AGRI has published other reports on the nature & extent of gambling in Alberta and Canada but these are unique as well. Rather than reporting on the extent of people's gambling behaviours, from 2003-2007 AGRI reported the nature & extent of gambling itself, such as directories of casinos and other gaming venues. This role was succeeded by CPRG's Canadian Gambling Digest (2004-2018) discussed earlier, and since they have ceased publishing that digest AGRI has taken up the role again (Stevens, 2022).

British Columbia

The scan yielded 49 publications from British Columbia. From 1994-2000 when expanded gambling legislation was being formed, a legislative committee and the Ministries of Government Services, Employment and Investment, and Labour produced 7 gambling policy reports, and the British Columbia Lottery Corporation published one prevalence study.

From 2003, following casino gambling expansion, the primary producers of reports were the BCLC (21 reports) and the newly formed gambling regulator: the Gaming Policy and Enforcement Branch (GPEB, 11 reports) and one co-sponsored by the two. Unlike many other provinces where the gambling regulation is delegated to a crown corporation, GPEB was placed within the Ministry of Public Safety and Solicitor General and later moved to the Ministry of Finance. BCLC's reports include gambling employee surveys, two RG program evaluations, and

two evaluations of anti-money-laundering (AML) measures. Seven reports on the impacts of gambling are heavily focused on reporting the community economic benefits of existing and prospective gambling operations. The GPEB and its host ministries also published reports on gambling-related fraud, as well as prevalence studies and more balanced assessments of the socioeconomic impacts of gambling.

Of the remaining seven reports, only one comes from a health branch, namely the Office of the Provincial Health Officer. Three come from the central government broadly treating gambling impacts and pursuing a public health approach to gambling. One comes from the BC Ombudsperson also concerning gambling fraud, and finally two from the government-sponsored BC Centre for Social Responsibility at University of Fraser Valley, covering online gambling and barriers to accessing problem gambling treatment.

Manitoba

Manitoba government organizations published 58 documents and all major types of gambling research producers are represented. The Addictions Foundation of Manitoba (AFM) produced 21 publications from 1999 to 2008 and was succeeded by the Manitoba Gambling Research Program (MGRP) which published 17 reports from 2013-2018. The AFM's research tended to focus on gambling prevalence in the general population as well as specific groups, and evaluations of their treatment, responsible gambling, and school education programs. MGRP reports were overall very psychologically focused on topics such as comorbidities, cognitive distortions, individual risk factors, and the psychology of advertising, as well as some research on treatment and barriers to help-seeking. These findings concur with a separate in-depth analysis of grants awarded by MGRP, which showed that research funds were largely directed to projects that examined gambling as a pathology (“through a medicalized deviance lens”) and that

only minor travel grants were awarded to researchers studying sociocultural or non-deviance aspects of gambling (Pelletier, 2022).

The gambling operator, Manitoba Lottery Commission (MLC) produced three reports in 1995 assessing gambling impacts in and one market study in 1997 regarding casino site placement, and ceased gambling research publication after that. The gambling regulator (The Liquor and Gaming Authority/LGA, formerly the Manitoba Gaming Control Commission/MGCC) published a series of six reports from 2004-2017 measuring gambling prevalence as well as evaluating people's recall of RG campaigns, use of limit-setting strategies, and "recognizing responsible/problem gambling". Two more reports represent a longitudinal study of youth gambling co-sponsored by the regulator, operator, and the AFM

Finally, the central government published a lottery policy review in 1995, a municipal plebiscite review in 1998, and a First Nations gaming policy review in 1997. The latter was followed by a series of five reports co-sponsored by the Manitoba Government and the Assembly of Manitoba Chiefs regarding site selection and market research for First Nations casinos. These reports were heavily focused on maximizing the economic benefits of First Nations gaming for First Nations communities, with mitigating social impacts only sometimes present as the lowest-priority objective.

Ontario

The search for Ontario publications in the Gambling Research Exchange Ontario (GREO) Evidence Centre yielded 535 hits. 242 non-research documents were excluded (e.g., conference slides, podcasts, annual reports, clinical guidebooks), leaving 293 grey literature research publications. Due to the large number of publications I report on the major publishers only.

OPGRC

Over half of the publications (n=174) were funded by the Ontario Problem Gambling Research Centre (OPGRC), which operated from 2000-2013 and administered millions of dollars in research grants each year. In reviewing the OPGRC reports, emphases on the nature & extent of gambling, and specifically problem gambling, are clear. As in many other jurisdictions, there are full-scale prevalence studies including the highly regarded Quinte Longitudinal Study on Gambling and Problem Gambling (Williams et al., 2015). Many other studies report on gambling and problem gambling in subpopulations with a strong dominance of research on youth gambling, followed by gambling in older adults, then ethnic communities, then Indigenous Peoples and people in prison. There were also a few studies examining the distribution of gambling from other vantages, including one each on the demographics of lottery players, demographic sources of gambling revenue, and the geospatial distribution of problem gambling. Accompanying these studies to measure gambling are studies that aim to develop and improve methods for diagnosing problem gambling and assessing population prevalence.

In addition to measuring problem gambling and its associated risk factors, OPGRC sponsored many studies investigating the psychological phenomena observed in people with problem gambling, such as belief in luck, differences in executive functioning, a sense of personal relative deprivation, etc. Some of this research extends to the psychological responses to the “addict[ive] by design” (Schüll, 2014) features of slot machines such as “near misses” where a machine disproportionately shows losing results of two matching symbols followed by a symbol right next to the third (Harrigan, 2008), or “losses disguised as wins” where a machine lights up as with a win but the amount of money paid out is less than the original wager (Harrigan et al., 2015). Some studies also examine co-morbid, or co-occurring disorders such as

Parkinson's disease or learning disorders, while a few also take a biological approach examining the neurobiological and genetic associates of problem gambling.

Less common were studies on the treatment and prevention of problem gambling. Treatment studies tended to focus on the effectiveness mutual support groups such as Gambler's Anonymous, or the barriers to accessing the underused existing treatment programs. They also commissioned a thorough and highly cited review of problem gambling prevention methods (Williams et al., 2012), as well as two studies also considered the effects of gambling marketing (e.g., Korn et al., 2009). There were only four studies into responsible gambling interventions, which is unexpectedly low although those may be left to the purview of Ontario's Responsible Gambling Council. One notable example is a report that evaluated the effectiveness of an RG intervention (a brief educational video) and of a modest barrier of moving ATMs from the gambling area to just outside the gambling area (Harrigan et al., 2010).

Also uncommon were studies on social environments and how gambling itself is provided. Social studies again primarily focused on youth with three studies on parent-child relationships and one evaluation of an early prevention curriculum teaching mathematical reasoning and critical thinking (Macdonald et al., 2003), while two examined intimate partner relationships, one each on hospital lottery fundraisers and on media discourses and public attitudes on gambling. Finally, four studies examined the roles of gambling laws and regulations on gambling outcomes.

In addition to primary research publications. OPGRC coordinated and published the internationally authored Conceptual Framework of Harmful Gambling (Abbott et al., 2013), which frames eight factors that contribute to gambling related harm: gambling environment, exposure, types, and resources (i.e., treatment and prevention); and cultural, social, psychological

and biological factors. Recent research has shown that, as demonstrated above with OPGRC's own research, academic publications on gambling are highly dominated by the psychological, biological, and social factors of harmful gambling while gambling provision itself remains relatively unexamined, particularly in Canada (Baxter et al., 2019).

GREO

In 2014, OPGRC became Gambling Research Exchange Ontario (GREO). The name change to "Research Exchange" demonstrates its functional shift from funding research to knowledge translation and exchange (KTE), but also notable is the shift in topic scope from "problem gambling" to "gambling". From 2014 to 2018 GREO produced 55 publications, although most represent secondary research and KTE products. Notably, GREO published revised editions of its Conceptual Framework of Harmful Gambling in 2015 and 2018 and overall demonstrated more even attention to the eight framework factors in this time.

Ten publications were standard primary research reports, including three secondary analyses of the QLS data and three others on the nature & extent of gambling. Three more studied RG interventions: self-exclusion, using loyalty reward programs to reduce gambling harm, and the most intriguing, a pilot evaluation of the effect of including a tag on slot machines with information about the machine's payback percentage, volatility, and frequency of bonus rounds (Harrigan et al., 2017). GREO also published nine white papers on gambling, including familiar topics from OPGRC research as well as new ones such as gambling and poverty, and casino games on social media.

GREO's other publications are "evidence exchange" reports or shorter evidence exchange briefs that review current research and/or, more uniquely, review gambling provision and regulation in other jurisdictions. Three jurisdictional reviews focused on the potential

impacts of forms of gambling that were not yet legal in Ontario but were being considered for legalization, including two on single-event sports betting and one on table games expansion. Five more focused on newer gambling technologies such as skill-based slot machines, loot boxes, and blockchain.

Juxtaposed with these reports that inform gambling expansion or maintaining gambling opportunities through RG are others on the role of gambling and how it is provided. Four publications that directly implicate gambling operators over casino social contracts with host cities, the regulation of addictive slot machine characteristics, 24-hour access to gambling venues, and the duty of care to older adults experiencing cognitive decline. Other reviews cover topics like gambling treatment, public health approaches to gambling, and social and economic impacts of gambling.

Finally, GREO published eight short “project snapshots” for community grant projects to reduce gambling harms. These were written by the grant recipients and thus are not program evaluations by external researchers but nevertheless demonstrate the impact of community-level gambling interventions.

Responsible Gambling Council

The Responsible Gambling Council started in 1981 as a grassroots NGO called the Canadian Foundation for Compulsive Gambling (CFCG), and rebranded as the Responsible Gambling Council (RGC) in 2001 following a major funding partnership with the Ontario government (*RGC History*, n.d.). The search found one research publication from CFCG, a prevalence study from 1994, and 19 more from RGC.

As their name suggests, RGC focuses strongly on RG interventions, with 12 of 19 publications on RG topics. Four reports concern aspects of self-exclusion (i.e., the option to ban

oneself from a gambling venue) while others are one-offs on other topics such as optional limit setting. Two of these reports are *ex-post* evaluations of RG measures. Other reports concern the prevalence of gambling harms with some focus on youth, while one report turns the lens onto gambling itself, specifically the features of slot machines most likely to cause gambling problems (White et al., 2006).

Quebec

The search retrieved eight English-language reports from Quebec, which is likely an incomplete representation of the provincial government's gambling publications. All reports are concerned with the nature & extent of gambling. Three reports from the *Institut national de sante publique du Quebec* monitor gambling in Indigenous communities including one prepared in cooperation with the Cree Board of Health and Social Services of James Bay; four reports from the *Institut de la statistique Quebec* monitor youth gambling prevalence; and one longitudinal prevalence study funded by the *Fonds québécois de la recherche sur la société et la culture (FQRSC)* and published by the Concordia University Research Chair on Gambling. This report is the only instance in the Canadian sample of gambling research sponsored by a general research council and published as grey literature.

Loto-Quebec was not found to publish any gambling research although it was a member of CCGR. No research publications could be found from the arms-length responsible gambling organization *Fondation Mise sur toi*, which was shut down in 2013 as part of sharp drop in Loto-Quebec's overall spending on responsible gambling initiatives (Gagnon, 2015).

Saskatchewan

Five government reports were retrieved from Saskatchewan, all focused on monitoring gambling. Saskatchewan appears to be an early adopter on this matter as it produced reports on

the social and economic impacts of gambling in 1994 and 1997 and was the first jurisdiction in Canada to conduct a prevalence study using the Canadian Problem Gambling Index in 2002. Additionally, Saskatchewan Health sponsored a youth gambling prevalence study published in 2005 and co-sponsored the “Parents as Partners” project mentioned earlier in the “National” section, which included a separate report specifically comparing Saskatchewan to the National results.

Atlantic Canada

The four Atlantic provinces produced 39 research publications, with two thirds being produced by Nova Scotia.

In the 1990s, the Nova Scotia government produced three committee reports to review policy for incoming casinos and the socioeconomic impacts of gambling. After that, gambling research was produced by the Department of Health (12 reports) and the Nova Scotia Gaming Corporation (11 reports). The Department of Health produced eight reports on gambling prevalence, three reports evaluating treatment services, the PG helpline, and a social marketing campaign, plus one report investigating other potential harm reduction measures. On the other hand, the gambling operator’s reports were largely focused on investigating and evaluating potential responsible gambling features through focus groups and pilot projects. Both departments often commissioned the Halifax-based Focal Research Consultants to conduct this research, which is interesting as one might expect the gambling research needs of the health department and the gambling operator to be sufficiently different that they hire different consultants. Based on the topics of the reports and Focal Research’s stated expertise in responsible gambling analytics, a possible reason is that the Nova Scotia health department is

invested in the Responsible Gambling paradigm, or there may simply not be other gambling research capacity in the province.

Notably, the Nova Scotia Government formed the arms-length body Gambling Awareness Nova Scotia (GANS, formerly Nova Scotia Gaming Foundation), which uses hypothecated gambling revenues to mitigate gambling harm and distribute community grants for such projects (*Gambling Awareness Nova Scoti*, n.d.). However, this organization was not found to sponsor or publish research, although has participated in CCGR.

found to sponsor or publish research, although has participated in CCGR.

The remaining six reports from Newfoundland & Labrador, five reports from New Brunswick, and two reports from Prince Edward Island are all prevalence studies except for one VLT program review in New Brunswick in 1997, which did make some general recommendations for restriction gambling including not cashing cheques or granting credit at gambling venues and regulating hours of operation. New Brunswick gambling reports were sponsored by the Department of Finance, which regulates gambling, while Newfoundland & Labrador and Prince Edward Island sponsored all their reports through their respective departments of health.

Similar to what was described in the Australia PC2010 report, smaller provinces and territories may not have the capacity to sponsor and conduct their own gambling research beyond perhaps baseline prevalence studies but can pay into federal programs such as CCGR research, or more recently the AGRI National Project.

Territories

The scan retrieved four gambling government reports from Yukon, from Northwest Territories, and zero from Nunavut. In 1994, the Yukon Council on the Economy and the

Environment conducted a public consultation on introducing VLTs and expanding casino gambling in the territory. There was overwhelming opposition to gambling expansion and the recommendations were heeded. The remaining reports from Yukon (2008-2013) and Northwest Territories (2016-2018) were concerned with auditing and evaluating how lottery revenues are disbursed.

Appendix 3: Sources of grey literature (N=89) employed in gambling systematized reviews that search grey literature (n=54), 2016-2020

<i>Source name</i>	<i># of reviews</i>
Google Scholar	17
Google	12
GREO Evidence Centre	11
ProQuest Dissertations & Theses	11
[generic] Snowball searching	10
Responsible Gambling Council (Ontario)	9
GambleAware InfoHub	8
Open Grey	8
Alberta Gambling Research Institute Repository	6
ClinicalTrials.gov	6
GambLib.org	6
Victorian Responsible Gambling Foundation	6
[generic] contact with experts	5
Gambling Commission (Great Britain)	5
GamCare	5
Gordon Moody Association	5
McGill International Centre for Youth Gambling Problems and High-Risk Behaviour	5
National Problem Gambling Clinic (UK)	5
Advisory Board for Safer Gambling ABSG	4
Gamblers Anonymous	4
WHO International Clinical Trials Registry Platform	4
[generic] government websites/documents	3
Australian Gambling Research Centre	3
Gambling and Addictions Research Centre (New Zealand)	3
Gambling Research Australia	3
National Centre for Responsible Gaming (NCRG)	3

<i>Source name (cont'd)</i>	<i># of reviews</i>
Problem Gambling Foundation of New Zealand Library	3
Age UK	2
Australasian Gaming Council	2
British Institute of Learning Disabilities	2
Child Family Community Australia	2
Citizens Advice Bureau (UK)	2
Gambling Commission (New Zealand)	2
GamblingWatch UK	2
Harmful Gambling, Wigan Council (UK)	2
Headway UK	2
Health and Social Care Information Service	2
Local Government Association	2
Mencap	2
National Centre for Social Research	2
New York Academy of Medicine Grey Literature Report	2
Problem Gambling Institute of Ontario	2
Scope UK	2
Social Care Workforce Research Unit Database of Adult Serious Case Reviews and Safeguarding Adults Reviews	2
VIXIO GamblingCompliance	2
[generic] Addiction research centres websites	1
[generic] Addiction treatment centres websites	1
[generic] Additional papers known to authors	1
[generic] gambling websites/repositories	1

<i>Source name (cont'd)</i>	<i># of reviews</i>
Australian Drug Foundation database	1
CADTH	1
CAMH Centre for Addiction and Mental Health	1
Canadian Partnership for Responsible Gambling (CPRG)	1
Center for Gaming Research, UNLV	1
Centre for Evidence-based mental health (UK)	1
DART-Europe E-theses portal	1
Director General for the Gambling Management, Spanish Government	1
Gambling Research Group (University of Glasgow)	1
Gemini Research	1
GOV.uk	1
Heinonline	1
KT+, McMaster University	1
Massachusetts Council on Compulsive Gambling	1
Migrant Help (UK)	1
Migrant Observatory (UK)	1
Migrant Support (UK)	1
Migrant Watch UK	1
National Bureau of Economic Research	1
National Collaborating Centre for Methods and Tools	1
National Criminal Justice Reference Service (NCJRS, USA)	1

<i>Source name (cont'd)</i>	<i># of reviews</i>
National Plan on Drugs (PNSD), Ministry of Health, Social Services and Equality of Spain	1
Office of National Statistics (UK)	1
Office of Responsible Gambling (NSW Australia)	1
OpenSIGLE	1
Oregon Council on Problem Gambling	1
Parliament UK	1
Productivity Commission (Australia)	1
Project Cork	1
Public Health Agency of Canada (PHAC) Best Practices Portal	1
Research and Development Research Base, University of Toronto	1
SAMHSA Substance Abuse and Mental Health Services Administration (US)	1
Scopus Conference Proceedings	1
Social Care Online database	1
Social Policy & Practice database	1
UCLA Gambling Studies Program	1
Web of Science Conference Proceedings Indexes	1
Westlaw	1

Appendix 4: Profiles of de-identified participants:

Aaron is a male researcher based in Canada who has studied gambling in a psychological discipline.

Brian is a male researcher based in Canada who has studied gambling in a psychological discipline.

Christine is a female researcher based in the United Kingdom who has studied gambling in a humanities and social sciences discipline.

David is a male researcher based in the United Kingdom who has studied gambling in a psychological discipline.

Douglas is a male researcher based in Australia who has studied gambling in a psychological discipline.

Eileen is a female researcher based in the United Kingdom who has studied gambling in a humanities and social sciences discipline.

Jason is a male researcher based in Australia who has studied gambling in a public health discipline.

Jessica is a female researcher who has studied gambling in a public health discipline.¹⁵

John is a male researcher based in Australia who has studied gambling in a psychological discipline.

Ken is a male researcher based in Australia who has studied gambling in a psychological discipline.

Mary is a female researcher based in the United States who has studied gambling in a humanities and social sciences discipline.

Patricia is a female researcher based in New Zealand who has studied gambling in a public health discipline.

Peter is a male researcher based in Canada who has studied gambling in a humanities or social sciences discipline.

Randall is a male researcher based in Canada who has studied gambling in a humanities or social sciences discipline.

Rose is a female researcher based in Australia who has studied gambling in a public health discipline.

Ruth is a Māori woman who has studied gambling from a public health perspective and works as a public health worker to reduce gambling harms.¹⁶

Theresa is a female researcher based in the United Kingdom who has studied gambling in a humanities and social sciences discipline.

Thomas is an Indigenous expert on gambling harms.

Tina is a female mid-career researcher based in Australia who has studied gambling in a psychological discipline.

Tyler is a male researcher based in Australia who has studied gambling in a psychological discipline.

Vanessa is a female researcher based in the United States who has studied gambling in a humanities and social sciences discipline.

¹⁵ Jessica requested that her country not be reported.

¹⁶ Dr. Ruth Herd insisted to not be de-identified. Refer to Chapter Three methods section for explanation.

William is a male researcher based in Australia who has studied gambling in a humanities or social sciences discipline.

Summary of sample characteristics:

- Indigeneity: 2 Indigenous, 20 non-Indigenous
- Gender of non-Indigenous participants: 11 men, 9 women
- Country of non-Indigenous participants: 8 Australia, 4 Canada, 2 New Zealand, 4 United Kingdom, 2 United States