



Literature Review: Developing Target Prevention Skills for Youth Engagement

Submitted to:
Gambling Research Exchange Ontario



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1 Introduction

1.1 Background

The YMCA Youth Gambling Awareness Program (YGAP) is a free service offering educational prevention programs to raise youth awareness with regards to gambling, healthy/active living, and making informed decisions. Youth Outreach Workers (YOWs) across Ontario provide awareness-raising interactive sessions such as workshops to youth (ages 8–24) in all regions of Ontario.

YMCA-YGAP offers the following five programs:

1. Awareness Workshops (8–24 years old)

- 3 age groups: elementary, high school, young adults & professionals
- Single session 1–2 hours
- 6 workshop options (topics)

2. Youth Engagement (15–24 years old)

- 2 age groups, 15–18 and 19–24 years old
- Multiple sessions
- Culminating in final project /activity

3. Community Involvement

4. Events/Fairs

5. Advisory Committee

Currently, in the **Youth Engagement (YE) Program**, YOWs engage small groups of youth over multiple sessions in activities designed to prevent harm from gambling. The YE Program is structured to help youth build social support and social networks. Activities focus on developing materials aimed at raising awareness of gambling and preventing harm among youth peers (e.g., posters, videos, presentations etc.). The program targets youth aged 15–18 (high school), and to a lesser extent, youth aged 19–24 (college and university campus activities).

YGAP has identified the need for a more structured, evidence-based and measurable curriculum for the Youth Engagement Program. ***YGAP intends to revise the Youth Engagement Program such that it directly builds on the knowledge youth gain in an Awareness Workshop, and goes beyond gambling awareness education to building relevant skills and competencies.***

1.1.1 Youth Engagement

The YMCA considers youth engagement to be a critical component for promoting healthy behaviours amongst youth and the wider community. Through engagement, youth gain a sense of empowerment and form healthy connections to others. In addition, there are also positive community gains through the energy, ideas and values that youth bring to organizations, activities, and their relationships with others. Engaged youth are actively and authentically involved, motivated and excited about an issue, process, event or program. Full engagement consists of a behavioural component (e.g., spending time doing an activity), an affective component (e.g., deriving pleasure from participating), and a cognitive



component (e.g., knowing about the activity). Adopting a definition of youth engagement can help ensure a shared and common understanding of youth engagement within a community or organization. We propose the following definition for the purposes of the YE program.

Definition of Youth Engagement

- a) **Participation** – the process by which young people influence decision making which brings about change in them, others, and their communities.
- b) An ongoing process of **active involvement** in matters that concern young people. Genuine participation gives young people the power to shape both the process and the outcome.

Some important outcomes of enhancing youth engagement include:

- Increased sense of self-esteem,
- Increased self-confidence,
- Greater competence and control,
- Increase in personal and social skills,
- Greater sense of direction in academic and career pursuits, and
- A reduction in problem behaviours.

1.1.2 Youth Gambling and Problem Gambling

According to the 2015 Ontario Student Drug Use and Health Survey (OSDUHS), 32% of students in grades 7 through 12 reported gambling at one or more activities in the past year (representing about 308,200 students in Ontario), and 4% of secondary school students indicated symptoms of a low-to-moderately severe gambling problem. About 1% indicated a high-severity gambling problem (representing about 7,500 secondary school students in Ontario) (Boak et al., 2015).

Youth with gambling problems report more negative life events than youth who do not gamble or only gamble socially. Youth with gambling problems also tend to display poorer self-regulatory behaviours, higher risk-taking tendencies, ineffective coping styles, poorer school performance, and a poorer understanding of random chance and the potential consequences of problem gambling; as such, coping mechanisms and skill deficiencies should be addressed in youth programming to prevent problem gambling (Gupta & Derevensky, 1998). Active coping is a protective factor for gambling and problem gambling, buffering the influence of stress on risky behaviours. Resilient youth use problem-solving coping strategies more than vulnerable and less well-equipped youth.

Gambling has been found to foster mental dissociation and physiological arousal that is both behaviourally addictive and time consuming (Gupta & Derevensky, 1998). As with adult problem gamblers, problem youth gamblers may use gambling as a means of coping with stress, avoiding or escaping problems, alleviating boredom, and generating excitement. Coping through distraction and impulsivity are the most predictive of disordered gambling for males, while intensity seeking and impulsivity are predictive of disordered gambling for females (Nower, Derevensky, & Gupta, 2004). It is



important to understand these different motives for gambling when developing prevention, intervention and education relating to problem gambling. Thus, in addition to raising gambling awareness, youth prevention initiatives should strengthen the necessary skills to help youth evaluate and proactively manage stressors constructively without resorting to gambling or other avoidant or maladaptive means.

1.1.3 Prevention of Youth Problem Gambling

Primary prevention measures can be implemented on a community and individual level, and are intended to prevent problems before they occur (Messerlian et al., 2005). Primary prevention initiatives tend to focus on public education to increase knowledge and awareness of risks and consequences of gambling, socially acceptable gambling norms, reducing erroneous perceptions about gambling, life skills training, coping and social skills, and limiting the availability of gambling. Some of these programs or initiatives have been implemented in the school setting, specifically to promote responsible gambling decision-making and to prevent the onset of problem gambling (Williams, Werst, & Simpson, 2012). For example, to reduce or minimize the risk of problem gambling, researchers have used health promotion strategies, public health services, and health protection approaches through a variety of intervention methods (Allami & Vitario, 2015). However, factual information alone may not be sufficient or effective in reducing gambling-related harm; there is a need for other strategies beyond just education. Gaboury and Ladouceur (1993) were amongst the earliest to note the importance of building core skills and competencies. These researchers argued that interventions among adolescents should include two components: (1) transfer of relevant information (problem gambling education) and (2) the development of skills to cope with high-risk situations.

In a similar vein, St-Pierre et al. (2017) identified two types of school-based programs for gambling prevention: (1) educational programs (gambling-specific prevention) and (2) educational and skill-training prevention programs (gambling education in addition to skill-building). Educational prevention programs aim to increase awareness or knowledge about gambling and problem gambling by presenting information on the nature of gambling, gaming odds, probability, erroneous cognitions and gambling fallacies, warning signs of problem gambling, and consequences of excessive gambling. Education and skill-training prevention programs were more comprehensive and also targeted skills such as enhancing self-esteem and self-image, interpersonal skills to cope with stressful life events, problem-solving and decision-making skills, and peer resistance training. While some educational programs have been successful at improving knowledge and decreasing misconceptions about gambling, few prevention initiatives have successfully reduced gambling behaviour. Additionally, many such programs have not measured the long-term impact. Including a skills component to a youth prevention program may bolster both the effectiveness of initiatives at improving gambling awareness and gambling behaviour, and may also lead to more sustained effectiveness on gambling prevention as well as increased benefits in other aspects of youth's lives (e.g., reduce other risky behaviours, increase self-esteem, coping etc.).



1.2 Project Objectives

In accordance with Theory of Reasoned Action, youth may be better able to resist problematic gambling by modifying particular knowledge and skills, such as coping skills, problem gambling awareness, self-monitoring, and the nature of random chance. The purpose of the current project is to help inform a more structured curriculum for the YE Program that is evidence-based, measurable, and incorporates non-problem gambling related skills development.

In future, the YE Program will engage small groups of youth who have completed an Awareness Workshop, and provide them with the opportunity to practice and develop key skills that are helpful to avoiding developing gambling problems. Skill-development will be done through multiple sessions with trained YOW supervising and guiding the completion of a major final project or activity. For this project/activity, youth will plan, develop and launch a peer-learning prevention product.

This literature review will guide the revised program content and structure for the Youth Engagement Program.

Project Objectives

- Review and analyze youth gambling prevention programs that have been evaluated in published in peer-reviewed journals to:
 - Identify critical education topics, and targeted skills.
 - Understand the learning from evaluations regarding:
 - Program content (gambling awareness education and non-gambling related skills),
 - Program structure (duration, mode of delivery, delivery agent).
 - Program effectiveness
- Recommend target skills and other program structure to aid in the development of effective future YE program curriculum.



2 Methods

The current literature review focused on peer-reviewed studies evaluating youth problem gambling prevention programs (i.e., education only) as well as skills-based gambling prevention programs (i.e., gambling education in addition to skills-training).

A search was performed in both PsycINFO and Pubmed using the following key words, and combination of keywords:

- Problem gambling, pathological gambling, variations of the terms gambling and gamb*
- Youth/young adult/adolescent/school-age, etc.
- Risk behavior(s), risk-taking
- Prevent*, prevention, curriculum
- Skill*
- Curriculum
- Educat*, education,
- Coping
- Social
- Risk-taking
- Cognitive behavioural
- Peer pressure

An additional search was carried out using appropriate keywords in Google Scholar. We read each study abstract and selected relevant articles for in depth review. For each selected article, we also examined cited and citing articles. In addition, other articles about treatment and prevention in other populations, as well as some conceptual and review articles were reviewed for content and incorporated where relevant.

The review includes peer-reviewed literature published in the years 1990 up to and including 2017. Although the primary focus was on prevention programs targeting youth (aged 15–24), studies involving children 13 years and up were included.

Studies were not excluded on the basis of methodological, data analytic, or sample characteristics; rather, these elements were considered in the assessment of the quality and the review of the literature.

3 Results

3.1 Overview of Literature

The literature review included:

- 21 Evaluation Studies (N = 21)
- 16 Youth Prevention Programs (N = 16)
 - 8 Education-Only (n = 8)
 - 8 Education & Skills (n = 8)

Table 1 lists the 16 programs, along with the program’s developer/author, a brief description, and the 21 associated evaluation studies. The table also provides a helpful reference to the program names and studies used throughout this report. Where an “Untitled” program is referenced, we add the developer/author name to identify it (e.g., *Untitled*, Gaboury & Ladouceur). For more details on the Programs and individual studies, see **Appendix A-C**.

Table 1. Overview of Programs & Evaluation Studies

| Program Name (N = 16) | Program Description | Evaluation Studies (N = 21) |
|---|--|-----------------------------|
| Education & Skills (n = 8) | | |
| <i>Stacked Deck</i> Williams & Wood | 5 x 75-100min. sessions (interactive, ppt, video, games, discussions). Teaches gambling history, PG, fallacies. Targets awareness, decision-making, and coping skills. | Williams et al., 2004 |
| | | Williams et al., 2010 |
| <i>Who Really Wins?</i> University of Zagreb, Croatia | 6 x 90min. sessions (interactive, role playing, discussions). Teaches randomness, PG, gambling activities. Targets awareness, resistance to peer pressure, self-efficacy, social skills. | Huic et al, 2017 |
| <i>Vernetzte www.Welten</i> University of Kiel, Germany | 1 x 90min. session (component of media literacy pkg.). Teaches gambling features, PG, probability, fallacies, profits of industry. | Walther et al, 2013 |
| Untitled Gaboury & Ladouceur | 3 sessions (lecture, discussion, quiz, video). Teaches legal/illegal gambling, PG. Targets awareness, coping skills. | Gaboury & Ladouceur, 1993 |
| Untitled Williams et al. | Lecture material for University students (incl. interactive elements – discussion, role-playing). Teaches probabilities, mathematical aspects. Targets awareness. | Williams et al., 2004 |
| Untitled Ferland et al. | 3 x 60min. meetings. Teaches PG, warning signs. Targets decision-making, resistance to peer pressure. | Ferland et al., 2005 |



| | | |
|--|--|--------------------------|
| Untitled CAMH | 6 x 70min. sessions. Teaches randomness. Targets coping, self-monitoring skills. | Turner et al., 2008a |
| Untitled CAMH (abbr.) | 60min. lesson (interactive, discussion, role playing). Teaches win/loss emotions, luck, myths, PG. Targets coping, problem solving skills. | Turner et al., 2008b |
| Education-Only (n = 8) | | |
| Count Me Out Groupe Jeunesse | 1 interactive session (games, simulated lottery). Teaches randomness, fallacies. | Ladouceur et al., 2004 |
| Modeled after Count Me Out Groupe Jeunesse | Interactive presentations/activities. Teaches randomness, lack of control. | Ladouceur et al., 2003 |
| Amazing Chateau McGill University, Canada | 10 x 50min. weekly sessions (CD-ROM). Teaches fallacies, illusion of control. | Todrita & Lupu, 2013 |
| | | Lupu & Lupu, 2013 |
| Gambling Stories Ladouceur research group | 20min. video. Teaches gambling consequences, youth gambling, fallacies. | Ladouceur et al., 2004 |
| Clean Break McGill University, Canada | Video testimonial of PG plus discussion. Teaches fallacies, behaviours, warning signs, dangers. | St-Pierre et al., 2017 |
| Lucky Ferland & Ladouceur research team | 20min. video. Teaches fallacies, economic aspects. | Ferland et al., 2002 |
| | | Ladouceur et al., 2004 |
| | | Lavoie & Ladouceur, 2004 |
| | | Donati et al., 2014 |
| Don't Gamble Away Our Future Illinois Institute for Addiction Research | 1 x 45min. session (lecture, discussion, activities). Teaches general gambling information. CD-ROM provided following session. | Taylor & Hillyard, 2009 |
| It's Your Lucky Day Addictions Foundations of Manitoba | Interactive multi-media session. Teaches general gambling, fallacies, signs of PG, resources/services. | Lemaire et al., 2004 |

Overall, there was emphasis across the literature on targeting youth through school-based prevention programs. All of the programs included some form of evaluation, most of which were appropriate and well-designed, and included an experimental design with one or more control groups, an intervention group, and utilized random assignment to condition.

More than half (12 of 21) of the evaluation studies were conducted in Quebec; four took place in other Canadian Provinces (Ontario, Manitoba, Alberta, and New Brunswick). The remaining programs were implemented in Italy, Romania, Croatia, Germany, and the Midwestern United States (see **Figure 1**).

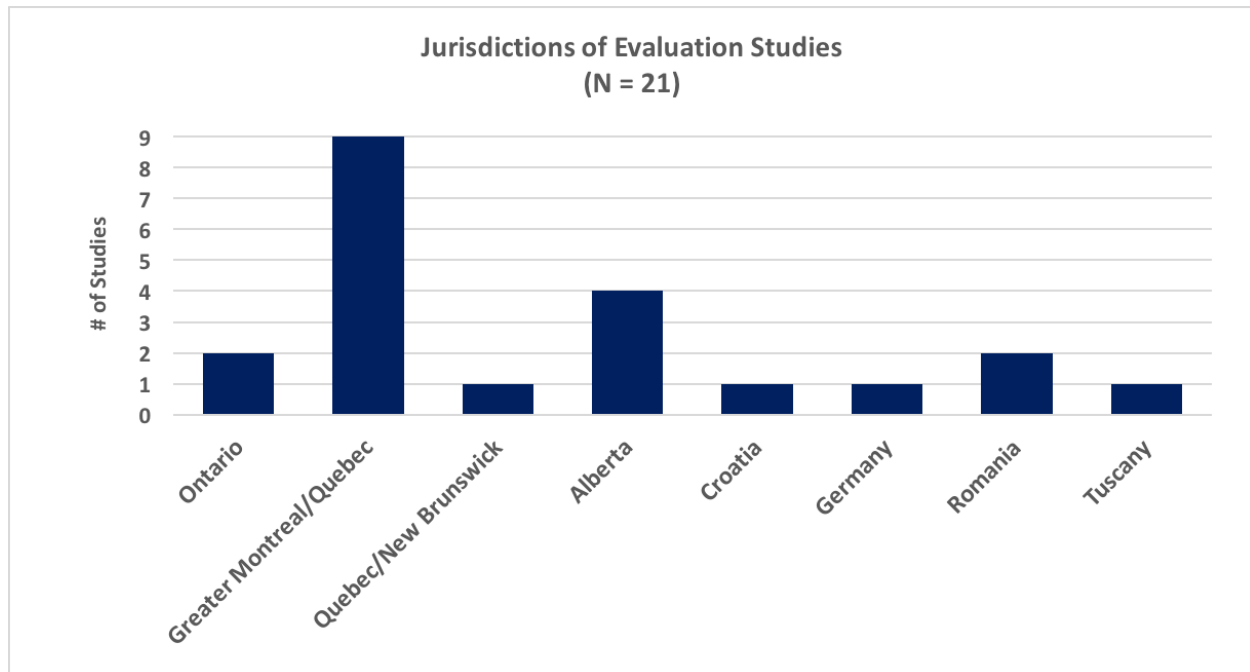


Figure 1. Location of Program Delivery

Appendix A provides a detailed summary of each of the 21 evaluation studies, including information on relevant intervention program, research design, sample size, length of follow-up assessment (if included), description of evaluation component, article title, authors, publication year, # citations, and journal impact factor.

3.1.1 Prevention Programs

The literature was examined according to a) the individual youth prevention programs reviewed, b) the research studies evaluating each program (note. A few programs include multiple evaluation studies).

- This review included 16 unique youth gambling prevention programs (N = 16). Half (n = 8) addressed were Education-Only, and the remaining programs (n = 8) were Education and Skills.
- Education-Only programs included topics such as gambling knowledge, problem gambling awareness, cognitive distortions, gambling fallacies, and help resources, etc.
- Education & Skills programs included gambling awareness content as well as skills and competency topics such as decision-making, coping skills, problem-solving, resistance to peer pressure, stress-reduction, media literacy, etc.
- **Appendix B** (Education-only) and **Appendix C** (Education & Skills) include a brief description of each of the 16 programs, as well as their corresponding evaluation studies.



3.1.2 Evaluations Studies (Literature)

- In total, **21 studies**, from 20 articles and reports, were included in this literature review (N = 21). One article (Williams, Connolly, Wood, Currie, & Davis, 2004) included two studies of skills-based education prevention programs. See **Appendix A** for details on specific studies.
- All 21 studies included an evaluation of a youth prevention program. Nine studies evaluated Education & Skills Programs (8 unique programs). 12 studies evaluated Education-Only Programs (8 unique programs). The research design and type of evaluation (e.g., quasi-experimental, pre-post, randomized control trial, etc.) differed across studies but most were well designed, rigorous, and included appropriate control groups.
- Follow-up times for evaluations varied across studies. Nine of 12 (43%) studies included a post-program evaluation immediately or within one week of the program delivery. More than half of studies (12 of 21; 57%) included a longer-term follow-up evaluation of one month or longer either in addition to or instead of a short-term evaluation. See **Appendix A** for specific follow-up times within studies.

3.2 Program Content

We review the key content that was examined across both groups of programs (Education-Only and Education & Skills). All programs included educational content, whereas skills content only relates to the eight Education & Skills programs.

3.2.1 Gambling Awareness Education Content

Both Education-Only and Education & Skills prevention programs were designed to provide youth with information about gambling, harms and signs of problem gambling, and to assist in the development of realistic views on gambling.

Figure 2 illustrates the frequency with which each topic was addressed by the programs across studies. While there was variability in the total number and combinations of gambling awareness topics included in interventions, there was some consistency in terms of the most common topics which included on problem gambling, and cognitions such as understanding skill vs. chance in gambling, illusion of control, and randomness. Topics such as help resources and the economics of gambling (profitability vs. unprofitability, house edge, odds etc.) were less frequently included.

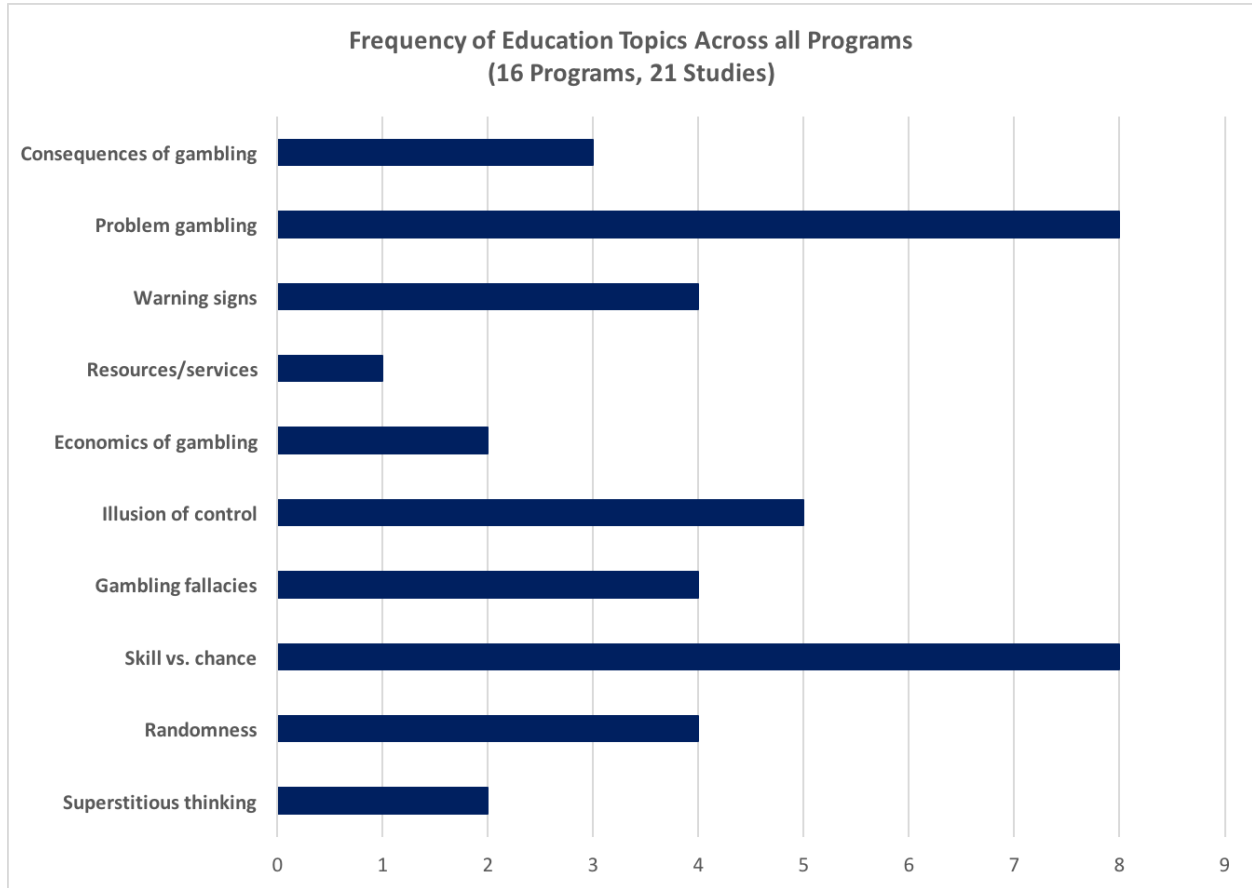


Figure 2. Frequency of Education Topics Across All Programs

3.2.2 Skills Content in Education & Skills Programs

Problem gambling occurs because of a broader pattern of high-risk behaviours, explained by core deficits in decision-making, judgement, and problem-solving (Dickson et al., 2002). Twelve of the 21 reviewed studies (57%) assessed eight programs that addressed education and skills.

Education & Skills Programs included a range of skills and competencies that are not directly related to gambling or problem gambling. Although the Prevention Programs and Evaluation Studies used a variety of terms to name the skills, for the purposes of this report they have been grouped together according to five higher-level categories. **Table 2** below describes the types of skills included in the reviewed programs, and their relevance to PG prevention.

Table 2. Key Skills included in Education & Skills Youth Prevention Programs

| Key Skill | Description |
|--|---|
| Problem solving and decision-making | Strategies and considerations for making impactful decisions (e.g., whether, when, and how to healthily engage in gambling activities). Methods for overcoming challenges in a rational, healthy and productive way. |
| Coping | How to deal with difficult feelings or experiences in a healthy manner; constructive ways to deal with stress (e.g., confiding in friends/family vs. turning to gambling in difficult/stressful times). |
| Resistance to peer pressure | Strategies to resist pressure from peers to engage in unhealthy activities (e.g., clever ways to decline invitations to gamble). |
| Self-monitoring or self-efficacy | Monitoring one's own behaviours in order to maintain a sense of self that is in line with a positively-perceived state (e.g., avoiding problematic gambling activities to remain a responsible, happy person). |
| Media literacy | Familiarity with strategies and language employed by media; and how to critically interpret media messages (e.g., understanding the image of gambling projected in media generally only shows the positive, glamorous aspects and not the potential negative consequences). |

Table 3 below indicates which Education & Skills Programs address each skill.

Table 3. Key Skills Across Programs & Studies

| Skills | Program Name (n = 8) | Study (n = 9) |
|---|--|--------------------------|
| Problem solving, decision-making | <i>Stacked Deck</i> | Williams et al. 2004 |
| | | Williams et al. 2010 |
| | <i>Untitled, CAMH (abbr.)</i> | Turner et al. 2008b |
| | <i>Untitled, Ferland et al. 2005</i> | Ferland et al. 2005 |
| Coping | <i>Stacked Deck</i> | Williams et al. 2004 |
| | | Williams et al. 2010 |
| | <i>Untitled, Gaboury & Ladouceur</i> | Gaboury & Ladouceur 1993 |
| | <i>Untitled, CAMH</i> | Turner et al. 2008a |
| <i>Untitled, CAMH (abbr.)</i> | Turner et al. 2008b | |
| Resistance to peer pressure | <i>Who Really Wins?</i> | Huic et al. 2017 |
| | <i>Untitled, Ferland et al.</i> | Ferland et al. 2005 |
| Self-monitoring or self-efficacy | <i>Who Really Wins?</i> | Huic et al. 2017 |
| | <i>Untitled, CAMH</i> | Turner et al. 2008a |
| | <i>Untitled, CAMH (abbr.)</i> | Turner et al. 2008b |
| Media literacy | <i>Vernetzte www.Welten</i> | Walther et al. 2013 |

See **Appendix B** and **C** for the full list of programs, associated evaluation studies, and the skills they focused on.



Across the programs, the four most commonly included skills were: problem solving/decision-making, coping, resistance to peer pressure, and self-monitoring/self-efficacy. **Figure 3** below illustrates the frequency of skills included across the Education & Skills Programs (n = 8).

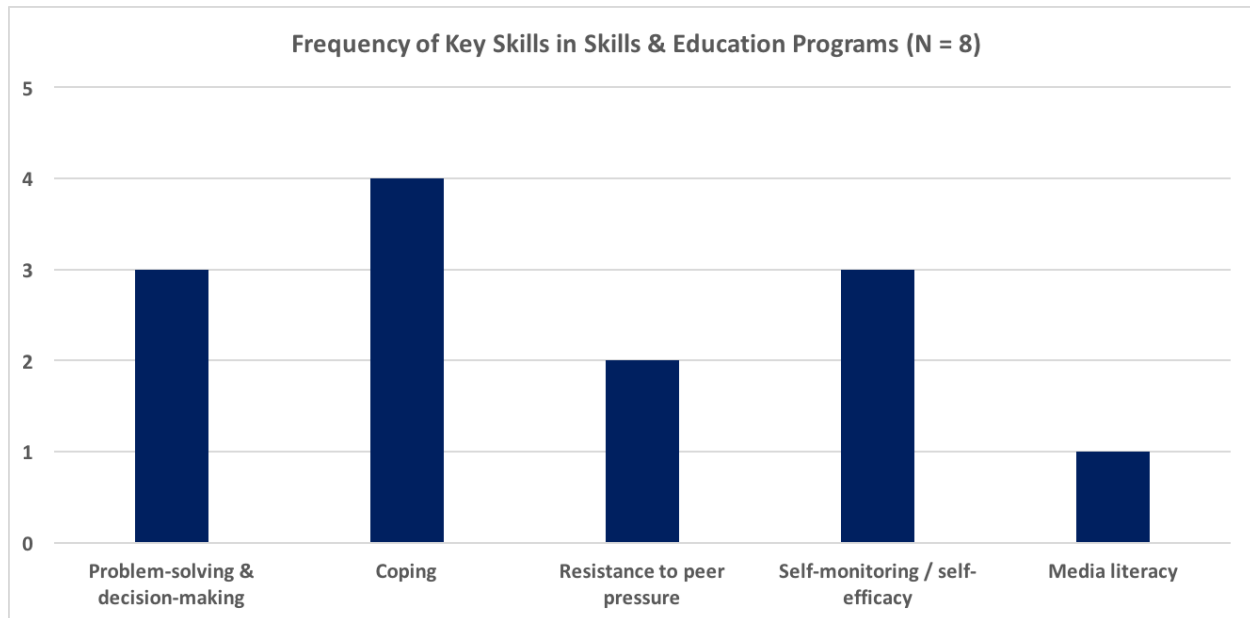


Figure 3. Frequency of skills included in programs

3.3 Program Structure

This section addresses three key aspects of the structure of the Prevention Programs:

- Program Length (number of sessions, duration of sessions, inclusion of booster sessions etc.)
- Program Mode of Delivery (techniques ranging from lecture to multi-media)
- Program Delivery (personnel and training)

3.3.1 Program Length

Youth prevention programs varied greatly in terms of the duration of the program. Programs ranged from a single session (e.g., *Lucky; Untitled Program*, CAMH (abbr.)), six 70-minute sessions (*Untitled Program*, CAMH), up to 10 weekly sessions of 50 minutes each (*Amazing Chateau*). There is some evidence to suggest that longer programs may be more successful than shorter programs. The evaluations of the two CAMH programs – one consisting of six 70-minute sessions and the other a single one-hour session – suggest greater effectiveness of the multi-session program over the single session program (Turner et al. 2008a; b).

Most prevention programs that incorporate skills-based training were longer in duration than gambling education-only programs. Because changes in gambling behaviour are more difficult to obtain than



changes in gambling awareness, programs with the goal of behavioural outcomes tended to be multi-session and longer than programs that did not aim for behavioural change (e.g., *Lucky* vs. *Stacked Deck*).

Booster sessions are typically short sessions after an intervention that are used to reinforce or build on the original information or training to sustain favourable effects post-intervention. In the evaluation of *Stacked Deck* by Williams et al. (2010), students who received booster sessions showed greater improvement in gambling attitudes and knowledge as compared to students who did not receive a booster, and to students who did not receive any intervention. However, there were no positive effects of the booster on improving problem-solving and decision-making skills.

In St-Pierre and colleagues' evaluation (2017) of *Clean Break*, all students in the intervention group received a booster session consisting of a 20-25 minute discussion, one week after completion of the program. Unlike in Williams et al. (2010), this study did not compare the impact of the intervention with and without a booster, therefore the contribution of the booster to effectiveness cannot be separated from the effects of the intervention. Also, this study reported negative unintended consequences – both control and intervention groups subsequently exhibited higher (but small) increases in positive attitudes and perceived social norms towards gambling.

In summary, there appears to be modest evidence for the importance of booster sessions. It is important to keep in mind that although longer interventions, including those with boosters, tend to afford more time to produce stronger and more lasting effects, other elements of the interventions such as content and delivery also important. In line with this thinking, one of the shortest interventions, the 20-minute video called *Lucky*, was consistently shown to be effective at improving misconceptions, gambling knowledge, erroneous attitudes, superstitious thinking, and even a small but significant reduction in gambling behaviour (Donati et al., 2014; Ladouceur et al., 2002; Ladouceur et al., 2004; Lavoie & Ladouceur, 2004). These results suggest that strength of an intervention is not determined solely by the length or breadth of materials but the careful thoughtful development of content delivered in a relatable and engaging manner.

3.3.2 Mode of Delivery

For education prevention programs to be successful, they necessarily must be engaging especially when the target audience is youth. Consistent with this approach, most of the reviewed programs incorporated a combination of delivery modes, including multi-media (videos, online modules), classroom discussions, and activities. A few programs did not involve any multi-media (Ladouceur et al., 2013; Turner et al., 2008; Walther et al., 2013) while several included only multi-media, with no teacher/instructor component (Ladouceur et al., 2004; Lemaire et al., 2004; Lupu and Lupu, 2013; Todirita and Lupu, 2013).

Video: *Lucky*, a video-based session presenting knowledge and information on misconceptions about gambling (i.e., Education only), has been evaluated in four studies. Comparing a video-only condition to one that combines a video with lecture/activities, lecture/activities alone, and a control group, Ferland and colleagues identified that *Lucky* resulted in increased knowledge and reduced misconceptions about gambling. *Lucky* combined with lecture/activities was not more effective than the video alone. Overall,



the *Lucky* video led to changes in attitudes and increased knowledge about gambling in adolescence, and general support of including a humorous component when trying to target youth audience.

In a study by St-Pierre and colleagues to evaluate the *Clean Break* docudrama, suggested that the video, even with a booster, was not sufficient to modify, youths' intentions to gamble.

Programs were all delivered to class- or school-cohorts. Delivering programs school-wide is advantageous, as they target peer groups simultaneously, and ensure that control groups are distinct from intervention groups (Keen et al., 2017).

Although stand-alone video or online formats may be convenient in administering interventions widely and do ensure consistency in delivery, interactive and hand-on activities led by trained individuals such as YGAP YOWs may be essential to engaging youth, answering questions, leading lively discussion, and thus ensuring greater effectiveness of prevention initiatives.

3.3.3 Program Delivery (Personnel)

The type of personnel and level of training in PG may impact the success of the program delivery. The majority of the studies reviewed (19 of 21) reported information about the person responsible for delivering the program. Programs were delivered by a range of personnel including psychologists (n = 3), graduate students specializing in gambling psychology (n = 3), research assistants with expertise in the psychology of gambling (n = 5), experts in gambling and school interventions (n = 3), and class teachers/lecturers (n = 5). Indeed, one study that directly compared the effectiveness of a program delivered by a trained professional or specialist in gambling to a teacher, found greater program effectiveness when delivered by a trained professional (Todorita & Lupu, 2013), such that youth had significantly improved knowledge about gambling compared to the control group and to the group receiving REE (Rational Emotive Education). These results suggest trained personnel should be used in the delivery of programs and in cases where that may not be possible, some form of training should be provided to teachers or lecturers in the delivery of programs to ensure maximal program effectiveness.



3.4 Program Effectiveness

All youth prevention programs were reviewed for their impact on three dimensions: gambling awareness and gambling behaviour. More specifically, the research evidence for each program was consolidated to provide an overall assessment of:

| Effectiveness Dimension 1 – Gambling Awareness |
|---|
| <ul style="list-style-type: none"> ❖ Was the program effective in <u>improving gambling awareness</u>? Yes/No ❖ What was the impact on Gambling Awareness? |
| <p>Examples of positive impact:</p> <p>Increase in gambling knowledge, decrease in fallacies and misperceptions, increase in realistic attitudes towards gambling, increase understanding of randomness, decrease in erroneous cognitions; increase in awareness of harms and risks associated with gambling, increase in awareness of signs of PG, increase awareness of help resources, etc.</p> |
| Effectiveness Dimension 2 – Gambling Behaviour |
| <ul style="list-style-type: none"> ❖ Was the program effective in <u>reducing gambling behaviour</u>? Yes/No ❖ What was the impact on Gambling Behaviour? |
| <p>Examples of positive impact:</p> <p>Reduction in gambling participation, time spent gambling, and money spent gambling.</p> |

Results of the Education & Skills Programs were also summarized to address the following:

| Effectiveness Dimension 3 – Skills |
|---|
| <ul style="list-style-type: none"> ❖ Was the program effective in <u>strengthening skills</u> (non-PG)? Yes/No ❖ What was the impact on skills? |
| <p>Examples of positive impact:</p> <p>Improvement on coping, media literacy, problem solving, decision-making, resistance to peer pressure, etc.</p> |

Consolidating the findings and drawing conclusions about program effectiveness was difficult; measurements and outcomes varied across studies, and there were challenges not controlled by the research design.



Overall, only a few studies measured intervention effectiveness by behavioural indicators that could identify a reduction in gambling participation or problem gambling. For the most part, the focus of program effectiveness measurements were on cognitive gambling cognitive variables, including awareness, negative attitudes, correcting misconceptions and fallacies about gambling, or knowledge of gambling/odds/chance and skill. Some, but not all, of the Education & Skills programs included measures of changes to the skills themselves.

In the sections below, we provide a synthesis of the evidence for program effectiveness on the three effectiveness dimensions (gambling awareness, gambling behaviour, and skills) reported separately for Education-Only Programs and Education & Skills Programs.

3.4.1 Effectiveness of Education-Only Programs

Overall, there is strong evidence that Education-Only programs are successful at improving gambling awareness and modest evidence (only one study) for the effectiveness at reducing gambling behaviour. This evidence is discussed below. For more details on the effectiveness of individual studies and programs, see **Appendix B: Summary of Program Effectiveness – Education-Only Programs**.

Impact on Dimension 1 – Gambling Awareness

Overall, Education-Only programs were effective at improving gambling awareness. Seven of eight (87.5%) Education-Only programs (11/12 studies) demonstrated effectiveness at improving gambling awareness. For example:

- One study (St-Pierre et al. 2017) reported unintended negative consequences of the intervention (*Clean Break*). Post-intervention, both the intervention and control groups demonstrated **more positive attitudes after towards gambling, increased intention to gamble, and decreased perceptions of ability to refuse gambling**.
- **Increased knowledge of gambling or excessive gambling** (Ferland et al., 2002; Ladouceur et al., 2004; Lavoie and Ladouceur, 2004 – all evaluating *Lucky*; Ladouceur et a., 2005 – *Gambling Stories*; Lemaire et al., 2004 – *It's Your Lucky Day*; Taylor and Hillyard, 2009 – *Don't Gamble Away our Future*). In a study by Taylor and Hillyard (2009; *Don't Gamble Away our Future*), participation in the intervention resulted in significant increases in knowledge about gambling; greatest increase among primary school students and males (note. no control group, though).
- **Reduction in erroneous cognitions or misconceptions about gambling** (Ferland et al., 2002; Ladouceur et al., 2004; Lavoie and Ladouceur, 2004 – all evaluating *Lucky*; Ladouceur et al., 2003 – *Count me Out v2*; Lemaire et al., 2004 – *It's Your Lucky Day*; Ladouceur et al., 2005 – *Gambling Stories*).



Impact on Dimension 2 – Gambling Behaviour

Only one of eight (1/8) Education-Only programs (and 1 of 12 studies) examined the effectiveness of the program on gambling behaviour.

The program, *Lucky*, produced a **small but significant reduction in gambling behaviour** (Ferland et al. (2002).

It is worth noting that these findings are not surprising, considering that cognitive changes (i.e., awareness of gambling) are highly correlated with and may provide indication of future behaviour change, but do not necessarily always result in changes in behaviour (Keen et al., 2017).

3.4.2 Effectiveness of Education & Skills Programs

On the whole, there is strong evidence that Education & Skills programs are successful at increasing gambling awareness. The evidence for the effectiveness of these programs on changing gambling behaviour is mixed with some studies showing a reduction in gambling participation or frequency and other showing no reduction. Similarly, evidence for the impact on skill development is mixed. Below we discuss in greater detail the evidence for the effectiveness of Education & Skills Programs. For additional information, see **Appendix C: Summary of Program Effectiveness – Education & Skills Programs**.

Impact on Dimension 1 – Gambling Awareness

As with the Education-Only Programs, all Education & Skills programs (8/8 programs and 9/9 studies) demonstrated effectiveness at improving gambling awareness and knowledge.

- In the two studies on the *Stacked Deck* program, researchers reported that the intervention group showed an **increase in negative attitudes towards gambling** (Williams et al., 2004; Williams et al., 2010).
- **Less gambling-related cognitive distortions** were reported by Huic et al. (2017) in their evaluation of *Who Really Wins?*
- **Decreased misconceptions** were reported by Ferland et al. (2005) in their evaluation of their program, and by Turner et al. (2008a,b) in their evaluations of both CAMH's programs.
- However, in Turner et al. (2008b), evaluating the abbreviated one-hour CAMH program, the authors found **increases in knowledge of gambling and problem gambling, but no change in attitudes towards gambling**, coping skills, or gambling behaviours.

Impact on Dimension 2 – Gambling Behaviour

5/8 (62.5%) of the Education & Skills Programs (and 6/9 studies) reported outcomes related to gambling behaviour.

- Two of five (2/5) Education & Skills Programs (3 of 6 studies) reported the interventions to be **effective at reducing gambling behaviours** (Williams et al., 2004; Williams et al., 2010 – both evaluating *Stacked Deck*; Walther et al., 2013 – *Vernetzte www.Welten*).



- Williams et al. (2010), evaluating *Stacked Deck*, found a **significant decrease in proportion of current gamblers and gambling frequency** but no change in gambling expenditure.
- Walther et al. (2013) evaluation of *Vernetzte www.Welten* found a **statistically significant reduction in the number of current gamblers** (limited by the fact that this was one of four units on media literacy; so observed effects might not be directly and only attributable to this gambling prevention unit).
- The remaining three programs reported **no reduction in gambling behaviours or participation** (Turner et al., 2008a – *Untitled*, CAMH; Ferland et al., 2005 – *Untitled*, Ferland et al.; Williams et al., 2004 – *Untitled*, Williams et al.).
- Four studies identified improvements to knowledge, attitudes, and cognitive errors, **but no associated behavioural changes** (Ferland et al., 2005 – *Untitled*, Ferland et al. (assumed); Gaboury and Ladouceur, 1993 – *Untitled*, Gaboury & Ladouceur; Turner et al., 2008a,b – *Untitled*, CAMH; Williams, 2004 – *Untitled*, Williams et al.).

Impact on Dimension 3 – Skills

Overall, Education & Skills Programs were found to be successful at changing awareness and in some cases even behaviour, but the interventions appear to have mixed (and low to moderate) direct effects on successful skills development.

8/9 studies (7/8 programs) examined the impact of Education & Skills Programs on skills. 4/9 of these studies showed significant improvements on decision-making and problem-solving (e.g., Williams et al., 2010 – *Stacked Deck*; Turner et al., 2008a – *Untitled*, CAMH), and coping skills (e.g., Gaboury & Ladouceur – *Untitled*, Gaboury & Ladouceur). In contrast, the remaining studies (5/9) reported no improvements on decision-making and problem solving (e.g., Williams et al., 2004 – *Stacked Deck*; Huic et al., 2017 – *Who Really Wins?*; Ferland et al., 2005 – *Untitled*, Ferland et al.; Turner et al., 2008b – *Untitled*, CAMH (abbr.)), coping (e.g., Turner et al., 2008b – *Untitled*, CAMH (abbr.)), or resistance to peer pressure (e.g., Ferland et al., 2005 – *Untitled*, Ferland et al.).

- Gaboury and Ladouceur (1993) found that **knowledge and coping skills improved** after the intervention (*Untitled Program*, developed by Gaboury and Ladouceur), **but the coping skills were not maintained at six months follow-up**. This program included three sessions, and taught students skills to avoid or eliminate gambling-related problems and behaviours, increased their knowledge about gambling, increased critical appraisal of beliefs about gambling, and modified gambling behaviours (time and money spent).
- Turner et al. (2008a), in evaluating the program developed by CAMH, found there was some evidence of **improvements in understanding of skills but not to the application of the skills** themselves in curriculum on gambling probabilities, self-monitoring, or coping skills.



- Turner et al. (2008b), in their evaluation of CAMH’s one-hour sessions, found that the one-hour presentation **did not lead to a change in coping skills**; the single hour may not have been sufficient to change coping strategies or sustain a change in knowledge, however, it is possible that self-monitoring and coping skills can be taught (since these students had a significant improvement in knowledge of random chance, maintained after 2 months) (Turner, Macdonald, Bartoshuk & Zanganeh, 2008).
- The only program that resulted in **improved problem-solving and decision-making skills** was *Stacked Deck* (Williams et al., 2010); students also reported more negative attitudes towards gambling and a decline in problem gambling frequency. In an earlier version, Williams et al. (2004) did not identify improvements in decision-making or coping skills, and no change in the likelihood of gambling-related problems, but they did find that *Stacked Deck* led to decreases in the number of youth gambling and the amount of time and money spent on gambling.
- Ferland et al. (2005), evaluating their program, found that it resulted in significant improvements in knowledge about gambling, decreases in gambling misconceptions, but **no improvement in resistance to peer pressure** or changes in gambling participation.

Skills may require more time to develop than changes in knowledge via education. Moreover, it is possible that the post-intervention assessment of skills was not sensitive enough to detect actual gains. Some evidence for this interpretation is the finding that improvement of the skills increased whereas the application of the skills had not (Turner et al., 2008a). It remains possible that though more hands-on, engaging, and extended skill development, that includes practised application of skills (e.g., role playing resistance to peer pressure, practise coping skills diary) interventions may be more successful at directly improving skills.

3.4.3 Longevity of Results

The longevity of the program’s effectiveness could only be assessed in a handful of studies. All reviewed studies included a post-intervention assessment, however, more than half of the programs included assessment only immediately after the program intervention. A few studies included a longer term follow up in addition to, or instead of, the immediate post intervention assessment: one week (n = 2); one month (n = 1); two months (n = 1); three months (n = 7); six months (n = 4); and 12 months (n = 1).

All studies examined the effectiveness of programs on gambling awareness. Please see **Appendix A** for complete details of the studies and follow-ups.

Overall, there is evidence to suggest some long term cognitive improvements in knowledge or decreases in misconceptions (up to 6 months following the delivery of the program; Ferland et al., 2005; Gaboury & Ladouceur, 1993; Williams, 2002; up to 1 year in Lupu & Lupu, 1993), weak evidence for reducing problem gambling (Lemaire et al., 2004), and no evidence of longevity of program effectiveness on skills (e.g., Ferland et al., 2005).

Key results on the longevity of intervention results are highlighted below:



- Lemaire et al. (2004) – *It's Your Lucky Day*: Improved knowledge of gambling, problem gambling, and decreased gambling fallacies at 3 months.
- Lupu & Lupu (2013) – *Amazing Château*: Improvements in erroneous cognitions were maintained after 12 months follow-up.
- Williams et al. (2004) – *Stacked Deck*: Improvements in knowledge and awareness of gambling, and resistance to fallacies, maintained at three months. However, improvements to decision-making or coping-skills were not maintained at 3 months.
- Gaboury & Ladouceur (1993) – *Untitled Program*, Gaboury & Ladouceur: Resulted in improved knowledge and coping skills, but improvement to skills were not maintained after six months.
- Ferland et al. (2005) – *Untitled Program*, Ferland et al. (assumed): No improvement in resistance to peer pressure maintained after three months, but significant improvement in knowledge about gambling and a decrease in gambling misconceptions maintained after three months, and some evidence that they were maintained up to six months following delivery of the program.



4 Discussion

With this project, we sought to review existing youth-targeted problem gambling prevention programs, in terms of their effectiveness on three levels – **gambling awareness**, **gambling behaviour**, and **skills**. The findings from this review will help inform the development of a prevention program to be conducted through the YGAP's Youth Engagement (YE) Program.

In total we reviewed 16 prevention programs, which had been evaluated across 21 studies. Although there were mixed results across the interventions, overall, the programs led to improvements in gambling **awareness** (increased knowledge and decreased misconceptions). However, impact on awareness was not proven to necessarily lead to a change in gambling **behaviour**. Further, the majority of programs with a skills component were not successful at improving those **skills**. Additionally, in measuring the longevity of the programs' effectiveness, it was found that many of the changes attributable to programs were not sustained long-term. Despite this, there was sufficient evidence in the literature for providing youth with educational-based interventions, along with skills-based training, to contribute to early initiatives for the prevention of gambling-related harm.

We outline here some notable limitations of this evidence, followed by its implications for a future YGAP program, including a list of target skills that should be incorporated to result in holistic and sustained impact, and finally the next steps to be taken in the program's development.

4.1 Limitations

We have organized the limitations into two groups. Limitations on the available data refer to issues with the suitability of the studies for the intended purpose. Limitations on the data quality and reliability refer to issues with the studies' methods and results, that should be considered when drawing conclusions from them.

4.1.1 Available Data

We note the following limitations in terms of the suitability of the data used for this project.

It is important to note that this project was limited to the review of programs which had been formally evaluated through academic, peer-reviewed research studies. There are likely additional youth-targeted programs that exist that have not been evaluated in this method, and therefore have not been considered in this project. Related to this, there is also a risk of publication bias, whereby evaluations may have been conducted but not published due to negative or (deemed) insignificant findings.

Despite the fact that most studies reviewed were well designed and rigorous, the programs were evaluated as a whole, and as such, it was difficult to disentangle which elements contributed to the specific components we sought to evaluate (i.e., impact on individual behaviours, skills). Additionally, it is not possible to clearly attribute success to components of program **content**, rather than to elements of program **structure** (e.g., length, mode of delivery, personnel).



4.1.2 Data Quality & Reliability

When examining the impact of the reviewed programs on the established metrics of gambling awareness, gambling behaviour, and skills, we note the following limitations.

It is important to note the challenge of measuring the impact on youth's awareness and behaviour related to an activity they engage in at very low rates. The low rates of youth gambling likely mean they are already aware of the risks and consequences of gambling, and generally do not participate in it, so that providing them with additional education will not affect their behaviour, since there is no behaviour to change (Gillespie et al., 2007).

A related factor that may have affected impact assessment, is that some of the programs (e.g., *Clean Break*) may have been designed to be specifically suitable for high-risk youth, but compelling for all youth. However, it is possible that such programs were not in fact suitable for all youth, in particular for those that have never gambled, do not intend to gamble, or gamble infrequently. This could have led to less successful results for non-high-risk youth.

There are also limitations to consider related to the reliability of participants' responses. In their review of school-based gambling education programs, Keen et al. (2017) questioned whether some changes in some knowledge/awareness might be attributed to rehearsal effects, that is, simply recalling recently received information, rather than actual cognitive development.

Another such limitation is the risk of desirability bias. As the studies relied heavily on self-report to evaluate impact, it is possible that respondents had a tendency to provide answers they believed would be viewed favourably. This could have had an effect on responses provided both pre- and post-intervention, meaning the actual impact of the intervention could be understated or exaggerated.

The risk of both rehearsal effects and desirability bias can be mitigated by conducting medium- and long-term follow-up to assess the program's sustained impact on the target metrics (i.e., awareness, behaviour, and skills). We further address this recommendation in the next section.

The lack of long-term follow-up is an additional limitation itself. Certain studies that did incorporate follow-up found a deterioration of positive effects over time (Donati et al., 2014; Ferland et al., 2005; Lupu & Lupu, 2013). This indicates other studies without meaningful follow-up may provide inappropriate conclusions or assumptions about lasting behaviour change.

In consideration of these limitations, and with the aim of mitigating potential issues, we outline below the implications and recommendations for a future YGAP YE gambling prevention program.



4.2 Implications & Recommendations

We include below our conclusions and recommendations for a future YGAP YE program based on the work completed through this project.

In their conceptual framework for the prevention of problem gambling in youth, Dickson, Derevensky and Gupta recommend encouraging resilience in youth, by helping youth to develop problem solving skills (i.e., the ability to think abstractly and generate solutions to cognitive and social problems), social competence (i.e., flexibility, communication skills, concern for others, and pro-social behaviours), autonomy (i.e., self-efficacy and self-control), and a sense of purpose and future (i.e., motivation, optimism) (Dickson, Derevensky, & Gupta, 2002). Positive skill development can strengthen positive qualities in youth and reduce the probability of developing problem gambling. Although this was not evident across the reviewed literature, it is possible that, by leveraging our findings to develop effective content and program structure elements, we might achieve changes in gambling behaviours and skill development. This might include an entertaining and engaging method of delivery, a strong emphasis on skill learning and application of knowledge, and ensuring the social environment supports the targeted behaviours and skills (Williams, Wood, & Currie, 2010).

We summarize and highlight key review findings and our recommendations below.

Key Review Findings

This review of the scientific literature indicated that prevention programs for youth are most effective when they:

- Are delivered interactively and by experts or individuals trained in gambling prevention.
- Teach youth the necessary skills to refuse and resist peer influence.
- Correct misperceptions.
- Enhance social and personal competency skills.
- Engage youth through real opportunities for participation, especially in the design of the program and its activities.

Based on these findings we developed six key recommendations for the YGAP's YE gambling prevention program, listed in **Table 4** below. These are further detailed, along with their evidence basis throughout this section.



Table 4. Six Key Recommendations

| Key Recommendations | |
|-------------------------|---|
| Content | 1. Incorporate in youth engagement prevention program a component to develop target skills (e.g., decision-making, coping, peer resistance, etc.; see below for complete list). |
| | 2. Incorporate a discussion component to supplement material taught in videos. |
| Length | 3. Include booster sessions where possible. |
| Mode of Delivery | 4. Develop multi-session curricula that include various types of learning activities and teaching tools. |
| Personnel | 5. Utilize diverse teaching methods that focus on acquiring or enhancing skills while also increasing awareness of the problem behaviour. |
| Evaluation | 6. Evaluate/assess short-term outcomes of the prevention programs, not immediately after implementation. |

We have additionally extracted six recommendations from Keen and colleagues' (2017) review of empirically evaluated school-based gambling education programs.

| Keen et al. (2017) Recommendations |
|--|
| 1. Implementation of programs universally, targeting children as early as 10 years, to prevent misconceptions from developing. |
| 2. Efforts toward preventing gambling problems, rather than gambling. |
| 3. Focus on teaching mathematical principles – unprofitability, expected value. |
| 4. Stagger programs over several sessions (complex). |
| 5. Programs must be relevant to youth, both in their delivery mode and their content – multi-media platforms might be best. |
| 6. Evaluation should measure reduction in harm, rather than frequency or expenditure (which are typically low) and include follow-up assessments (into legal gambling age, if possible). |

Our detailed recommendations and their evidence basis are detailed below. They are organized generally by the same categories used to assess the evidence from the 16 programs and 21 studies in this report.



4.2.1 Program Content

General Content Recommendations

1. Improve students' understanding of random chance to reduce erroneous beliefs.
2. Place a strong emphasis on skill learning and application of knowledge.
3. Target the social environment (i.e., peers) of those receiving the program.

4.2.1.1 Target Education Topics

Most programs delivered to youth in schools are focused on raising awareness of problem gambling, signs, symptoms, and consequences of problem gambling, fallacies and cognitive errors, and gambling terms including profitability, and odds. Fewer programs were designed to educate youth on more theoretical concepts, such as randomness. While not described in the studies, it is possible that concepts were excluded from the lesson plans to avoid confusion or overwhelming students (Keen et al., 2017); however, such concepts are important for students to understand the unprofitability and unpredictability of gambling, which aids in prevention. As compared to single session youth prevention initiatives, multi-session programs such as the YGAP Youth Engagement Program, can accommodate both a broader number of topics and greater depth into each.

We provide a list of recommended target education topics to help achieve this objective.

Recommended Target Education Topics

- ❖ Concept of randomness, luck, illusion of control, probability
- ❖ Difference between games of skill, games of chance
- ❖ Myths and erroneous beliefs about gambling
- ❖ Differentiation between social gambling and gambling addictions
- ❖ Recognizing the signs of problem gambling
- ❖ Resources for support and treatment of problem gambling



4.2.1.2 Target Skills

The skills to be integrated into future YE programming were selected based on their empirical integrity and the quality of the evidence from this review. They include the five key skills used to assess the 16 programs reviewed as part of this project.

Recommended Target Skills

- ❖ Critical thinking, decision-making and problem solving
- ❖ Coping
- ❖ Assertiveness/resistance to peer pressure (how to say “no” to gambling, including social competence, communication skills, resistance to peer pressure)
- ❖ Self-efficacy and self-monitoring (to check faulty cognitions and recognize the potential onset of problem gambling)
- ❖ Media literacy
- ❖ Self-esteem

4.2.2 Program Structure

General Structure Recommendations

1. Include booster sessions to ensure maintained effects.
2. Develop a multi-session curriculum with various learning strategies and media.
3. Ensure program is delivered effectively (e.g., experts, trained teachers, digital modules).

4.2.2.1 Program Length

Although acquisition of knowledge often occurs immediately after concepts are taught, they tend to decrease before stabilizing months later. Assimilation of new knowledge would be optimized by adding an intervention booster session sometime after the end of the intervention (Ferland et al. 2005).

Furthermore, acquisition of knowledge (such as skills) is different from the application of knowledge in practice. The program length in terms of number and duration of sessions are highly dependent upon feasibility and participant interest and availability. Programs should provide sufficient time on each topic for deep understanding and practice. If there is not sufficient time, it may be more advantageous to focus on a small set of skills in depth rather than a brief introduction of a wide range of skills. In the case of YGAP’s YE program, and in-school Youth Gambling Awareness Program as well, many students participate in more than one workshop or program across their schooling (some once every year). This repeated exposure is ideal for building multiple skills across staged programming and each session can also serve as a booster for previously taught content.



4.2.2.2 Program Mode of Delivery

As demonstrated through the evidence used in this project, as well as through additional literature on this subject, it is vital to deliver a program that is entertaining and engaging, using multiple approaches for program delivery.

The most effective programs were those that combined video with lecture, activities, and education, suggesting that multi-session curricula with various learning activities and teaching tools should be combined with a skills-training component (St-Pierre et al., 2017). Most of the videos are short in duration (approximately 20 minutes), are easy to administer, and deliver the information consistently to youth. Complementing videos with interactive activities that increase engagement and active involvement in youth will increase their effectiveness. Lectures can also be an appropriate method to deliver information on problem gambling, if combined with video and other activities (e.g., question and answer period). *Stacked Deck* was considered to be the most effective program, possibly because of its longer length and the spacing out of sessions (up to 600 minutes over six sessions), as well as its interactive and skill-oriented content. Future programming should include diverse teaching methods to focus on acquiring or enhancing skills, in addition to increasing awareness and understanding of problem gambling.

Finally, studies suggested that interactive sessions that encourage engagement and discussion, compared to didactic sessions, were more effective in changing attitudes, knowledge, and behaviours among youth (Oh et al., 2017; Holm 2000). Students tend to respond best to programs that are interactive, fun, and engaging (Korn et al., 2006), and using multi-media approaches can enhance both learning and retention (Ferland et al., 2002; Ladouceur et al., 2004; Lavoie & Ladouceur, 2004). Students are also more likely to enjoy engaging and interactive programs.

4.2.2.3 Program Delivery (Personnel)

Programs are likely to be more effective if they are delivered by the appropriately trained and knowledgeable personnel, however this is not necessarily feasible. Using teachers instead of gambling specialists or psychologists can still achieve the desired results, but likely requires additional training to ensure a proper level of understanding of gambling, the intervention, and its delivery. Along these lines, Keen et al. (2017) suggest that it is more economical for teachers to adapt and deliver programs using a manual or teaching kit; however, Ladouceur et al. (2013) identified that programs delivered by trained specialists were more effective at reducing cognitive errors than those delivered by teachers.

YGAP awareness workshops and Youth Engagement Programs are currently run by trained YOWs who receive annual training. It is important to ensure ongoing training and provide YOWs with feedback to improve their program delivery.

4.2.3 Program Effectiveness

Sustained success of the program across the three established metrics/dimensions (gambling awareness, gambling behaviour, and skills) will be achieved through the effective implementation of the recommendations for the content and structure of the program, as detailed above, and measured using an evidence-based evaluation plan. A well-designed evaluation plan should include both short and



longer-term follow-ups to assess whether intervention effects across the three impact dimensions are maintained over time.

4.2.3.1 Evaluation

As mentioned earlier, YGAP workshop and YE engagement participants often participate in multiple YGAP programs across their schooling. It would be both interesting and important to examine the cumulative effects of participating in multiple programs. This may be difficult to do at the individual level since data is anonymized. However, in an earlier evaluation of the impact of the YGAP workshop program (Choi & Glynn, 2017), we identified that it may be possible to examine both long-term effects and cumulative effects of YGAP programming by following cohorts of classrooms that have participated in multiple workshops. The results of the same evaluation found that among a sample of 501 YGAP participants, approximately 22% had previously attended a workshop. Importantly, previously-attended YGAP participants demonstrated greater gambling awareness on a number of measures than new attendees, suggesting at least some longevity of results. Thus, future YE program evaluation should examine whether participants who participated in previous YGAP workshops or other programs show greater program effectiveness results than those participating for the first time.

It is noteworthy that none of the previously examined prevention programs were delivered in a community setting, such as that envisioned by the YGAP YE Program. In this program, Youth Outreach Workers (YOWs) often engage small groups of youth in youth drop-in centres, community or cultural centres and other community locations to deliver the YE Program. This approach has the potential to reach youth with more homogenous levels of risk, such as higher risk youth at drop-in centres, or new immigrants who have unique vulnerabilities, but also youth who are at lower risk because of their connectedness and engagement in their community. It is vital that the program delivery site be incorporated into the YE evaluation plan and published to contribute this new and important knowledge to the field of youth prevention.

In sum, the developed YE program will need to be evaluated for both short- and long-term effects on the three dimensions (gambling awareness, gambling behaviour, and skills). Formal periodic evaluation will allow YGAP to accurately measure the program's success and to inform necessary changes to programming (e.g., add/change content, add booster sessions) to ensure maximal and sustained effects.

4.2.4 Additional Interpretation & Recommendations

We provide some additional recommendations that were not covered in the reviewed programs.

4.2.4.1 Participatory Elements

We recommend considering youth input in the development of the YGAP's YE program. Engaging youth through real opportunities for participation might include consultation regarding program content and structure, incorporating youth-developed content into the program, or engaging youth as leaders of certain program elements (e.g., youth-led discussions, youth testimonials, etc.).

As stated on the YMCA website, "With mentorship, encouragement and mutual problem solving, we can support youth as they develop into the role models and leaders our communities need." Allowing youth



to assist in the design of a program and its activities intended to target them will better meet their needs and increase likelihood of engagement.

4.3 Next Steps & Future Work

Based on all the evidence reviewed as part of this project, and following the conclusions and recommendations set out above, Strategic Science proposes the following next steps and future work for the YGAP's YE Youth Gambling Prevention Program.

Strategic Science Next Steps

1. Create an advisory group of YOWs, youth and leaders in youth engagement to inform the work.
2. Develop a skill-building focused curriculum (detailed outline and learning modules) to include:
 - Learning objectives to match each target skill
 - Lesson content
 - Activities and methods
3. Develop learning materials for the multi-session curriculum, to include a selection of major activities for youth to plan, develop, and launch a peer-learning prevention product (video, poster, live presentation).

Strategic Science Future Work

4. Test curriculum and integrate feedback.
5. Develop and conduct a training workshop to introduce YOWs to the new curriculum.
6. Provide an implementation and evaluation plan that includes piloting the workshop and evaluating it with both YOWs and youth.

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Appendix A: List of Prevention Programs & Evaluation Studies (Literature)

| Article Title | Author | Year | Prevention Program Name | Research Design | Sample Size (N) | Length of Follow-up | Evaluation Component | Jurisdiction | # of Citations | Impact Factor |
|--|--|------|---|--|--------------------------------|--------------------------------|---|--------------------------|----------------|---------------|
| Skills & Education Programs | | | | | | | | | | |
| Who really wins? Efficacy of a Croatian youth gambling prevention program | Huic, Kranzelic, Hundric and Ricijas | 2017 | <i>Who Really wins?</i> | Experimental design, training vs. no training, pre-test and post-test sessions | 190 | Immediately after intervention | Short term evaluation, pre- and post-test (post-test immediately upon completion). | Zagreb, Croatia | 2 | 2.173 |
| Short-term effects of a school-based program on gambling prevention in adolescents | Walther, Hanewinkel, & Morgenstern | 2013 | Vernetzte www.Welten | 2-Wave cluster randomized control trial with 2 arms (intervention and control) | 2,109 | 3-months | Measured at baseline and at posttest; program implemented between December 2010 and February 2011; posttest questionnaire in May 2011. | Germany | 17 | 3.612 |
| Program findings that inform curriculum development for the prevention of problem gambling | Williams, Connolly, Wood, Currie, & Davis | 2004 | Untitled - modification to statistics course | Randomized controlled trial | 470 (intervention group n=198) | 3- and 6-months | Questionnaire at the beginning of the course and then again, 6 months after the course. | Alberta | 21 | N/A |
| | | | <i>Stacked Deck</i> | Experimental design | 306 | 3-months | Questionnaire at the beginning of the course and then again, 3 months after the final lesson. | Alberta | | |
| Stacked Deck: an effective, school-based program for the prevention of problem gambling | Williams, Wood, and Currie | 2010 | <i>Stacked Deck</i> | Randomized controlled trial | 949 | 3- to 7-months | Baseline and follow-up measures - gambling attitudes, general knowledge of gambling and problem gambling, awareness of and resistance to common gambling fallacies, decision-making and problem-solving skills, involvement in high risk activities in the last 3 months, gambling behaviour into the past 3 months, problem gambling in the past year. | Southern Alberta | 42 | 1.597 |
| Efficiency of a gambling prevention program for youths; results from the pilot study | Ferland, Ladouceur, Vitaro | 2005 | Untitled program - 3 x 60 minute sessions | Experimental design (pre-test, post-test, follow-ups with control group) | 1193 | 3-months | Beginning, end, and "a few months" after. | Quebec | 18 | 0.742 |
| Evaluation of a prevention program for pathological gambling among adolescents | Gaboury and Ladouceur | 1993 | Untitled program - 3 X 75 minute sessions | Experimental design with one experimental and one control condition with pre- and post-test assessments but no intervention | 289 | 6-months | Beginning, end of treatment, and 6-month after. | Quebec City | 102 | 1.597 |
| Life skills, mathematical reasoning and critical thinking: a curriculum for the prevention of problem gambling | Turner, Macdonald & Somerset | 2008 | Untitled program - School-based program developed by CAMH | Controlled experiment | 100 | 3-months | Questionnaire before the material, curriculum, questionnaire again. | Ontario | 23 | 1.179 |
| The evaluation of a 1-h prevention program for problem gambling | Turner, Macdonald, Bartoshuk and Zangeneh | 2008 | Untitled program - CAMH (abbr.) | Pre-post controlled experiment | 374 | 2-months | Pre-post evaluation, post-test 2 months after pre-test. Intervention delivered 1-week after the pre-test. | Ontario | 24 | 1.179 |
| Education-only Programs | | | | | | | | | | |
| Prevention of problematic gambling behavior among adolescents: testing the efficacy of an integrative intervention | Donati, Primi & Chiesi | 2014 | <i>Lucky</i> | Experimental design with 2 groups (training vs. no training) and 2 measurements (pre and post-sessions) | 181 | 6-months | Intervention implemented 2-weeks after pre-test; post-test administered 1 week after intervention (5-weeks after pre-test). Post-test immediately after and again at 6 months. | Tuscany, Italy | 23 | 2.173 |
| Prevention of Problem Gambling: Modifying Misconceptions and Increasing Knowledge Among Canadian Youths | Ladouceur, Ferland and Vitaro | 2004 | <i>Lucky</i> | Experimental design with 2 experimental conditions (video with 40 minute discussion and a waitlist control) | 506 | 1-week | Questionnaire, followed by the video; 1 week later, questionnaire completed again. | Quebec and New Brunswick | 25 | 1.597 |
| Prevention of problem gambling: modifying misperceptions and increasing knowledge | Ferland, Ladouceur, Vitaro | 2002 | <i>Lucky</i> | Experimental design with 4 experimental conditions | 424 | 1-week | Experimental, four groups, all completing the same pre- and post-questionnaires; questionnaire; 1-week later, video presented and the post-test questionnaire was administered. | Quebec City | 106 | 2.173 |
| Prevention of gambling among youth: increasing knowledge and modifying attitudes toward gambling | Lavoie and Ladouceur | 2004 | <i>Lucky</i> | Experimental design (3 conditions - video only, video with discussion, control) | 273 | Immediately after intervention | Pretest questionnaire, all conditions, followed by posttest questionnaire after recess. | Quebec | 18 | 0.66 |
| Correction of Erroneous Perceptions among Primary School Students regarding the Notions of Chance and Randomness in Gambling | Ladouceur, Ferland & Fournier | 2003 | (Modeled after) <i>Count Me Out</i> | Randomized cluster controlled trial | 153 (second phase, 356) | Immediately after intervention | Pre-test questionnaire, intervention, post-test questionnaire. | Quebec | 12 | 0.76 |
| Prevention of excessive gambling in youth: a cognitive approach | Ladouceur, Ferland, Roy, Pelletier, Bussieres, & Auclair | 2004 | <i>Count me Out</i> | Randomized cluster controlled trial | 345 | Immediately after intervention | Assessment-only control condition. | Quebec | 26 | 1.597 |
| Modifying youths' perception toward pathological gamblers | Ladouceur, Ferland, Vitaro, & Pelleteir | 2005 | <i>Gambling Stories</i> Video | Experimental intervention and control groups | 568 | 1-month | Pre and post-experimental questionnaires to both intervention and control groups | Quebec | 23 | 2.944 |
| It's your lucky day: Program evaluation | Lemaire, Lima & Patton | 2004 | <i>It's Your Lucky Day</i> | Quasi-experimental | 316 | N/A | Pilot evaluation for an effectiveness study with experimental design | Manitoba | 12 | 1.69 |
| Gambling Prevention program among children | Todirita & Lupu | 2013 | <i>Amazing Chateau</i> | Experimental design | 81 | Immediately after intervention | Questionnaire at the beginning and after 10 weekly meetings | Romania | 23 | 2.173 |
| Gambling prevention program for teenagers | Lupu & Lupu | 2013 | <i>Amazing Chateau</i> | Experimental design with three conditions (control, Amazing Chateau with rational emotive education, and rational emotive education alone) | 75 | 3, 6, and 12-months | Questionnaire at baseline, activities over 10 weeks; questionnaire at the end of the 10-weeks plus additional follow-up. | Romania | 6 | 1.945 |
| Evaluation of a School-Based Gambling Prevention Program for Adolescents: Efficacy of Using the Theory of Planned Behaviour | St-Pierre, Derevensky, Temcheff, Gupta, & Martin-Story | 2017 | <i>Clean Break</i> docudrama | Controlled experimental trial | 280 | 3-months | Evaluated immediately after intervention + follow-up after 3 months. | Montreal, Quebec | 0 | 2.173 |

| | | | | | | | | | | |
|---|-------------------|------|-------------------------------------|--|------|--------------------------------|---|---------------|----|-------|
| Gambling awareness for youth: an analysis of the "don't gamble away our future" program | Taylor & Hillyard | 2009 | <i>Don't Gamble Away our Future</i> | Pre-experimental design (no control group) | 8455 | Immediately after intervention | Evaluated immediately after intervention. | Midwestern US | 18 | 1.179 |
|---|-------------------|------|-------------------------------------|--|------|--------------------------------|---|---------------|----|-------|

Appendix B: Summary of Program Effectiveness - Education-Only Programs

| Youth Prevention Program (n = 8) | Program Description (e.g., short description, content, number of sessions and duration) | Studies* (n = 12) | Gambling Awareness | | Gambling Behaviour | |
|--|---|---|--------------------|--|--------------------|------------------------------|
| | | | Improved? | Impact on Gambling Awareness (e.g., attitudes towards gambling, knowledge of gambling fallacies, etc.) | Reduced? | Impact on Gambling Behaviour |
| Education-Only Programs | | | | | | |
| Count Me Out Groupe Jeunesse | A single interactive session to provide students with preventive education on how to detect erroneous cognitions. Included activities of chance, simulated lottery draw, pile or face. | Ladouceur, Ferland, Roy, Pelletier, Bussieres, & Auclair (2004) | Yes | Decreased gambling misconceptions; improved knowledge and decreased gambling fallacies. | N/A | N/A |
| Modeled after Count Me Out Groupe Jeunesse | Chance and randomness, independence of events, strategies and practices, and lack of control over chance events, taught through interactive presentations and activities. | Ladouceur, Ferland & Fournier (2003) | Yes | Significant reduction in erroneous perception in the treatment compared to control group. Preventive exercises designed and administered by a specialist led to reduction of misconceptions more than that administered by a teacher. Exercises designed by the specialist were more effective than the Count Me Out program. | N/A | N/A |
| Amazing Chateau McGill University | Interactive software (CD-ROM) delivered to students in 10 weekly sessions for 50min. each. Provided students with information on erroneous beliefs about gambling, misconceptions, illusion of control, attitudes, and cognitive errors in gambling. Two different types of activities were offered: games of chance and games of skill. In both studies, this condition was compared to students receiving Rational Emotive Education (REE). | (1) Toridita & Lupu (2013) (2) Lupu & Lupu (2013) | (1) Yes (2) Yes | (1) Significant improvement in gambling knowledge (in software and REE); primary prevention more efficient than REE to change misconceptions about games. (2) Significant change to erroneous cognitions about gambling in the treatment group exposed to both software and REE; maintained for at least 12 months. | N/A | N/A |
| Gambling Stories Ladouceur research group | In a 20min. video, students learned about gambling, consequences of excessive gambling, the growing problem among youth, and stereotypes related to gambling. | Ladouceur, Ferland, Vitaro, & Pelletier (2005) | Yes | Significant improvement in knowledge on excessive gambling, decreased stereotypes towards excessive gamblers. | N/A | N/A |
| Clean Break McGill University | Through a video (docudrama) of a testimony of a problem gambler, students learned about gambling beliefs, intentions, and behaviours; attitudinal, normative, and control beliefs about gambling; awareness and understanding of warning signs, and dangers associated with excessive gambling. Video was followed-up with discussion questions. | St-Pierre, Derevensky, Temcheff, Gupta, & Martin Story (2017) | No | Control and intervention groups had small significant <u>increase</u> in positive gambling attitudes and positive peer and family subjective norms (unintended negative consequences). | N/A | N/A |

* A few programs were evaluated in more than one study. In these cases, the results of those studies are numbered (1, 2, 3 etc.) and matched to the study citations in the Studies column.

| Youth Prevention Program (n = 8) | Program Description (e.g., short description, content, number of sessions and duration) | Studies (n = 12) | Gambling Awareness | | Gambling Behaviour | |
|--|---|--|--|--|--------------------|--|
| | | | Improved? | Impact on Gambling Awareness (e.g., attitudes towards gambling, knowledge of gambling fallacies, etc.) | Reduced? | Impact on Gambling Behaviour |
| Education-Only Programs | | | | | | |
| Lucky Ferland and Ladouceur research team | A 20min. educational video (French, English, Italian) intended to provide students with gambling-related knowledge and misconceptions, economic perception of gambling, superstitious thinking, erroneous beliefs, and gamblers' fallacies. While the video was tested in comparison to other conditions (video + presentation/discussion, presentation/discussion), the video itself was delivered in one session and was 20min. in length . | (1) Ferland, Ladouceur & Vitaro (2002) (2) Ladouceur, Ferland & Vitaro (2004) (3) Lavoie & Ladouceur (2004) (4) Donati, Primi & Chiesi (2014) | (1) Yes (2) Yes (3) Yes (4) Yes | (1) Significant reduction of misconceptions and knowledge errors in all treatment groups compared to control, but most in the video group. (2) Significant improvement on knowledge and a reduction in misconceptions about gambling in the treatment group. (3) Significant increase in gambling knowledge and decrease in erroneous attitudes in both treatment groups (to the same extent). (4) Significant improvement in gambling knowledge, economic perception, gambling misconceptions, superstitious thinking; stable over time. | (1) Yes (4) Yes | (1) Small significant reduction in gambling behaviour change reported. (4) Decrease in gambling behaviours. |
| Don't Gamble Away our Future Illinois Institute for Addiction Research | In one 45min. session (lecture, discussion, activities), students learned about gambling; students provided with an interactive CD-ROM upon completion of the program. | Taylor and Hillyard (2009) | Yes | Significant reduction in gambling misconceptions and awareness of gambling risks and harms. | N/A | N/A |
| It's Your Lucky Day Addictions Foundations of Manitoba | Through interactive multi-media, students learned the definition of gambling, myths related to gambling, how gambling works, signs of problem gambling, and about gambling services. | Lemaire, Lima & Patton (2004) | Yes | Improved knowledge of gambling and problem gambling, decreased gambling fallacies. | N/A | N/A |

* A few programs were evaluated in more than one study. In these cases, the results of those studies are numbered (1, 2, 3 etc.) and matched to the study citations in the Studies column.

Appendix C: Summary of Program Effectiveness – Education & Skills Programs

| Youth Prevention Program (n = 8) | Program Description (e.g., short description, content, number of sessions and duration) | Studies* (n = 9) | Gambling Awareness | | Gambling Behaviour | | Skills (non-PG) | |
|---|---|---|--------------------|---|--------------------|--|-------------------|---|
| | | | Improved? | Impact on Gambling Awareness (e.g., attitudes towards gambling, knowledge of gambling fallacies, etc.) | Reduced? | Impact on Gambling Behaviour | Improved? | Impact on Skills (e.g., coping, media literacy, statistical skills, problem solving, decision-making, resistance to peer pressure etc.) |
| Education & Skills Programs | | | | | | | | |
| Stacked Deck Williams & Wood | For secondary school students, five 75-100min. sessions targeting gambling knowledge, erroneous cognitions, decision-making, and coping skills , through lessons on gambling history, problem gambling, and gambling fallacies. The sessions are interactive and engaging, with powerpoint, videos, games, group discussions. | (1) Williams, Connolly, Wood, Currie, & Davis (2004) (2) Williams, Wood, and Currie (2010) | Yes | (1) Increase gambling knowledge, awareness, and resistance to gambling fallacies. More negative attitudes towards gambling. (2) Significant improvement in gambling knowledge, attitudes, resistance to erroneous cognitions/gambling fallacies. More negative attitudes towards gambling. | (1) Yes (2) Yes | (1) Significant decrease in time spent gambling and money spent gambling (and the proportion of adolescents that gambled). (2) Significant reduction to gambling frequency. | (1) No (2) Yes | (1) No changes to decision-making, problem solving, or high risk behaviour. (2) Significant improvement in decision-making, problem-solving. |
| Who Really Wins? Faculty of Education and Rehabilitation Sciences, University of Zagreb, Croatia | Six didactic 90min. units, delivered in class. Topics related to gambling awareness, cognitive distortions, resistance to peer pressure skills, self-efficacy , knowledge of the nature of random events, social skills , gambling activities, and problem gambling. Also included interactive methods (team learning, role playing, live discussions, real life situations), and students were encouraged to think critically about social influences . | Huic, Kranzelic, Hundric & Ricijas (2017) | Yes | Improved knowledge about gambling, less gambling-related cognitive distortions. | N/A | N/A | No | No effects on problem solving, refusal (resistance to pressure), or general self-efficacy. |
| Vernetzte www. Welten (German) Medical Faculty of the University of Kiel, the Ministry of Education, and the Data Protection Commissioner of Schleswig-Holstein | One 90min. lesson as a component of media education to teach youth about gambling, features distinguishing gambling from other games, development of symptoms of pathological gambling, gambling features resembling addiction, winning probabilities, gambling fallacies, and existence and profits of the gambling industry. | Walther, Hanewinkel, & Morgenstern (2013) | Yes | Significant increase in gambling knowledge (d=.18), decrease in problematic gambling attitudes (d=.15). | Yes | Significant decrease in current gambling behaviour (d=.02). | N/A | N/A |
| Untitled Program Gaboury and Ladouceur, adapted from Rhodes and Jason (1988) | Three sessions (six topics) over a three-week period, teaching students about legal and illegal gambling activities, potential consequences of gambling, pathological gambling, coping skills, and control strategies . Didactic sessions with some interaction (small group discussion, video, quiz). | Gaboury & Ladouceur (1993) | Yes | Improved knowledge about gambling. | N/A | N/A | Yes | Improved coping skills. However, not maintained at follow-up. |
| Untitled Program Williams and colleagues | For University students, lecture material was supplemented (in math/stats classes) by information on probabilities associated with gambling, hands-on demonstrations of specific games of chance, supplemental reading "Can You Win." | Williams, Connolly, Wood, Currie, & Davis (2004) | Yes | Significant increase in statistical knowledge and resistance to gambling fallacies; improved ability to calculate gambling-related odds. | No | No reduction in gambling behaviours. | Yes | Improved statistical knowledge and ability. |
| Untitled Program Not specified - Ferland, Ladouceur, and Vitaro (assumed) | Three 60min. meetings to improve knowledge of gambling activities to acquire a more realistic attitude, teach structured problem solving approach to resist peer pressure, decision-making , and inform of consequences associated with abusive participation in gambling, and recognize warning signs of loss of control over gambling. | Ferland, Ladouceur, Vitaro (2005) | Yes | Significant improvement in knowledge about gambling, decrease in gambling misconceptions. | No | No change in gambling participation. | No | No improvement in social problem solving ability/resistance to peer pressure. (Note: authors suggest the importance of still including this component, but possibly changing the teaching technique). |
| Untitled Program CAMH (Dr. Bruce Ballon) | Six 70min. lessons to teach random chance, coping and life skills, self-monitoring , and how to avoid problematic behaviour through self-awareness and self-monitoring. | Turner, Macdonald & Somerset (2008) | Yes | Significant increase in understanding of randomness. | N/A | N/A | Yes | Significant improvements to understanding of self-monitoring, and coping skills, especially among the high-risk students. |
| Untitled Program CAMH (Dr. Bruce Ballon) | 1hr. lesson on emotions from winning/losing, skills, luck, gambling myths, problem gambling, coping, problem-solving , and random chance. Interactive (mock gambling, group discussion, interactive lecture, role playing and skits). | Turner, Macdonald, Bartoshuk & Zanganeh (2008) | Yes | Significant improvement to gambling misconceptions. No effect on gambling attitudes. | No | No effect on gambling behaviour. | No | No significant improvement of coping or problem solving skills, gambling attitudes, or behaviours |

* A few programs were evaluated in more than one study. In these cases, the results of those studies are numbered (1, 2, 3 etc.) and matched to the study citations in the Studies column.

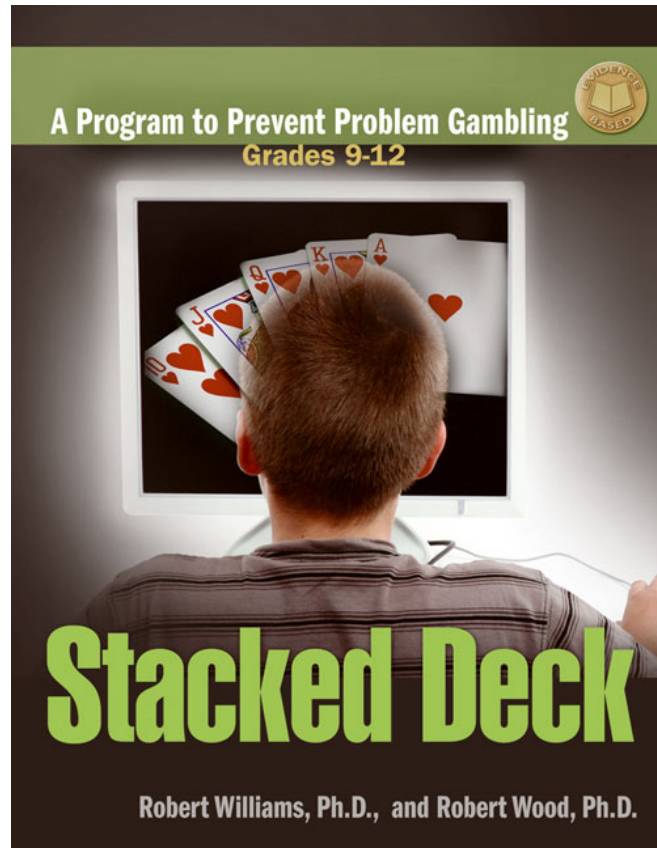
Appendix D: Sample Images from Programs

This appendix includes visuals from some of the programs reviewed in this report.

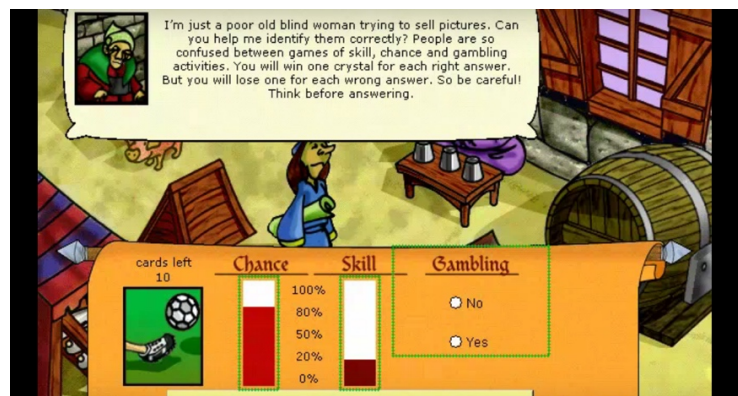
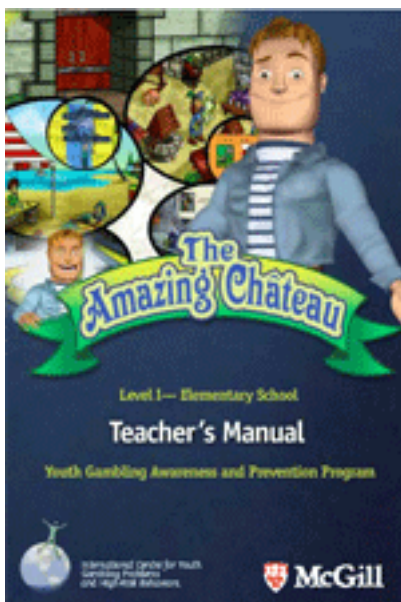
Clean Break



Stacked Deck



Amazing Chateau





Appendix E: Additional Prevention Program Information

Some additional information was found in the grey literature that was not included in this report (not identified through the search strategy).

The International Centre for Youth Gambling Problems and High-Risk Behaviors at McGill University developed innovative prevention material to prevent problem gambling. For example, they created media toolkits for both medical and legal professionals to provide practical information about youth gambling issues. Additionally, they developed a gambling awareness game (“Know Limits”), a gambling prevention docudrama (“Clean Break”), and interactive CD-ROM games (“Amazing Château” and “Hooked City”).

The “Know Limits” awareness game includes the “know your limits” message as it relates to gambling, alcohol, drugs, tobacco, and sexual health. The game was created as a question and answer game, that includes gambling prevention questions with categories to keep youth participating and engaged (i.e., charades, taboo, word scramble, trivia). The game is played in teams that compete to answer questions correctly. The purpose is to introduce social interaction and cooperation within teams, as well as friendly competition between teams. The docudrama, “Clean Break,” exposes adolescents to risks associated with excessive gambling, and the harms, consequences, and potential dangers of engaging in problem gambling. The video was made available with an accompanying manual to stimulate discussion.

The **Amazing Chateau** (AC) was designed to target misconceptions, teach the illusion of control, attitudes and cognitive errors in gambling, in an interactive and captive way. AC is an interactive game targeting students in grades 4-6, whereas **Hooked City** was designed for high school students, both designed to reduce problem gambling and promote responsible gambling. AC includes activities for children to learn how to distinguish between games of chance and games of skill, and provides information on concepts related to gambling: luck, chance, independent events, myths and facts, risk-taking, consequences of addiction, and responsible choices. Hooked City is an interactive game that enables adolescents to make responsible choices by informing them of the nature and risks associated with gambling, reinforcing social skills, and attempting to change their attitudes and erroneous beliefs about gambling. The game lasts approximately 45 minutes; at the end, an individual evaluation is generated for each player.

While some programs incorporated life and coping skills in their content, the development of skills was only inferred by the program, rather than acting as an objective of the curriculum (Macdonald, Turner, & Somerset, 2005). These are important skills, especially as youth are gaining increased autonomy and self-efficacy.