"In a world of temptation, messages to promote healthy norms around gambling must be loud and clear..."

REDUCING THE ODDS: AN EDUCATION PILOT TO PREVENT GAMBLING HARMS

Ian Wybron

DEMOS

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Ian Wybron
December 2017

Executive summary

Gambling nowadays is woven into the fabric of British society. More than 6 in 10 adults have gambled in the past year. For the majority, this is enjoyable and problem free. But figures from the Gambling Commission suggest that as many as half a million people suffer from serious gambling problems, harming themselves, their families and friends, and the wider economy.

Problem gambling is not an issue confined to adulthood, and nor is it clear when its roots begin to take hold. The evidence shows that many school-age children are gambling – 1 in 6 young people aged 11–15 gambled in the last week – and a very small but worrying proportion of their number has already developed a diagnosable disorder. Despite this, gambling rarely appears as a topic in school curricula alongside other risky behaviours such as drinking alcohol, taking drugs and underage sex.

A gambling education pilot

This report marks the culmination of a two-year project to develop, pilot and refine educational resources for British secondary schools as part of wider efforts to prevent gambling-related harms. The project has been a partnership between Demos, the PSHE Association, Mentor UK, the National Problem Gambling Clinic, and a range of independent teachers and advisers.

Four lessons were designed between January and September 2016 to be delivered as part of a planned programme of personal, social, health and economic (PSHE) education provision for key stage 4 pupils (14-year-olds). The lessons encourage pupils to weigh risk, identify manipulative behaviour, manage impulses and help others – covering a range of 'risky behaviours', but with gambling

as a major case study. To inform these lessons, we drew on existing evidence for best practice in the field of prevention, and conducted primary research with pupils and teachers. An outline of lesson content and key exercises is provided in more detail in the main text.

The resources were piloted in four schools across the country during autumn term 2016, reaching approximately 650 pupils. More than 100 schools initially expressed an interest in taking part.

Evaluation methods

Demos put into place an evaluation framework to assess the outcomes of the intervention and gain feedback for further resource refinement prior to publication. The evaluation methods consisted of:

- pre- and post-surveys over a 12-month interval (including questions capturing gambling participation and perceptions; a problem gambling screen adapted for the audience – DSM-IV-MR-J; and other questions related to key skills, capabilities and learning objectives)
- five lesson observations
- post-delivery focus groups with teachers and pupils at each of the four schools

For the evaluation, we took a 'quasi-experimental' approach. Four similar schools were recruited in the same locations as participating schools, and pupils in the same year group were surveyed over the same 12-month interval. While short of a randomised control, this approach helps to isolate outcomes that may be attributable to the intervention. As explained in the main text, however, we wish to avoid over-claiming in this regard, recognising the clear limits on what can be attributed to an intervention as short as ours (especially positioned within a larger PSHE curriculum), and the range of confounding variables in any educational setting.

Findings

While not comprehensive, lesson observation suggested that the lessons were implemented faithfully, with teachers covering each of the activities in the lesson plans. Nonetheless, observation also demonstrated some clear implementation challenges, including variability in pupil behaviour, timing and pace, and teacher confidence in the material.

Tracking individuals between pre- and post-surveys was not as straightforward as hoped. The achieved sample size when matching students' codes before and after was substantially smaller than the non-matched datasets. Therefore our primary approach has been to present 'cross-sectional' analysis of the larger datasets, with supplementary analysis of the smaller matched sample (see appendix D for a fuller explanation). The results of these two sets of analyses are in alignment, however, giving us confidence in the results.

Our cross-sectional analysis of pre- and post-survey results found that, relative to the comparison group, the following changes were observed in pupils in the participating schools over the 12 months after the intervention:

- There was a small statistically significant decline in the proportion of pupils playing cards for money in the past year – with a net decline of 7 percentage points relative to the comparison group. There were no other statistically significant changes relative to the comparison group on individual gambling behaviours
- For 'at-risk' gambling behaviour, there was a small statistically significant decline in the proportion of pupils taking part in four or more types of gambling activity, relative to the comparison group – a net decline of 3 percentage points. There was, however, no statistically significant change in the proportion of pupils classified as 'at-risk' or 'problem gamblers' on the DSM-MR-J screen (an extremely low proportion both pre- and post-survey)
- While pupils' perceptions of gambling appeared to change in a desirable direction, there were no statistically significant differences in the perceptions of pupils at participating and comparison schools

- The most substantial changes were seen on key learning objectives:
  - For being able to describe ways to help someone experiencing gambling problems, there was a net 20 percentage point increase in the proportion of pupils able to do so relative to pupils at the comparison schools
  - For knowing where to go to talk about gambling problems there was a net 18 percentage point increase in those able to do so relative to the comparison schools
  - For being able to describe what delayed gratification is, there was a net 11 percentage point increase relative to the comparison schools
  - For understanding techniques used by the gambling industry to persuade people to gamble there was a net 10 percentage point increase relative to the comparison schools
- While the remaining survey questions on learning objectives appeared to show small changes in a desirable direction, none were statistically significant relative to the comparison group

Feedback from focus groups showed mixed reactions from students but was in many cases positive. Several pupils said they felt more informed, and could recall key concepts after the lessons. In particular, the interactive aspects to the lessons, and the broad focus on risk-taking – rather than just gambling – were found to be engaging. In line with the survey findings, the biggest takeaway for many students was knowing how to help a friend or family member experiencing problems, and understanding how issues could escalate.

However, it was a key challenge to produce material that was relevant and relatable to the pupils. Many students felt that education about gambling was not relevant to them or less relevant than education on other risky behaviours (6 in 10 had not gambled when taught the material on gambling). Teachers obtained better results when they drew links between gambling and everyday experience, but several shared the pupils' views on this point. To some extent, this problem cuts to the core of a 'preventative' approach, though some pupils thought the lessons might become more relevant

as they got older and therefore had their place. Making the lessons more relatable for pupils was a central concern in further refining the resources after the pilot – for example, constructing scenarios likely to be familiar to students through the worlds of social media and online gaming, and reducing skews towards discussing more extreme problem behaviour.

Conclusion

As one of the teachers involved in the pilot suggested, the risks posed to young people with respect to gambling are not likely to diminish, but rather grow as opportunities to participate in traditional and novel forms of gambling open up. As there is currently little high quality gambling education provision in schools – which sits naturally alongside teaching around drugs, alcohol and other risky behaviours – students are not given the knowledge, skills and resilience to approach gambling and the risks it poses to wellbeing in a level-headed manner, both now and in the future.

Demos and partners' gambling education project appears to have had some success: pupils have come away with some key skills, feeling more confident in identifying and helping someone with a problem, and surveys suggest that there may have been some impact on at-risk behaviours. Positive lessons for others from our approach include understanding the importance of taking a skills-based approach, and positioning gambling education within a well-planned PSHE curriculum with well-trained teachers.

It has been more challenging to convince pupils of the point of learning about something many do not see as a relevant risk. It may be that more needs to be done to shine a light on aspects of pupils' everyday lives that are relevant, or to provide a better explanation of the nature and purpose of prevention (where impact may be more distant and less tangible). We seek to provide teachers with better tools to achieve this in our final refined resources, which are based on substantial pupil and teacher feedback, and reduced from four to three lessons. They are now available online.

Introduction

Gambling is all around young people today – from advertising during sports events and on social media, the behaviour and habits of reality TV stars, through to the betting shops on British high streets. It is a mainstream and popular pursuit among Britons; around two-thirds of the adult population spent money on a gambling activity in 2015.[1]

While for many people gambling is a pleasurable activity done in moderation, for a minority it can lead to substantial problems – financially, psychologically and socially. Data show that more than 2 million people in Great Britain are likely to be at risk of harm through gambling, and an additional 400,000 have developed a serious gambling disorder.[2] This has an enormous cost to those individuals, the families and networks around them, and the wider economy.

When in a person's life these problems take root varies a great deal. But it is not a risk confined to adulthood. Evidence shows that many school pupils are involved in some form of gambling-related activity – such as playing cards for money and betting with friends – long before they are legally old enough to place bets online or at a local betting shop, or enter a casino. A 2016 Ipsos MORI survey for the Gambling Commission found that 1 in 6 young people aged 11–15 (16 per cent) had spent their money in the last week on a gambling activity.[3] A very small proportion – 0.4 per cent – has a diagnosable disorder by this age. With gambling advertising on the rise, and with the proliferation of social media and new platforms for gambling, young people's exposure to the gambling industry and related activities is only likely to increase.

Providing young people with the skills and strategies to think critically about gambling and the risks it poses is therefore crucial. Yet, unlike other risky behaviours such

as alcohol and drugs, gambling is a topic rarely covered in schools, at least outside discussion of odds and probability in maths. Working with a range of expert partners, Demos has sought to fill that gap.

A gambling education pilot

This report marks the culmination of a two-year project to develop, pilot and refine educational resources for British secondary schools with the aim of preventing gambling-related harms. After substantial feedback from teachers and pupils, a refined package of resources is now freely available online. It is intended to be delivered through a planned programme of personal, social, health and economics (PSHE) education.

From the outset, the gambling education project has been a partnership between Demos and three expert organisations:

- the PSHE Association, a membership organisation, which aims to raise the status, quality and impact of PSHE and enable high quality PSHE education teaching and learning for all children and young people
- the National Problem Gambling Clinic, part of the Central and North West London NHS Foundation Trust, and the UK's only dedicated problem gambling clinic, led by Dr Henrietta Bowden-Jones
- Mentor UK, a national charity dedicated to protecting children and young people from alcohol and drug harms; Mentor identifies and implements life skills programmes for children and young people to prevent or reduce risks, helping to build the evidence base for what works

During the project, our partnerships extended well beyond these organisations. As noted in the acknowledgements, Jeremy Scott, a teacher from the John Warner School, Hertfordshire, was integral to the drafting of the resource; and we benefitted from the input of a variety of other experts and organisations.

Project partners designed four lessons and accompanying resources between January and September 2016. These lessons take a resilience and skills-based approach, encouraging pupils to weigh risk, identify manipulative behaviour, manage impulses and help others – covering a range of 'risky behaviours', but with gambling as a major case study. A detailed overview of their content is provided in chapter 2.

In autumn 2016 these lessons were delivered to a key stage 4 audience (14-year-olds) as part of planned PSHE education curricula. Resources were piloted in four secondary schools spread across England – in Cheshire, Gloucestershire, Hampshire and Wiltshire – reaching approximately 650 pupils. Initially, more than 100 schools expressed an interest in taking part. Selected schools were provided with teacher and pupil booklets, and an accompanying PowerPoint presentation. A further four schools in the same locations were recruited to act as comparisons for evaluation purposes (surveying similar pupils not receiving the intervention, to help isolate the outcomes of the pilot). Details on the schools, which have been anonymised for this report, are available in appendix A.

Research and evaluation

To support the gambling education intervention, Demos undertook a range of research which informs this report, undertaken before the intervention to help with lesson design, and after the intervention to help evaluate impact and inform the refinement of the resource. There has been concern from the project's inception that the evaluation is framed properly and is honest in its conclusions, given what is possible to achieve in such a short intervention (particularly with respect to behaviour change) and the number of confounding variables in any educational setting.

The following activities were undertaken before the intervention:

- *Desk-based research:* A review of academic and grey literature was undertaken to scope for existing resources and materials, gather evidence on 'what works' in teaching about risky behaviours and preventing harm, and inform the content of the lessons
- *Focus groups with pupils:* Two focus groups were held in London and Cheshire (n=19), to help understand attitudes and behaviours with respect to gambling, and to pilot and gain feedback on our evaluation survey (see appendix B)
- *Focus groups with teachers:* Six secondary school teachers from different schools in London and Cheshire assessed a draft outline of the lessons and used collated feedback to re-draft the resource
- *Consultation with additional expert organisations:* Alongside the central team outlined above, Demos consulted other organisations working in schools – including experts in resilience, for example, How to Thrive (www.howtothrive.org), and others working to tackle gambling harms such as Fast Forward (www.fastforward.org.uk)
- *Informal lesson piloting:* As lessons were being designed, they were initially tested in John Warner School, with pupil feedback and teacher observation guiding further refinement

These methods were used to evaluate the intervention:

- *Pre- and post-surveys of intervention groups and comparison groups:* Questionnaires were designed to capture changes in attitudes and behaviours related to gambling, and included a typical screen used to measure the prevalence of problem gambling (DSM-IV-MR-J). Pupils from participating and comparison schools were surveyed at baseline – autumn 2016 – and again 12 months later in autumn 2017 to observe changes. A self-generating coding system was used to track respondents while keeping them anonymous. The tracking system and survey questions are available in appendix B
- *Lesson observation:* Demos researchers conducted five lesson observations, visiting each school participating in the pilot. There were independent assessments of the pupils' reactions

to the material, and the pace of and fidelity to the lesson plans, and short interviews with teachers to gain immediate post-delivery feedback
- *Focus groups with teachers and pupils:* After the lessons, each of the four schools participating in the pilot was involved in substantial feedback sessions to help us refine the resources for use by other schools

This report

The structure of this report is as follows:

- Chapter 1 summarises the background context informing the pilot, including what is known about gambling in Great Britain and the incidence of problem gambling
- Chapter 2 explores what has been shown to work in an educational setting to prevent gambling-related harms
- Chapter 3 outlines the lessons in detail, and gives an overview of some of the key activities
- Chapter 4 provides some background on the pupils we worked with, and explores the survey results and focus group findings at baseline – including attitudes towards gambling, participation in these activities, and initial impressions of the pilot
- Chapter 5 summarises the key findings from our evaluation of the resources: the changes measured in the pre- and post-surveys, and their statistical significance, and feedback gathered through our qualitative methods
- In the conclusion we draw out key lessons based on this pilot
- The appendices outline details of our research tools and survey findings

1 Gambling in Britain

This chapter outlines some of the background context informing the gambling education pilot. It covers the legal and cultural place of gambling in modern Britain, and what we know about young people gambling, and explores problem gambling: its definition, prevalence, risk factors, consequences and treatments.

Gambling in law

In law gambling is defined in the Gambling Act 2005 as betting, gaming or participating in a lottery. Each of these three activities requires a licence under the 2005 Act, which provides guidance on the definition of each. The specific meaning of gaming, for example, is playing a game of chance for a prize, where a prize is defined as money or 'money's worth'.[4]

The Gambling Commission, which has chief responsibility for regulating the gambling industry, categorises different gambling activities into the following sectors:

- arcades (those for adults and those for families)
- betting (online, at an event or in a high street bookmakers)
- bingo (online or in a bingo hall)
- casino (online or in a casino)
- lotteries (raffles, tombolas, sweepstakes etc)
- gaming machines (fruit machines, fixed-odds betting terminals etc.)

Importantly for our education project, there are various behaviours and activities to consider which may fall outside traditional definitions of gambling for regulation purposes but have several features in common with gambling (eg wagering virtual currencies – see below).

One of the key objectives of the Gambling Act 2005 and subsequent legislation is to prevent harm to young people and vulnerable groups ('protecting children and other vulnerable persons from being harmed or exploited by gambling').[5] This objective, alongside others on crime and fairness, guides the regulation of industry undertaken by the Gambling Commission.

Generally speaking, the minimum age for gambling in the UK is 18 years – which applies to adult gaming centres, betting shops, bingo halls, casinos, racetracks and online gambling. However, young people are allowed to take part in a number of activities from the age of 16: the National Lottery, lotteries, football pools, some non-commercial gambling, and low stakes and prizes gambling. Furthermore, some gaming machines such as coin pushers, teddy grabbers and some lower stakes fruit machines do not have a minimum legal age and can be played by anyone.[6]

Gambling is never far from the headlines and heated political debate in the UK – most notably in recent years with respect to fixed-odds betting terminals.[7] The story of gambling legislation up to the Gambling Act 2005 is one of increasing liberalisation and expansion, following generally prohibitionist government approaches before 1960.[8] The 2005 Act is often taken as a watershed moment in gambling policy in the UK – introducing today's regulatory regime, and controversially lifting a ban on gambling TV and radio advertisements. Since 2005 legislation and regulation has focused on the challenges of a globalised industry – including the Gambling (Licensing and Advertising) Act 2014, which led to gambling operators being regulated at the point of consumption rather than the point of operation.[9] New online gambling and 'quasi-' gambling activities are occupying increasing attention, as discussed below.

A gambling nation

Going with the grain of liberalisation, gambling has become a popular and mainstream activity in Britain. NatCen published figures in 2017 showing that around

two-thirds of adults (63 per cent) across Great Britain gambled in the past year.[10] Other figures published by the Gambling Commission on four-week participation show that just under half (48 per cent) of the population gambling in the previous month.[11]

The gambling data available are not always very clear. For example, it is difficult to assess prevalence trends over time because of changes in survey methodology.[12] It is also difficult to make international comparisons (though one such attempt suggests Britain may have a higher proportion of its population gambling than several European countries such as France and Germany, though lower than the US and Canada).[13]

Nonetheless, it is clear that gambling is an extremely large, and growing, industry in Britain. Figures from the Gambling Commission from 2016 estimate the size of the industry at £13.8 billion – having enjoyed year on year growth in gross gambling yield.[14] The industry currently employs over 100,000 individuals, and includes nearly 10,000 betting shops, bingo premises and casinos.[15]

Behind the headline participation figures, there are many differences in the gambling behaviour of individuals and population groups. These are some findings of NatCen:

- The National Lottery is the most prevalent type of gambling activity (46 per cent of the population in the past year), followed by scratch cards (23 per cent), and other lotteries (15 per cent)
- Men are more likely to have gambled than women (66 per cent vs 59 per cent)
- Ethnic minority groups are less likely to have gambled than white British people (65 per cent vs 40 per cent)
- Londoners are the least likely to have gambled of any region (52 per cent)
- Differences by socio-economic background are not clear-cut[16]

Gambling Commission data also show that a higher proportion of people gamble in person rather than online, though online gambling is by some way the fastest growing

gambling sector.[17] We return to some of these group differences in the problem gambling section below.

Despite the prevalence and seeming popularity of gambling, opinion polls suggest that Britons have an uneasy relationship with gambling. Gambling Commission data reveal the extent of negative perceptions towards gambling – and show that negative perceptions appear to have increased over time.[18] The 2016 survey found that almost 8 in 10 British adults (78 per cent) think that there are currently too many opportunities to gamble; 7 in 10 (69 per cent) think it is 'dangerous for family life'; while just over half (55 per cent) think gambling should be discouraged. Counterbalancing this is a popular liberal sentiment (held by 67 per cent) that people should be able to gamble whenever they want. Having controls in place to safeguard children and young people was rated as the most important gambling policy issue.[19]

Youth gambling

As highlighted in the introduction, surveys show that a substantial proportion of young people are gambling in Britain long before they are old enough to enter a casino or betting shop. An annual Ipsos MORI survey of 11–15-year-olds found that in 2016, 16 per cent had spent their own money on a gambling activity in the previous week.[20] The authors report that this rate has remained stable for years, though has fallen since its peak of 23 per cent in 2011. Most common activities are playing fruit machines (5 per cent), placing a private bet for money with friends (5 per cent), and playing cards for money with friends (4 per cent). Just less than 1 in 10 (8 per cent) had participated in a gambling activity on a commercial premises, such as an arcade or betting shop.

Despite its relative inattention in school curricula, the prevalence of gambling among 11–15-year-olds appears to be higher than the prevalence of smoking, drinking alcohol and taking drugs over a seven-day survey period.[21] Furthermore, the authors of the Ipsos study suggest British children of this age may be gambling more than their counterparts in

European surveys;[22] other prevalence studies involving older children suggest the proportion of young people in Britain gambling is likely lower than the rates found in the US and Australia.[23]

The evidence around why young people choose to gamble in Britain is developing. The majority of 11–15-year-olds in the Ipsos study see gambling as dangerous (58 per cent).[24] However, entertainment, winning money, the sensation of winning and the thrill of the game, and escaping stress and problems are cited in the wider literature as reasons children and young people participate. A review of this literature by Professor Gill Valentine outlines extensive international evidence on the role of the home environment and parental attitudes and behaviour in shaping young people's gambling, which we return to in the section below on problem gambling.[25]

Often the subject of headlines, it is worth noting that the role and influence of advertising in encouraging children and young people to gamble is unclear – but extremely controversial. What is known is that young people's exposure to gambling advertising is likely to have increased in recent years. For example, a study by the media regulator Ofcom found that children's exposure to gambling advertising increased threefold between 2005 and 2012: from 0.5 billion instances to 1.8 billion instances (211 per child).[26] Ipsos MORI's 2016 study found that three-quarters of 11–15-year-olds have seen gambling advertisements on the TV, while 63 per cent have seen them on social media.[27]

Generally, young people are at the forefront of concerns around new forms of gambling or 'quasi-gambling', including activities where gaming and gambling blur. Opportunity for young people to gamble with virtual currencies has increased, for example, with scares around 'skins gambling' (where cosmetic game items are wagered) indicating the direction of travel. The *Times* reported that British children may have wagered more than £12 million worth of skins on one e-sports website alone.[28] There has since been a regulatory response and crackdown on these websites, but it is fast-moving and unpredictable terrain.[29]

Problem gambling

Definition

Problem gambling is generally defined as gambling that 'disrupts or damages personal, family or recreational pursuits'.[30] Many other terms are used – often interchangeably – by different audiences to describe a set of negative outcomes, behaviours and psychology around gambling: 'compulsive', 'pathological', 'addictive', 'dependent', 'disordered'. In his brief review of problem gambling in Great Britain, Mark Griffiths explains that recent thinking conceptualises problem gambling behaviour as a continuum, with extreme pathological, or addictive, gambling at one end, very minor problems at the other, and a range of more and less disruptive behaviours between.[31] Research suggests that people experiencing gambling difficulties can move back and forth along this spectrum.

From a clinical perspective, screens are used to help diagnose more extreme problem gambling behaviour. The fifth edition of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-V), published in 2013, defines a gambling disorder as meeting four or more of the criteria below within the last year:[32]

- the need to gamble with an increasing amount of money to achieve the desired excitement
- being restless or irritable when trying to cut down or stop gambling
- repeated unsuccessful efforts to control, cut back on or stop gambling
- frequent thoughts about gambling (such as reliving past gambling experiences, planning the next gambling venture, thinking of ways to get money to gamble)
- often gambling when feeling distressed
- after losing money gambling, often returning to get even (referred to as 'chasing one's losses')
- lying to conceal gambling activity
- jeopardising or losing a significant relationship, or job, educational or career opportunity because of gambling

- relying on others to help with money problems caused by gambling

In previous iterations of the DSM, approximately the same collection of symptoms and behaviours was referred to as pathological gambling and classified as an impulse-control disorder. However, in DSM-V pathological gambling was renamed and reclassified as an addictive disorder, reflecting the growing body of evidence on the common ground between gambling problems and substance addiction.[33]

Prevalence

Social researchers have used gambling screens to assess prevalence of problem and 'at-risk' gambling behaviours in the UK population – almost always using questions from DSM-IV, and/or the Problem Gambling Severity Index (PGSI).[34] An adapted version of the DSM-IV screen has been used for school-age pupils (DSM-IV-MR-J) – administered by Ipsos MORI in the study cited above, and which we used when evaluating our own education project.[35]

Prevalence studies have over time consistently found a very small percentage (less than 1 per cent) of problem gamblers in the British population, with a slightly larger proportion displaying at-risk behaviours. In 2017, NatCen published data showing the percentage of people identified by either the DSM-IV or DSM-V screen was 0.8 per cent of the British population (0.7 per cent DSM-IV and 0.6 per cent PGSI). Overall, this gives an estimate of there being between 300,000 and 430,000 problem gamblers in Britain.[36] A further 3.9 per cent of adults were classified as at-risk gamblers. Ipsos MORI's 2016 study on young people for the Gambling Commission identified a problem gambling incidence of 0.4 per cent among 12–15-year-olds, with a further 1.6 per cent classified as at risk.[37]

Given the discrepancy in survey methods, it is difficult to compare incidence of problem gambling across countries. Nonetheless, indications suggest the figure for adults in Great Britain is lower than in many other countries – notably Canada and the US, where some studies have suggested prevalence of 2 per cent and 5 per cent respectively.[38]

Risk factors

Rates of problem gambling vary between different groups of people. Men have consistently been shown to have higher problem gambling prevalence than women. Younger adults are more likely to have problems than older adults. While at the borders of statistical significance, incidence appears to be higher in ethnic minority groups (an example of the 'harm paradox', whereby people with certain characteristics are generally less likely to gamble, but more likely to experience gambling problems).[39] Perhaps surprisingly, rates do not vary straightforwardly by socio-economic status or education level, but the highest rates of problem gambling in Britain are found among those who are economically inactive (due to long-term sickness, being a carer or looking after the home or family). The type of gambling activity is also instructive: the highest rates appear in those who have participated in spread betting and betting with a betting exchange; conversely the lowest rates are in those who just play the National Lottery.[40]

Beneath headline differences between broad groups, there is a growing literature on potential causes and explanations for problem gambling behaviour – with a complex web of factors covering individual psychology, genetics, as well as social, cultural and environmental causes from early childhood through the life course.

On the individual level, studies observing pathological gamblers have identified differences in brain chemistry (even deficits in risky decision making, which share common features with patients suffering specific brain lesions affecting the ventromedial prefrontal cortex).[41] Bowden-Jones suggests that pathological gamblers are less likely to choose delayed rewards over immediate gratification, and more disposed to poor risk evaluation and persistent play in the face of mounting debt.[42] It is not necessarily clear when this begins. But research has shown that impulsivity in children is a strong predictor of problem gambling behaviour in later life; one study found that children who exhibit impulsivity are three times more likely to develop problematic gambling behaviours in adulthood than non-impulsive counterparts.[43]

Other factors such as early exposure to gambling and early successes (such as a 'big win') are linked in the literature

to a higher risk of developing a problem with gambling.[44] While there is some inconsistency in the research on these points, in summarising the available evidence Keen et al.state in a 2017 paper: 'The available evidence indicates that exposure to multiple factors and experiences in the formative stages of adolescent development can shape subsequent attitudes, cognitions and behaviours in adulthood', which for the authors lays the basis for early intervention, preventative educational programmes in schools.[45]

Strikingly, problem gambling can run in families. Pathological gambling appears to be 'passed down' in a number of cases, with one study suggesting heritability could be as high as between 50 and 60 per cent.[46] Furthermore, sometimes when patients seek help for problem gambling they trace the beginnings of unhealthy behaviours to their early experience of gambling with a parent.[47]

Also important to note is the large body of evidence showing the comorbidity of gambling problems and other issues – including mental health problems such as mood disorders, loneliness and poor social capital, alcohol dependence and illicit substance use.[48] This has substantial implications for understanding the genesis and trajectory of problem gambling behaviour, and successfully managing it.

Consequences

Tackling problem gambling is taken as an imperative because of the severity of its consequences, accruing to individuals, their families and wider social networks, and costs to wider society. While the last of these is almost impossible to know or measure, snapshot attempts have suggested problem gambling could cost the British economy up to £1.2 billion per year.[49]

The literature available outlines a range of costs to individuals, including the obvious financial challenges many face. Unsurprisingly, research shows the severity of financial difficulties positively correlated with the severity of the gambling problem.[50] The extent of financial hardship is experienced differently, but debt is common: 1 in 10 of GamCare's clients in the last year had debt exceeding £10,000, for example.[51]

Problem gambling increases the risk of a range of health problems, often bound up in the comorbidities outlined above. These include stress-related conditions, sleep deprivation, cardiovascular disease, peptic ulcer disease, initiation of depressive episodes, anxiety disorders, intense levels of guilt and shame, and impaired decision making.[52] Studies have linked gambling to experiences of homelessness, worklessness, engagement in criminal activity, and family and relationship breakdown.[53]

Many of these costs have their analogue for young people, for example poor school performance, strained family relationships, engagement in other risky behaviours, and negative effects on physical and mental health. Some research has suggested that the younger the age at which problem gambling develops the greater will be the consequences and severity of gambling in later life.[54]

Treatment

There are a number of different treatment routes available for people experiencing problems with gambling. One of our partners in this project, the Central and North West London NHS Foundation Trust, runs the National Problem Gambling Clinic – a specialist NHS treatment centre in the UK that provides cognitive-behavioural treatment as well as support with money management, family counselling and other services. Other sources of support for those experiencing problems with gambling are the charity GamCare and its partners around the country (GamCare run the National Gambling Helpline service and the text 'chat' service NetLine), the Gordon Moody Association and Gamblers Anonymous. The independent charity GambleAware, which has sponsored our work, funds education, prevention and treatment services, and research to broaden understanding of problem gambling. According to the Royal College of Physicians, without treatment, around a third of problem gamblers recover on their own, but two-thirds continue to have problems, which tend to get worse.[55]

2 The evidence base for education interventions

An initial scoping review for this project sought to identify existing lesson plans and other resources to help teach about gambling in schools, and isolate some best practice principles to inform our approach. In fact, what is clear is the lack of publicly available lessons and resources intended to prevent gambling-related harms in schools.[56] Furthermore, the evidence base on what works is extremely limited; there are no robust UK-based evaluations of school programmes with this aim.[57]

To inform our approach, we drew on the international evidence, including Brittany Keen et al.s 2017 systematic review of 19 empirically evaluated school-based gambling education programmes (most of which, the authors note, suffer a range of shortcomings in design or evaluation).[58] We also assessed a broader range of prevention literature on other risky behaviours such as drugs and alcohol in the UK. From this, we isolated six 'what works' principles, which we discuss below:

- Successful approaches involve diverse learning strategies, focusing on skills development alongside knowledge
- A universal, school-wide, approach is important for prevention
- Prevention interventions should be delivered in a timely and age-appropriate way
- Sustained prevention programmes are more effective than brief intervention
- A range of factors determine who is best placed to deliver an intervention
- A prevention approach can only be as successful as its implementation

Successful approaches involve diverse learning strategies, focusing on skills development alongside knowledge

In their systematic review, Keen et al. found that all of the evaluated gambling education programmes sought to target 'known cognitive aspects of problem gambling' – including misconceptions and fallacies, and poor knowledge of odds – as well as raising awareness of signs and symptoms of problem gambling. Few focused on a specific set of skills to help with some of these problems – for example, coping, problem solving, and decision-making.

The wider literature suggests that the best approaches to teaching about risky behaviours combine teaching knowledge and skills development, and that an overemphasis on the former is unlikely to have any lasting impact on behaviour. Reviews of the wider prevention literature by Mentor UK and the PSHE Association – particularly with respect to drugs and alcohol education – have shown combining different approaches to be effective, for example:

- using interactive, participatory teaching, including role play, small group discussion and other pupil-to-pupil interaction
- providing pupils with opportunities to learn and practise a range of personal and social skills, including coping, decision-making, and resisting peer pressure (a 'life skills' approach has an increasingly strong evidence base)[59]
- social norms approaches, for example correcting 'myth understandings' about how common or acceptable substance use is among young people[60]

In contrast, these are ineffective approaches:

- standalone school-based curricula designed only to increase knowledge
- programmes relying on scare tactics – exaggerated dangers or biased presentations – as adolescents tend to 'disbelieve the message and discredit the messenger'; Scared Straight and other prison or parole programmes that bring together prisoners and students have been ineffective – even counterproductive

- a 'zero tolerance' approach (a message of complete abstinence), which can be unhelpful and not conducive to discussion[61]

A universal, school-wide, approach is important for prevention

There are different schools of thought on how best to address the topic of gambling – and other risky behaviours – in schools, with some favouring an approach targeted at those identified as already having a problem, and others supporting a universal, whole school approach. As Keen et al. discuss in their 2017 review, prevention initiatives must almost by definition be the latter: 'Tailored programmes more closely represent treatment options for at-risk groups, whereas universal programs can be seen as genuine primary prevention initiatives.'[62]

This philosophy has underpinned our approach in this project. While not in any way seeking to detract from targeted approaches – which can be very successful in reducing harm for those targeted – we have sought to test the outcomes of a universal preventative approach. This has had implications for our research design. Keen et al. note that from an evaluation perspective, controlling at school rather than class level is preferable to ensure that student peer groups are targeted simultaneously and control groups are not unduly influenced by intervention participants. (Neither approach is without challenges, as we explore further below.)

Prevention interventions should be delivered in a timely and age-appropriate way

Keen et al. argue that gambling prevention programmes should be implemented as early as possible (from age 10 onwards). The age at which to introduce lessons on risky behaviours remains controversial, however, with concerns often focusing on initiation effects (encouraging more young people to drink, take drugs and gamble by raising awareness of those things). There is limited hard evidence on this,

and in the absence of robust longitudinal evaluation to track behaviours, we found none in the gambling context. However, when prevention efforts have been successful in the context of other risky behaviours, the converse has been observed to be true with less, or delayed, initiation. Nonetheless, there is wide agreement in the literature that material must be made relevant to the specific age group at which it is targeted. To help with this, educators are encouraged to assess needs and understanding at baseline, and deliver clear step-by-step learning in line with class needs.[63]

Sustained prevention programmes are more effective than brief interventions

More comprehensive gambling education programmes appear to glean better results than brief interventions, especially when there are longer-term booster sessions.[64] In the education prevention literature, one-time assemblies or events have been shown to be particularly ineffective, while regular and long-term programmes have shown more positive results. (For example, Mentor outlines the evidence behind Life Skills Training, which is delivered in 30 sessions over three years, and Unplugged, a life skills programme delivered in 12 one-hour units.)[65] This must be balanced with limited curriculum time for any one topic. For this reason, our pilot ensured that the gambling lessons were delivered as part of a planned programme of PSHE provision (one hour a week), by making this a mandatory requirement for schools taking part.

A range of factors determine who is best placed to deliver an intervention

Evidence and opinion is to some extent divided on who is best placed to deliver education on risky behaviours such as gambling. In Keen et al.'s review, only one intervention assessed the impact of educators, finding that exercises delivered by a gambling specialist were more effective in reducing erroneous perceptions than those delivered by a teacher. The authors conclude, however, that it is likely

not feasible for schools to enlist specialists like this for multiple sessions – putting this in tension with implementing sustained prevention programmes.

Teachers can be well placed to deliver an intervention – especially as prevention approaches have been shown to be successful when 'provided developmentally' with clear learning objectives and adequate frequency by those who are able to track pupil progress over time.[66] However, teaching staff have raised their non-specialism in the subject as one of the key barriers to effective teaching around risky behaviours, so they need support, training and development, alongside provision of accessible materials.[67] The PSHE Association states that there are currently limited opportunities for British teachers to develop expertise in prevention.[68] Older guidance from the United Nations Office on Drugs and Crime states that programmes should 'enhance and support' the teacher's existing role, being sure not to damage credibility when obviously externally imposed.[69] This was a key reason for us to work with schools with a well-planned programme of PSHE provision for our project.

Other literature points to the potential benefits of using peer educators, though is somewhat ambiguous on this point, and using peer educators can be counterproductive. Mentor recommends that peer educators support but do not lead sessions.[70] The use of a shock-and-awe approach by a gambling addict is ineffective.

A prevention approach can only be as successful as its implementation

Finally, programmes can only succeed – at least on their own terms – if implemented well, and they can be put in jeopardy if educators leave crucial elements of the lessons out – perhaps because they are short on time – or additional material is introduced that is not suited to the purpose. There are various ways to ensure this does not happen: educators should match content carefully to the time available in schools, and understand the key concepts and theory underlying the approach.[71]

Related to this, Chakravorty suggests that a whole school ethos is crucial if a programme is to be effective, linking preventative education 'to whole school policies and to pastoral support', and integrating preventative education within the broader curriculum.[72] Support from headteachers and senior management is significant in this regard.

3 The lessons

This chapter provides an outline of the educational materials we piloted – it covers the initial aims and design principles, and provides an overview of the content of each lesson and some of the key exercises involved.

Aims and design principles

At the outset of the gambling education project, partners agreed to some key baseline objectives to inform resource development:

- to have a measurable impact on the incidence of 'at-risk' gambling behaviours among pupils subject to the intervention
- to equip young people with the information to approach gambling in a considered manner and help to develop healthy attitudes and norms
- to help equip young people with the life skills to be able to identify and deal with a range of risks and promote their own wellbeing
- to complement learning on related subjects, including numeracy, financial management, digital literacy and online safety

In early 2016, a series of meetings were held with project partners to decide on how best to achieve these aims. Discussions were guided by the principles of good practice in prevention covered in the previous chapter, an agreed PSHE education delivery model, and a general understanding that the resources should not intend to demonise the gambling industry – but rather increase students' resilience to the risks it poses. These meetings were supplemented by consulting pupils, PSHE education teachers and expert organisations, and taking in feedback from initial trialling of material in

a school. Some additional design principles arose, based on good practice in PSHE education, which are worth mentioning here:

- the importance of establishing a safe learning environment in every lesson (in particular, distancing learning from pupils' own experiences, setting ground rules for discussion, and signposting to help)
- having a realistic way to assess learning (giving students the opportunity to rank their self-perceived knowledge and confidence at the start and end of lessons, and allowing time for written reflection)
- encouraging teachers to differentiate by pupil ability and background
- using appropriate language (for example, using the term 'problems with gambling' rather than the language of dependence and addiction)

An overview of the resources

With the above in mind, we designed four lessons and introduced them to schools in autumn 2016, providing a teacher booklet outlining four lesson plans in detail, a pupil booklet for written activities, and an accompanying PowerPoint presentation. Table 1 gives a summary of what was covered in each of the four lessons and the relevant learning objectives.

Table 1 **Summary of lesson content and learning objectives**

Lesson title	Summary	Learning objectives
1 How can we manage risk?	This lesson encourages students to discuss and practice risk assessment techniques in a variety of different contexts, consider probability and odds, identify suspect beliefs and practise ways of slowing down decision-making (using the ABC model of resilience – see below).	Pupils will learn: · how to risk assess effectively in different contexts · how personal beliefs (right or wrong) affect feelings and decisions in risky situations · how to use the ABC model of resilience
2 How can we manage impulsive behaviour?	This lesson opens with Walter Mischel's famous Marshmallow Test (see below) to help pupils understand impulsive behaviour and its implications. Pupils go on to practise giving advice to help someone behaving impulsively, drawing on cognitive-behavioural principles.	Pupils will learn: · about impulsivity and delayed gratification · ways to manage impulsivity
3 How can we help people who have developed problems with gambling?	Pupils begin this lesson with exercises to help adjust norms (eg correcting any inflated perceptions of how many people gamble), and tease out differences between recreational and problematic gambling. Students then consider 'Daniel's story', encouraging them to identify unhealthy behaviour and practice supportive behaviours to help someone experiencing problems with gambling.	Pupils will learn: · what kinds of problems people can have with gambling · ways to help someone whose gambling behaviour is worrying them
4 How can we challenge the hype of the gambling industry?	In this lesson pupils analyse a fictional gambling advertisement, exploring techniques used by the industry to encourage more gambling. The lesson culminates in a public information broadcast prepared by pupils to promote an alternative responsibility message about gambling.	Pupils will learn: · strategies used by the gambling industry to persuade people to gamble and increase profits · to help others to reduce the risk of problem gambling behaviours

The lessons broadly adhere to a 'five Es' structure:

- engage (a 'hook' to engage the class)
- explore (the teacher explores what the pupils already know)
- explain (the teacher clarifies where necessary)
- extend (the main body of the lesson and an opportunity for pupils to make progress)
- evaluate (summary and assessment of what pupils have learnt)

Major activities covered in the resources

Below are brief explanations of some of the major activities covered in the resources that were piloted.

Classic risk register

In lesson 1, an early exercise encourages students to think about a variety of behaviours and how to assess how risky they are compared with one another. Pupils are given a list of 15 different behaviours – from horse-riding lessons, putting £10 on the Lotto every week, use of class A drugs, through to starting a new business. They are then asked to weigh up: how bad the potential impact of the behaviour could be (ranging from mild embarrassment, through to serious injury or death), and the likelihood of that impact happening (on a scale from no chance, to absolutely certain).
Pupils annotate a chart to justify their decisions, broadly categorising the behaviours into four quadrants: risks that are 'low impact but highly likely', 'high impact and highly likely', 'low impact and unlikely' and 'high impact and likely'.

As the exercise progresses, the teacher provides supplementary information – including where available actual figures on the odds of an outcome occurring. Students are encouraged to challenge each other's views as well as their own assessments. Discussion also covers potential pay-offs, and the activity ends by considering the key question: 'What makes a risk worth taking?'

The ABC model of resilience

The Adversity Beliefs Consequences (ABC) model is a cognitive-behavioural approach to building resilience in young people, and was an early inspiration for our gambling education project. It is a core component of the Penn Resiliency Programme (https://ppc.sas.upenn.edu/research/resilience-children) pioneered by academics at Pennsylvania University, which has now been delivered all over the world. Longitudinal and controlled studies provide a robust evidence base for its effectiveness, showing it can prevent and reduce the symptoms of anxiety. The UK organisation How to Thrive (www.howtothrive.org) is pioneering the approach in UK schools and was a source of advice and support for our project.

Using the ABC model of resilience is a skill which allows pupils to consider how their beliefs (B) influence the consequences (C) following any kind of activating event (A). (Note that in conversation with How to Thrive, we replaced the original term 'adversity'.)

Box 1

The ABC model

- *A = Activating event – something happens, just the facts*
- *B = Beliefs in that moment. Beliefs can be about the causes of the A or the implications of the A*
- *C = Consequence. The emotion the person feels at the time and the way they behave*

In this exercise in lesson 1, it is explained to students that it is the Bs that drive the Cs – not just the A:

We know this because two different people can be in exactly the same situation (A) and they feel and respond (C) differently because of the beliefs (B) they have at the time.

The teacher explains that some beliefs are inaccurate, so the person may be missing some important information because their thoughts in the moment are fixed and biased, rather than flexible and based on real evidence. The ABC model can be used as a skill to slow a situation down to separate the A from the Bs and Cs so there is clarity surrounding the Bs.

With practice, a person can begin to exercise judgement that is better informed and leads to more desirable outcomes. Teachers explain:

The critical questions are: 'Are my Cs (the way I feel right now and the way I am behaving), helpful or hindering to me?' and 'How are my Bs influencing my Cs?'

Lesson observation and feedback from participating teachers and pupils found this to be one of the more difficult activities – perhaps because of the time needed to cover its complexity. It has since been included in the final resource for teachers to use if time is available and it is appropriate for the pupils they teach (see note at the end of this chapter).

Walter Mischel's Marshmallow Test

Impulsivity is a key concept in discussions around gambling. As outlined in chapter 1, it is one of the strongest predictors of problem gambling.

In lesson 2, students are introduced to the Marshmallow Test – a psychological study on impulsivity and delayed gratification first conducted in the 1960s by Professor Walter Mischel of Stanford University.[73] In these experiments, a child is led into a room, free of distractions, with a single marshmallow placed on a table in front of them. The child is then offered a choice: either they can eat one marshmallow now, or wait for 15 minutes to receive a second marshmallow (delayed gratification). The child is then left alone to make the decision.

Longitudinal studies of the original research participants found that being able to delay gratification at age four was associated with a range of positive outcomes in adolescence and later life. For example, delaying for longer predicted significantly higher SAT scores, and better social cognitive and emotional coping in adolescence. Later in adulthood, ability to delay continued to predict higher educational achievement, higher sense of self-worth, better stress management, and less illicit substance use.[74] Similar tests have since been repeated many times for different audiences – with some surprising results, including that children today

may actually be better at delaying gratification than those of previous generations.[75]

After an explanation of the key concepts and findings, students are tasked in the lesson with helping someone who is behaving impulsively. They are given a range of scenarios, including someone tempted to gamble on fruit machines, cheating on a test, and taking drugs, and provided with the following examples of strategies for delaying gratification (based on Mischel's studies) to guide their solutions:

- avoiding situations
- reducing exposure to reminders of the reward
- distracting with other experiences
- thinking in a different way about the situation (for example, using the ABC model)
- self-talk, which reminds a person about their desire to make better choices[76]

Our lesson observation found the use of the Marshmallow experiment video a good hook for engaging pupils,[77] and accessible across the spectrum of ability. Teachers were given flexibility in the example they used to illustrate the principle following feedback from our focus groups with teachers at the outset of the project.

Helping someone experiencing problems with gambling

Lesson 3 uses 'Daniel's story' (see box below) to explore with students a difficult situation where Daniel's friend Angelo develops problems with gambling. At each stage, students are encouraged to identify behaviours that are a cause of concern, think about what approaches and strategies they could use to advise Daniel, and identify the point at which it would be sensible to include another person and who that would be. The teacher guide provides a range of suggestions of what to say in difficult conversations with Angelo (where the latter may be defensive and angry), and pupils are encouraged to role play the scenario.

Box 2

Daniel's story

Daniel has been best friends with Angelo since they were at primary school. Over the summer, they started playing on the slots at an amusement arcade near where they live. It was a way to pass the time when the British summer got in the way of their plans to play football. Daniel spotted that Angelo was starting to want to stay later and later; he'd get angry if Daniel suggested they leave. Angelo said he just wanted to win back the money he'd put in. He was so close and he didn't want anyone else to win his winnings.

Daniel hadn't wanted to involve anyone else as he didn't think things were as bad as they really were. He tried using some techniques [from the previous lesson] but they hadn't worked. When Daniel had taken Angelo to the cinema to distract him, he'd simply gone back later to keep playing on his 'lucky machine'. Angelo was spending more and more money on the slots and had even started playing the lottery – the shopkeeper hadn't spotted he was underage. Daniel wasn't really sure where Angelo was getting the money to spend on them from.

It turned out that Angelo's dad has an issue with gambling and this had made it harder for Angelo to break his new habit. When Daniel asks about Angelo's dad, it's clear his addiction has made things difficult at home money-wise. Daniel wants to help his friend but Angelo has told him he'll never speak to him again if he talks about it to anyone else.

Following feedback on this activity, the second half of the story has been removed from the resource. This was done as part of wider changes to help structure the overall package of lessons (see note at the end of this chapter) better, while also allowing more time for role play, analysis and discussion.

'Glambling' and producing an alternative responsibility message

As mentioned in the previous chapter, children and young people see advertising by the gambling industry more frequently, which has caused public and political concern. Lesson 4 focuses most squarely on the gambling industry, and seeks to improve pupils' understanding of industry

agendas and how the ways in which risks are presented (eg as glamorous) can affect decision-making.

Students are first presented with a fictionalised advert (figure 1) and asked to analyse the persuasive techniques used, and how they may affect decision-making. In line with feedback from our development research with teachers, guidance notes suggest that real life examples are used to make this work relevant, so long as they are age-appropriate and delivered in line with good practice (not inspirational).

Figure 1 **Glambling advert**

In the final activity of this series of lessons students are asked to put together an alternative responsibility message in the form of a public information broadcast. They are encouraged to draw on the other lessons, outlining the reality about gambling behaviours, techniques used to convince people to gamble, and the ways to reduce the risks of developing problems with gambling. Teachers are encouraged to assign roles – creative directors, pacesetters, and so on. The students' broadcasts are then performed to the class, who provide feedback. In the final resource this activity was included as an extension activity, and reframed as a YouTube clip.

A note on the published resources

Piloting the resources was always intended to leave scope for further refinement before the materials were published and made available to schools nationally. Having gathered a considerable amount of feedback from pupils and teachers in the course of evaluation the most notable change is the reduction of the lesson package from four to three lessons, and including some activities as extension exercises. Efforts have also been made to reduce repetition, enhance the relatability of some of the material, draw out further cross-curricular links, and reduce some of the burden on students (for example, removing an extensive pupil booklet).

4 Pupils at baseline

As outlined in chapter 1, a relatively substantial proportion of 11–15-year-olds – 1 in 6 – have gambled in the last week in Britain. This chapter provides some background information on the particular pupils involved in our education intervention. We outline what our research showed at baseline – looking at pupil characteristics, participation in gambling activities, and attitudes and perceptions around gambling. The figures below draw on our pre-survey, administered at the beginning of autumn term 2016, and focus groups held with students before delivering the lessons. It is intended to provide a sense of the starting position of pupils, before turning to the results of the pilot in chapter 5. Note that the survey sample discussed in this chapter covers pupils at the four participating schools only (n=642). Information on the comparison group – used for the analysis in the next chapter – is available in appendices C and D.

Survey findings

Pupil characteristics

These were the baseline characteristics in pupils at participating schools:

- *Gender:* 53 per cent were male, 47 per cent female
- *Age:* All pupils were beginning year 10, with 91 per cent aged 14, and a further 9 per cent aged 15
- *Ethnicity:* 91 per cent of participants were white British, and 9 per cent of non-white ethnicity

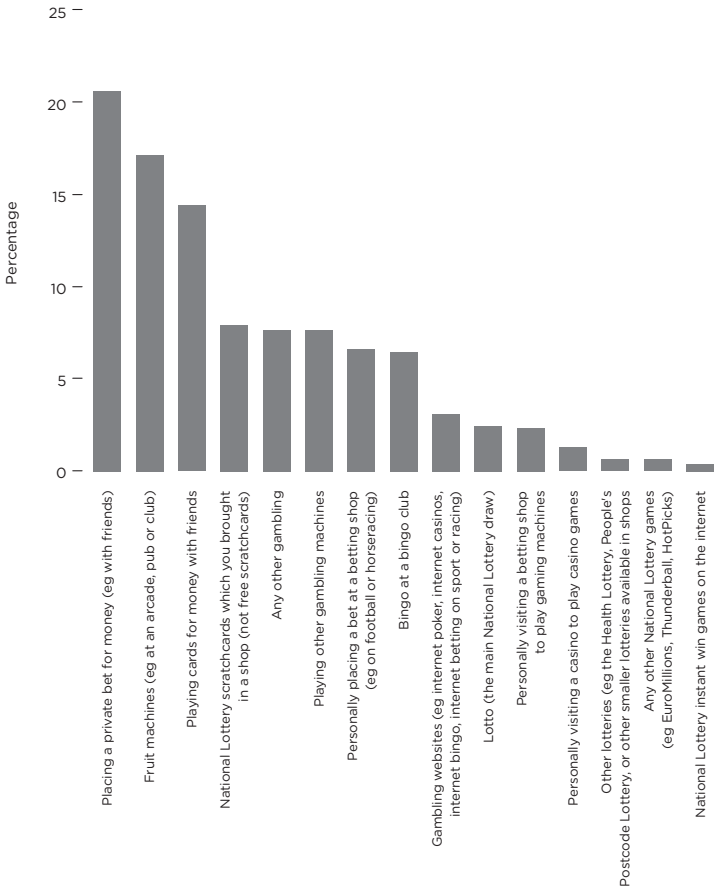
- *Household composition:* 83 per cent of pupils lived in a two-parent household, while 17 per cent lived in a single-parent household
- *Socio-economic background:* 8 per cent of pupils identified as eligible for free school meals, with a further 16 per cent 'not sure'
- *Risky behaviours:* 11 per cent of participants had smoked a cigarette or e-cigarette before; 61 per cent had tried an alcoholic drink, with 7 per cent describing themselves as regular drinkers (drinking at least once a week)
- *Parental gambling:* 27 per cent of participants identified a parent or grandparent as a regular gambler; 2 per cent identified a parent or grandparent as (ever) having a gambling problem

More than 1 in 10 (14 per cent) students in the survey had been taught about gambling at school before.

Participation in gambling

Using questions from Ipsos MORI's 2016 study,[78] in our survey we asked students whether they had participated in a range of gambling activities at any point over the last 12 months, using their own money (figure 2). Just over 4 in 10 pupils (41 per cent) had participated in at least one of the gambling activities listed within the last year. Most common, in line with the trends identified in the Ipsos study, was placing a bet for money with friends (21 per cent), followed by fruit machines (17 per cent), and playing cards for money with friends (14 per cent). Much smaller proportions of pupils had undertaken the remaining activities, and only 8 per cent had taken part in four or more activities.

Figure 2 **The proportion of participating pupils taking part in different gambling activities at baseline**

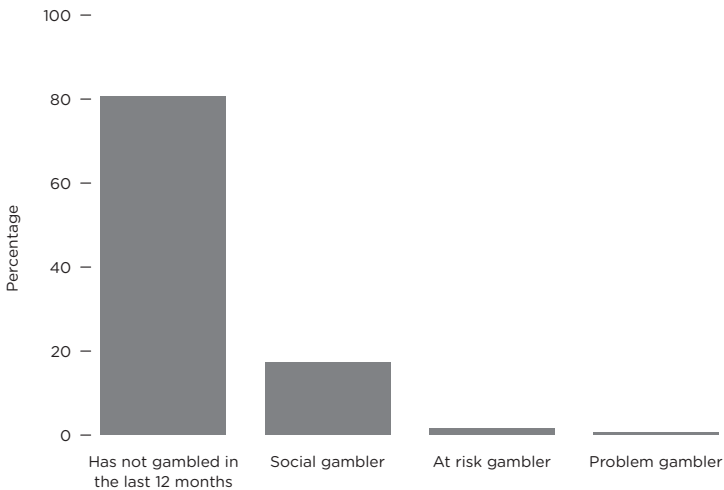


Just over 1 in 10 (13 per cent) had been asked by someone else to spend money on any of the activities listed in figure 2.

Problem gambling incidence

The DSM-IV-MR-J screen was included in our survey, intended to measure the incidence of problem gambling among a school-age population (see chapter 2). Using the usual system of scoring this screen,[79] we found an incidence of problem gambling of 0.6 per cent, with a further 1.6 per cent classified as 'at risk' (figure 3). Interestingly, the proportion of pupils who said they had not gambled in the last 12 months was much higher on these screening questions than the proportion of respondents who had not gambled in the Ipsos survey – it is possible that pupils' interpretation of what constitutes gambling may have narrowed in the more formal screening questions.[80]

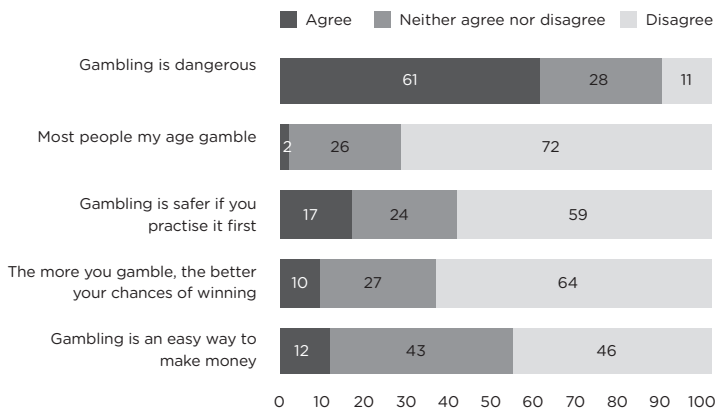
Figure 3 **Problem gambling incidence at baseline among participants**



Perceptions and attitudes towards gambling

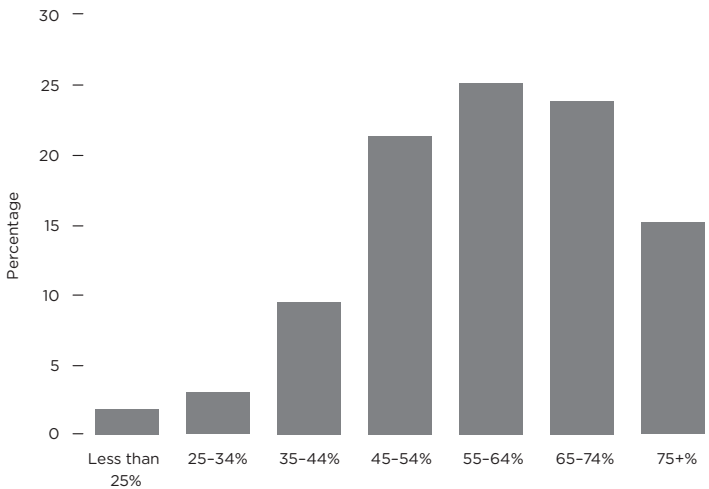
Our baseline surveys sought to capture a variety of perceptions and attitudes towards gambling – again using tried and tested questions used in Ipsos' national surveys. The findings, summarised in figure 4, generally show small – though not insignificant – proportions of pupils at our participating schools having attitudes that might be considered concerning. Just over 6 in 10 said they believe gambling to be dangerous, and only a very small proportion believe that most people of their age are gambling. These results provide more uncertainty over whether gambling is an easy way to make money, and whether practice increases chances of winning – but still low levels of agreement with the statements addressed in figure 4.

Figure 4 **The proportion of participants who agreed with various statements about gambling**



The survey also asked pupils to estimate what proportion of the entire population they think have gambled in the last 12 months (figure 5). The distribution of estimates shows a peak around the actual national figure – 63 per cent in 2015.[81] This estimate is more accurate than the one given by participants in baseline focus groups (see below).

Figure 5 **Participants' estimates of the proportion of the entire population they think have gambled in the last 12 months**



Skills, capabilities and learning objectives

Finally, a series of other questions were included in the survey on pupils' skills and capabilities, some specific to the lesson learning objectives (figures 6 and 7). A large majority of pupils rated their decision-making ability in risky situations highly, and a majority felt they manage peer pressure effectively, but fewer were confident about their ability to manage impulsive behaviour (figure 6). Pupils were also less confident in dealing with problem gambling behaviour and techniques of the gambling industry (figure 7), for example, knowing how to help someone whose gambling behaviour was worrying, and understanding techniques used by the gambling industry to persuade people to gamble.

Figure 6 **The proportion of participants agreeing with various statements on decision-making, impulsivity and dealing with peer pressure**

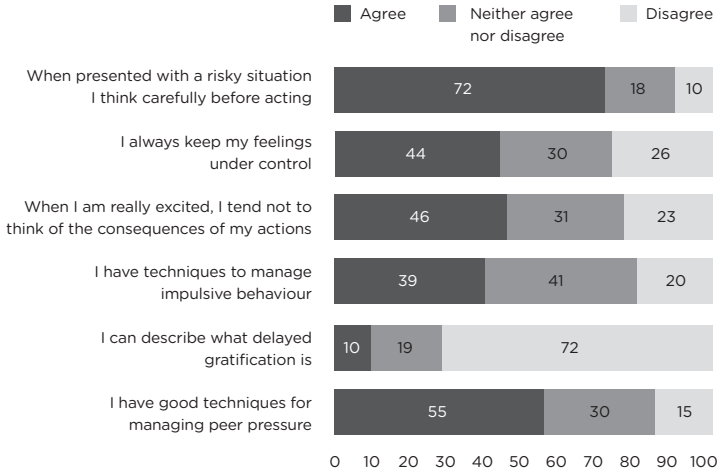
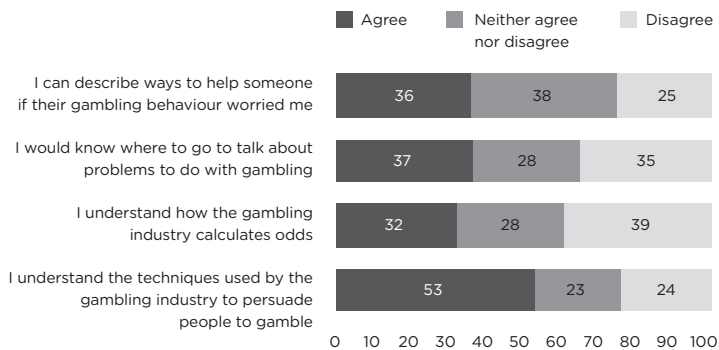


Figure 7 **The proportion of participants agreeing with statements on gambling-specific learning objectives**



Qualitative insight

Our qualitative research with pupils before piloting the lessons explored their attitudes and baseline knowledge further, and provided an important opportunity to test the survey before it went into field. Both focus group sessions with pupils (n=19) opened with a baseline check of knowledge (a 0–10 scale for how much pupils felt they knew about gambling) and a word association activity for the term 'gambling'. These were the findings:

- The majority of students scored themselves 4 or below out of 10 on baseline knowledge
- Most students listed a range of words related to the gambling industry and betting with money – 'lottery', 'slot machines', 'casinos', 'Las Vegas', 'Grand National', 'poker', etc – rather than playground activities, broader risk-taking activities or related concepts
- Some students included 'odds' in their mind map; some students expanding on this, including the words 'risk', 'chance' and 'possibility'
- A range of positive associations were included, such as 'entertainment', 'fun' and 'colourful'
- The bigger emphasis, however, was on negative associations, included by all but one student. Common words included 'addiction', 'frustration', 'depression' and 'debts', with others writing 'loans', 'losing money' and 'match-fixing'
- A smaller number included 'advertising' and named specific gambling companies pupils were familiar with

Students were asked to provide feedback on these mind-maps, and explain where some of their associations had come from. These were some of the points of discussion:

- Students did not feel they knew much about gambling. It was not a topic they remembered had been covered in school before. This was not necessarily seen as a problem – many considered gambling less relevant to their lives than other risky behaviours such as drinking alcohol

- Students knew about gambling through two key sources: TV (watching sports) and family members. They had also seen gambling advertising on social media (for example, Facebook)
- While most students said they did not gamble – associating gambling as being for people over 18 – several had placed a bet (eg on the Grand National) with a family member

Students were asked to write down what proportion of the population they thought gambled in the last year, what proportion had a gambling problem, and what proportion of people their own age had gambled in the last week (as asked in the Ipsos study).[82] Those answering the questions tended to over-estimate the proportion of adults both gambling and having a problem, but under-estimate the proportion of their own age gambling. For example, they estimated that that 5–35 per cent of the adult population are problem gamblers, substantially higher than the actual prevalence in the population (less than 1 per cent, see chapter 1). In conversation about what signs there might be of someone having a gambling problem, students focused on people having monetary difficulties including being in debt, taking out loans, and spending income on gambling rather than essentials (eg food). Students felt that problem gamblers would be helped if they could find ways to control their spending, and seek the help of people who have experienced gambling problems before.

5 Results from the pilot

The gambling education project began with strong ambitions. As outlined in chapter 1, we sought to have a measurable impact on 'at-risk' gambling behaviours; and, through complementing a wider planned programme of PSHE education, help to equip participants with knowledge and skills to be able to identify and deal with a variety of risks in their lives and promote their own wellbeing.

This chapter outlines the findings of our evaluation. As explained in the introduction, the key evaluation tools were:

- five lesson observations
- a tracked pre- and post-survey, administered over 12 months for pupils at participating schools and nearby comparison schools (thus taking a 'quasi-experimental' approach)[83]
- focus groups with pupils and teachers in participating schools, after the lessons

Lesson observations

Demos researchers observed some lessons to understand how faithfully the resources were delivered (which had implications for evaluating outcomes), and to assess student engagement with key activities, and teacher delivery and management. We made five lesson observations in total – at least one in each school. We therefore cannot make a comprehensive assessment of how material was delivered in its entirety in each school. Nonetheless, we were able to draw the following conclusions from what was observed:

- On the whole teachers delivered the material as intended, covering each of the activities in the lesson plans
- In almost all cases teachers clearly outlined learning

objectives at the beginning of each lesson, and checked levels of knowledge before and after each lesson. However, they did not always adhere to some of the other teacher instructions at the opening and close of each lesson. For example, teachers laid out ground rules for a safe learning environment in two out of the four lessons, did not signpost in any of them, and did not make cross-curricular links as frequently or explicitly as might have been hoped

- Students seemed to enjoy many of the exercises (the Marshmallow experiment in particular, and exercises offering advice to someone in need of help). However, a full spectrum of student engagement, participation and behaviour was observed, which made lesson management more or less difficult for teachers delivering the material (one group was described as a 'nightmare group'). For some exercises, there were also observable differences in comprehension between lower and more able students (for example, the ABC model of resilience was frustrating for some students)
- Timing and pace were identified as issues in three of the lesson observations (in some cases related to student behaviour, but also the volume of material to cover – particularly the public broadcast activity in lesson 4)
- There were differences in teachers' levels of confidence in the material and approach to class discussion. Some were obviously well versed in the subject matter and had good background knowledge, able to link the material to students' wider experiences. Others had lower confidence levels and could not readily answer students' questions
- One lesson was observed twice in two different schools. It showed how differently the material could be both taught and engaged with by different pupils and teachers (one class was much more engaged than the other)

In sum, we observed some difficulties in implementing an intervention in a school environment, though our judgement overall is that – within the bounds of what was possible – teachers delivered the material as intended.

Pre- and post-survey results

Below we outline the results of our pre- and post-survey analysis. Where our survey results show promise, our intention is not to over-claim the impact of the intervention. It is worth reiterating that there is a severe limit to what can be attributed to any short intervention (especially when its success may rest on being part of a larger curriculum); there are multiple and complex intervening variables at play in education interventions, making any school-based evaluation essentially different from those in clinical experimental settings. There are specific challenges for our own evaluation approach – particularly the lack of randomisation and the observed differences at baseline between participating and comparison group pupils.

Furthermore, tracking pupils effectively between pre- and post-surveys proved a substantial challenge. Appendix B shows the template we used as a self-generating survey code for pupils – to keep them anonymous but maintain our ability to track them over time. However, when matching these codes before and after the surveys we were able to obtain only a relatively small tracked sample across the eight intervention and comparison schools (n=492) compared with the full samples before (n=1,264) and after (n=1,128).

We analysed the full 'cross-sectional' samples separately (see appendix D for a technical note) from the smaller matched sample. Fortunately, there does not appear to be a substantial difference in what the results show between the samples, as can be seen in the full results in appendix D – giving us reasonable confidence in their reliability. We consulted analysts, and outline the findings of the cross-sectional analysis as the primary approach below, with comments on the matched results in parentheses.

Gambling behaviour

Over the 12 months between surveys, the following changes were observed in participating schools relative to comparison schools:

- There was a small statistically significant decline in the proportion of pupils at participating schools playing cards for money in the past year – with a net decline of 7 percentage points relative to the comparison group. There were no other statistically significant changes relative to the comparison group on individual gambling behaviours
- For 'at-risk' gambling behaviour, there was a small statistically significant decline in the proportion of pupils taking part in four or more types of gambling activity relative to the comparison group – with a net decline of 3 percentage points. There was no statistically significant change in the proportion of pupils classified as 'at-risk' or 'problem gamblers' on the DSM-MR-J screen (an extremely low proportion both pre- and post-survey)

(As appendix D shows, the declines outlined above were true of the smaller matched dataset. However, analysis of that dataset also found three other statistically significant changes in participants relative to comparison pupils: a small net decline in playing lottery scratchcards; a small net decline in using 'other' gambling machines; but a small net increase in fruit machine use, where there had been a smaller decline than the comparison.)

Perceptions of gambling

While gambling perceptions changed in a desirable direction (small percentage point changes in the proportions of pupils agreeing with the relevant statements), there were no statistically significant differences between the perceptions of pupils at participating and comparison schools. The same was true with respect to 'norms' – when pupils were asked what proportion of the population they thought participated in gambling. (Both of these results also apply to the tracked sample analysis – though for the norms question there was a small statistically significant net decrease in the proportion of participants marking the highest answer category – that more than three-quarters of the population gamble.)

Learning objectives

Our surveys asked a range of questions related to key learning objectives. These were the most substantial differences between pupils in the two groups:

- a net 20 percentage point increase in the proportion of pupils at participating schools able to describe ways to help someone experiencing gambling problems relative to pupils at the comparison schools (figure 8)
- a net 18 percentage point increase in the proportion of pupils at participating schools who knew where to go to talk about gambling problems relative to pupils at the comparison schools (figure 9)
- a net 11 percentage point increase in the proportion of pupils at participating schools who could describe what delayed gratification is relative to pupils at the comparison schools
- a net 10 percentage point increase in the proportion of pupils at participating schools who understood techniques used by the gambling industry to persuade people to gamble relative to pupils at the comparison schools

Figure 8 **The proportion of pupils at participating schools and comparison group schools agreeing with the statement 'I can describe ways to help someone if their gambling behaviour worried me' pre- and post-survey**

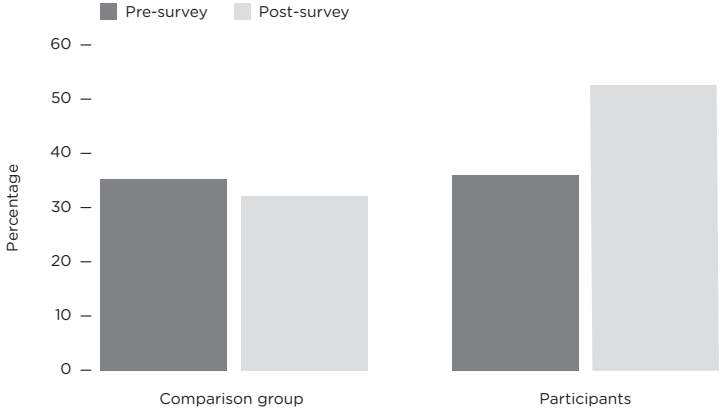
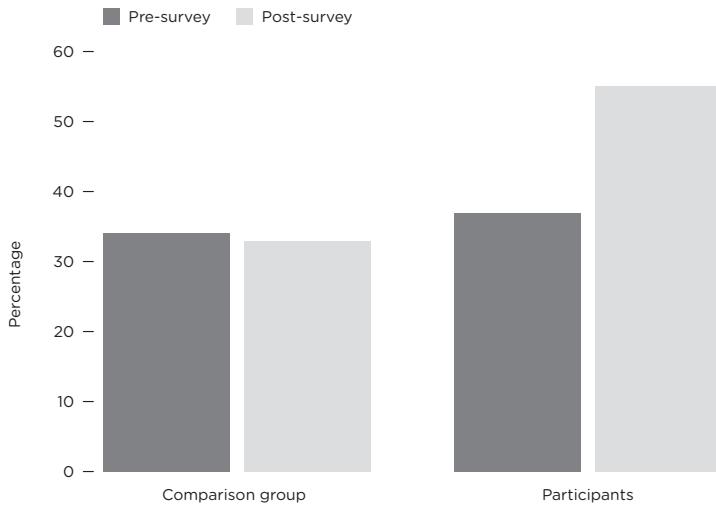


Figure 9 **The proportion of pupils at participating schools and comparison group schools agreeing with the statement 'I would know where to go to talk about problems to do with gambling' pre- and post-survey**



Pupils' answers to the remaining survey questions on learning objectives demonstrated that there were small movements in a desirable direction, but none were statistically significant relative to the comparison group.

(Even larger statistically significant net results were obtained in the tracked sample. The other significant result related to an impulsivity question – whether respondents 'always keep feelings under control'. Both participant and comparison groups saw declines in proportions of pupils agreeing with this statement, though participants saw a greater decline and thus there was a small net increase relative to the comparison.)

The full tables of survey results, including for cross-sectional and tracked analysis, are available in appendix D.

Feedback from the focus groups

Members of the focus groups after the pilot with teachers and students at the four participating schools provided detailed feedback on each exercise in the resource to help us refine the resource. Broader messages on the experience of the lessons are outlined below, focusing on what students said.

Broadly positive reception

Perhaps as to be expected, there was a full spectrum of reactions from the students to the lessons as a whole: some were interested by them, some bored, some found them useful and some thought they were irrelevant. The focus groups – and lesson observations – made apparent how delivery of the same content varied across classrooms and schools, with some teachers focusing on the interactive elements of the lessons, while others gave more time for written exercises.

On the positive side, several students said that they found the lessons useful, and came away feeling more informed about gambling. Interestingly, the language of 'addiction' was common. These are some of the participants' observations:

I actually found them quite interesting because I didn't really know anything, or I knew a bit, about gambling and how you can get addicted. But we went into some depth and I learnt some new things. It was quite good how my form tutor presented them.

Male, school B

At first it seemed like quite a rare thing, and it was like, more serious, but we didn't realise how easy it is to get addicted. And how bad it could be, but we learnt that I think.

Female, school D

From an evaluation perspective, we were interested in pupils' understanding of learning objectives and recollection of key concepts following delivery. The focus groups suggested that recollection of concepts such as impulsivity and delayed gratification was reasonable among pupils, though there was more difficulty with some – such as the ABC model

of resilience – which required substantial prompting from Demos researchers.

The discursive and interactive elements to the lessons – while varying in emphasis depending on the teacher – appeared most effective in engaging students:

Instead of being told what's right and wrong, we got to say what we thought, and then learn about other people's experiences, so we could better understand it, in a more realistic way, if that makes sense.

Male, school B

I think you probably learnt more from getting up and doing stuff, then just writing it down.

Female, school D

Furthermore, the broad focus on risk-taking – rather than just gambling – was welcomed, and some students felt they had been encouraged to think about some of the activities in their daily lives that – while not explicitly gambling – had things in common with gambling:

[Looking at wider risky behaviours] was a good introduction to the topic. If we had gone on to the gambling any earlier it would have been too much to process, with the risk behaviour as well as the gambling.

Male, school C

It gave us some quite useful ideas, like what gambling is. It's not always like spending money, it can be other things as well. It was a wider grasp on what it is overall.

Female, school A

Issues of relevance

Relevance and relatability, however, appear to have been a key challenge for this material. This echoes some student survey findings and sentiments at baseline covered in chapter 4 – 6 in 10 students being taught this material had not gambled before (at least in the last 12 months). Several

students in our focus groups said that they had not found the lessons immediately helpful or relevant to their own lives, for example:

The relevance of it – I don't really see the point in gambling. I don't think I'll ever do it, so I don't know if it [the lessons] would help me.

Female, school B

But it's like, we can't relate to it, we're young, we don't gamble. There's other issues like drug use or smoking.

Female, school D

Another student drew a distinction between those who were most and least likely to benefit from being taught this material:

Lots of people won't think about going gambling. They won't have it in their family. These lessons won't be a lot of use because they won't be considering it in the future. Whereas other people might be looking into it, or doing it regularly, and they can see the effect that's having on them in the future – they can apply what they've learnt here to themselves, and relate to it.

Female, school B

The issue of personal relevance and relatability perhaps cuts to the core of a 'preventative' approach. Some students acknowledged that the resource might become more relevant as they got older, and thus had its place in a curriculum with more immediately pressing content such as drugs and sex education. For example:

I think it's useful because we are getting to the age where we can legally gamble so it's quite good that's fresh in our minds

Female, school C

Gambling at our age wouldn't really be something to worry about yet, but it would more relevant if you were the year above…

Female, school D

Nonetheless, the more successful teachers tried to draw out links to everyday experience – and this has centrally informed our further development of the resource since piloting, for example using actual gambling advertisements:

Thinking from a boy's point of view, in the last one where we were looking at the gambling advert, I found a video clip, you know the way you always see them during football, and it's something that they watch all the time. So they related to it then, they were like 'yeah we are seeing that all the time actually'. And again, it was just making them aware that you are seeing this and this is where you're seeing it. Kind of making that link to them.

Teacher, school D

A key skill: helping someone experiencing problems

Perhaps because of the challenge of making the material relatable, and in keeping with the survey results above, helping someone else with a problem appeared one of the strongest takeaways for many students. This was the clearest example of a skill that students felt they had learnt:

I learnt more about how gambling can escalate, and how to help someone else who has an addiction or an obsession, rather than teach me about gambling itself.

Male, school B

The bits where it says, 'maybe not if you're gambling but other people are gambling' and behaviours and how to spot it, how to help it and stuff – I thought that was quite useful. In case one of your friends or family turns to gambling.

Male, school A

If there was someone I knew when I was older then I would know what to do, you could help someone.

Male, school C

I'd seen adverts for gambling so I know how they advertised it. I didn't really know much about how to help people like getting their mind off it or trying something else. I learnt lots of different ways to try and help someone.

Female, school C

Teachers also commented on this being a valuable aspect to the resource:

I genuinely liked the idea of them having to approach a difficult conversation with a friend and how to go about it, they enjoyed trying that.

Teacher, school D

Interestingly, another theme in the focus groups was the desire to delve further into the seriousness of the repercussions of problem gambling, and – contrary to the best practice outlined in chapter 2 – see examples of this in the flesh:

It's like easy to just look from a board and say, if that probably didn't even happen, that's just teachers putting that to like make it happen. Having someone actually there, then it's more realistic… But if you had someone actually coming in, then you could be more serious about it and probably learn more.

Male, school D

Yes and you could also have a real life person come in and talk to you about gambling if they have had experience with it.

Female, school C

It is worth reiterating the evidence cited earlier, however, that scare tactics can not only be ineffective in conveying healthy and believable messages to pupils, but also have potentially damaging effects – including inspiring harmful behaviour.[84]

As indicated, the focus groups with teachers echoed many of the points made by students above. Teacher feedback was broadly positive, though qualified with a range of detailed suggestions for improving the activities

in the resource. Most felt the pupils had learnt some valuable concepts, including managing risky behaviours, and recognising 'addictive behaviour' and manipulation from industry. Teachers thought it was difficult to know what impact the pilot is likely to have had on behaviour; some reflected that this is a broad challenge for PSHE, especially when some of the pupils most at risk are least likely to engage.

We asked project leads at each of the schools to administer a short survey ahead of each group to capture feedback from a larger set of teachers who had been responsible for delivering the material, which was returned by 18 teachers. These were the findings:

- *Success of pilot:* teachers gave an average score of 3.3 on a scale of 1–5
- *Success of lessons in developing pupils' knowledge of gambling:* teachers gave an average score of 3.5 on a scale of 1–5
- *Success of lessons in giving pupils skills to manage risky situations:* teachers gave an average score 3.6 on a scale of 1–5
- *Delivery of gambling education lessons in future:* 13 of 15 (87 per cent) of teachers answering the question planned to deliver the gambling education lessons next year

Conclusion

Gambling currently occupies a place in the educational system that feels out of step with the times. While surveys each year show that many school children are gambling with their own money – and likely more frequently than they are taking drugs or drinking alcohol – gambling is rarely covered in school curricula.

Perhaps one of the most encouraging of our findings is one mentioned only in passing – that more than 100 schools expressed an interest in taking part in our pilot (and we hope they will use the final published resources in the next academic year). This perhaps signals a growing awareness of the risks posed to young people and appetite for materials to help prevent the harms associated with gambling.

Our pilot had some success in delivering positive change in pupils in participating schools relative to those in comparison schools. Many pupils have come away with some key skills: they feel more confident in knowing how to help someone who is experiencing problems with gambling; and they would know how to seek help should they ever experience problems themselves. There was also a small statistically significant decline in the proportion of participating pupils involved in the types of gambling activity most relative to the comparison group, though this was not captured in the traditional gambling screen on problem and 'at-risk' gambling behaviours. Furthermore, while the initial resources have been both commended and (constructively) criticised, students and teachers on the whole responded positively to the material, and helped us shape a final, stronger and more relatable resource.

We have sought to build on effective practice in prevention, and there are some positive lessons that can be drawn from our approach. Taking a skills-based approach and covering a range of other risky behaviours in lesson

discussions has worked well, and received positive feedback, as has situating the lessons as part of a well-planned PSHE education curriculum with – on the whole – experienced teachers who took the time to familiarise themselves well with the content. Our evaluation methods have their shortcomings, but we have followed the evidence base and sought to redress a range of shortcomings identified in previous approaches (for example, using gambling screens over an appropriate time-frame).

Our pilot has been challenging to deliver, however, and there are other, less positive, lessons to be drawn. Our education project has raised a range of questions about the nature of prevention, and some pupils were frustrated and bored during lessons. Many of the pupils Demos researchers spoke to had no experience of gambling so thought the lessons were not relevant to them; teachers therefore had to work creatively to make the classes engaging and pertinent. This has motivated us to refine the resources further, seeking to increase the salience for pupils, for example by further exploring implications of gambling in non-traditional spaces, such as the social media and gaming worlds, and trying to focus on behaviours that many pupils could see in their everyday lives rather than the most extreme.

Other difficult questions have been raised about the delivery model of this type of material – straying into questions of faithfulness to content and the quality of teaching and delivery – and these will continue to be relevant in less controlled contexts than ours. Where we began in identifying PSHE education as the best home for this type of intervention, our project speaks to wider debates about its non-statutory status in schools, the patchiness of delivery, and the need to provide good quality training to teachers to help them teach about risky behaviours and life skills as part of planned curricula.

Whether or not they have been fully achieved, the objectives in this pilot have been the right ones, and they will become more and more urgent. The risks posed to young people with respect to gambling are unlikely to diminish any time soon, but are instead likely to increase – not least in

the online world, which is far more difficult to regulate. On our high streets, through to sporting occasions and the habits of celebrities – gambling is everywhere for young people to consume. The final materials from this project are now freely available online, and we hope many schools will use and continue to improve on them.

Appendix A
School information

Schools were recruited through the PSHE Association's networks; more than 100 schools expressed an interest in taking part. Shortlists were based on a range of factors, including the delivery model of PSHE, timetabling and the existence of a comparison school that had similar key characteristics to the participant school.

Table 2 **School information**

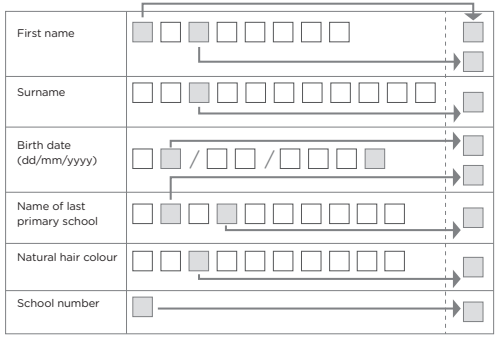
Location	A		B		C		D		National
Project status	Participant school	Comparison school	Participant school	Comparison school	Participant school	Comparison school	Participant school	Comparison school	-
Age range	11–18	11–18	11–16	11–18	11–16	11–16	11–16	11–16	-
School type	Maintained (foundation)	Maintained (foundation)	Academy	Academy	Academy	Academy	Maintained (voluntary aided)	Maintained (foundation)	-
Number of pupils (all ages)	1,538	1,472	977	955	1,241	1,403	490	547	-
Percentage of boys on roll	50.5	50.1	50.6	49.5	55.0	49.5	65.1	54.8	50.3
Percentage of girls on roll	49.5	49.9	49.4	50.5	45.0	50.5	34.9	45.2	49.7
Percentage of pupils with special educational needs with statement or on School Action Plus	1.8	1.4	2.5	0.6	1.1	1.1	3.1	3.5	1.8
Percentage of pupils where English was not the first language	2.3	6.5	1.5	1.6	2.3	4.9	10.2	1.8	15.0

Percentage of pupils eligible for free school meals at any time during the past 6 years	23.4	16.5	20.1	10.1	12.7	6.3	20.0	16.1	29.4
School deprivation indicator	0.166	0.166	0.146	0.146	0.118	0.118	0.114	0.114	-
Percentage achieving 5A*–C GCSEs (or equivalents)	42.0	57.0	63.0	70.0	61.0	87.0	62.0	52.0	53.8
Ofsted rating	2	2	2	2	2	1	2	2	

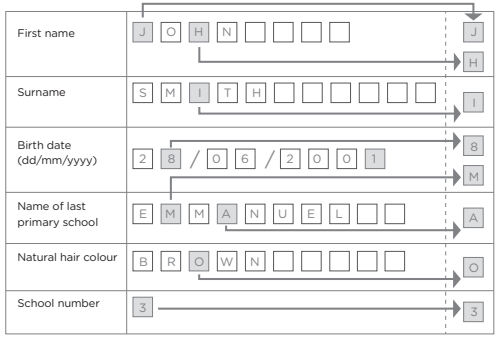
Appendix B
Survey

This sheet will help you to create a code, so that your answers to the survey remain anonymous.

Please fill in the grid below to create your code. Your teacher will give you the number you need to write in the final 'School number' row.



The example to the right shows how to fill in the grid. The code created by this example is listed vertically on the side: JHI8MAO3



Section 1

These questions are about yourself.

1 **What is your gender?**

_____

2 **What is your age?**

_____

3 **What is your ethnicity?**

☐ Asian / Asian British
☐ Black / African / Caribbean / Black British
☐ Mixed / Multiple ethnic groups
☐ White
☐ Other ethnic group

4 **Which of the following people live in the same household with you? Please tick all that apply.**

☐ Father
☐ Stepfather
☐ Mother
☐ Stepmother
☐ Sibling(s)
☐ Grandparent(s)

5 **Are you eligible for Free School Meals?**

☐ Yes
☐ No
☐ Not sure

6 **Do you ever smoke cigarettes or e-cigarettes at all?**

☐ Yes
☐ No

7 **Have you ever had an alcoholic drink? That is a whole drink, not just a sip.**

☐ Yes
☐ No

If you answered *yes:* would you say that you drink regularly (i.e. at least once a week)?

☐ Yes
☐ No

Section 2

These questions are about your experiences of gambling.

8 **Have you spent any of *your* money on any of the following in the past *12 months*? We want to know about games you played yourself. Please tick all that apply.**

☐ Lotto (the main National Lottery draw)
☐ National Lottery Scratchcards which you bought in a shop (not free Scratchcards)
☐ National Lottery instant win games on the internet
☐ Any other National Lottery games (eg EuroMillions, Thunderball, Hotpicks)
☐ Fruit machines (eg at an arcade, pub or club)
☐ Personally visiting a betting shop to play gaming machines
☐ Playing other gambling machines
☐ Personally placing a bet at a betting shop (eg on football or horseracing)
☐ Bingo at a bingo club
☐ Personally visiting a casino to play casino games
☐ Placing a private bet for money (eg with friends)
☐ Playing cards for money with friends
☐ Gambling websites (eg internet poker, internet casinos, internet bingo, internet betting on sport or racing)
☐ Other Lotteries (eg The Health Lottery, People's Postcode Lottery, or other smaller lotteries available in shops)
☐ Any other gambling
☐ No, none of the above

9 **Has someone else asked you to spend money on their behalf on any of the activities listed above? (For example, a friend, a parent, or a grandparent).**

☐ Yes
☐ No

10 **For each statement below, please tell us how much you agree with it. You can choose between 'Agree strongly', 'Agree', 'Neither agree nor disagree', 'Disagree', and 'Disagree strongly'.**

	Agree strongly	Agree	Neither agree nor disagree	Disagree	Disagree strongly
Gambling is an easy way to make money	☐	☐	☐	☐	☐
The more you gamble, the better your chances of winning	☐	☐	☐	☐	☐
Gambling is safer if you practice it first	☐	☐	☐	☐	☐
Most people my age gamble	☐	☐	☐	☐	☐
Gambling is dangerous	☐	☐	☐	☐	☐

11 **Have you ever been taught about gambling in school before?**

☐ Yes

☐ No

Section 3

12 **For each statement below, please tell us how far you agree with it.**

	Agree strongly	Agree	Neither agree nor disagree	Disagree	Disagree strongly
When presented with a risky situation I think carefully before acting	☐	☐	☐	☐	☐
I always keep my feelings under control	☐	☐	☐	☐	☐
When I am really excited, I tend not to think of the consequences of my actions	☐	☐	☐	☐	☐
I have good techniques for managing peer pressure	☐	☐	☐	☐	☐
I can describe what 'delayed gratification' is	☐	☐	☐	☐	☐
I have techniques to manage impulsive behaviour	☐	☐	☐	☐	☐
I can describe ways to help someone if their gambling behaviour worried me	☐	☐	☐	☐	☐
I would know where to go to talk about problems to do with gambling	☐	☐	☐	☐	☐

	Agree strongly	Agree	Neither agree nor disagree	Disagree	Disagree strongly
I understand how the gambling industry calculates odds	☐	☐	☐	☐	☐
I understand the techniques used by the gambling industry to persuade people to gamble	☐	☐	☐	☐	☐

Section 4

These questions are about gambling by other people.

13 **Thinking about your parents (or step-parents or guardians) or grandparents, do or did any of them regularly gamble?**
☐ Yes
☐ No

If you answered *yes*: do you feel that any of your parents (or step-parents or guardians) or grandparents have or had a gambling problem?
☐ Yes
☐ No

14 **What percentage of the *entire population* would you say has gambled in the last 12 months? E.g. playing the National Lottery, fruit machines, betting on the races, playing cards for money with friends, etc.**
☐ Less than 25%
☐ Between 25% and 34%
☐ Between 35% and 44%
☐ Between 45% and 54%
☐ Between 55% and 64%
☐ Between 65% and 74%
☐ More than 75%

Section 5

For each question below, please tick one option.
On each question there is an option to say 'never'.

15 **In the past 12 months, how often have you found yourself thinking about gambling or planning to gamble?**

- ☐ Never
- ☐ Once or twice
- ☐ Sometimes
- ☐ Often

16 **In the past 12 months, how often have you gambled to help you to escape from problems or when you are feeling bad?**

- ☐ I have not gambled in the past 12 months
- ☐ Never
- ☐ Once or twice
- ☐ Sometimes
- ☐ Often

17 **In the past 12 months, have you felt bad or fed up when trying to cut down on gambling?**

- ☐ I have not gambled in the past 12 months
- ☐ Never feel bad about trying to cut down
- ☐ Once or twice
- ☐ Sometimes
- ☐ Often
- ☐ Never try to cut down

18 **During the course of the past 12 months, have you needed to gamble with more and more money to get the amount of excitement you want?**

- ☐ I have not gambled in the past 12 months
- ☐ Never
- ☐ Once or twice
- ☐ Sometimes
- ☐ Often

19 **In the past 12 months, have you spent much more than you planned to on gambling?**

- ☐ I have not gambled in the past 12 months
- ☐ Never
- ☐ Once or twice
- ☐ Sometimes
- ☐ Often

20 **In the past 12 months have you ever taken money without permission to spend on gambling?**

- ☐ I have never taken money without permission to spend on gambling
- ☐ Dinner money or fare money
- ☐ Money from family
- ☐ Money from things you have sold
- ☐ Money from outside the family
- ☐ Somewhere else

21 **In the past 12 months has your gambling ever led to the following?**

	I have not gambled in the past 12 months	My gambling has never led me to do this	Once or twice	Sometimes	Often
Arguments with family/ friends or others	☐	☐	☐	☐	☐
Telling lies to families/ friends or others	☐	☐	☐	☐	☐
Borrowing money from family/friends or others	☐	☐	☐	☐	☐
Missing school	☐	☐	☐	☐	☐

22 **In the past 12 months, after losing money gambling, have you returned another day to try and win back money you lost?**

☐ I have not gambled in the past 12 months
☐ Never
☐ Less than half the time
☐ More than half the time
☐ Every time

Thank you very much for taking the time to complete this survey.

If any of the questions have made you feel uncomfortable, please talk to your teacher or go to www.gambleaware.co.uk

Appendix C
Key characteristics of survey samples at baseline

Table 3 summarises some of the basic characteristics of the pupil samples at the eight schools. Information on gambling participation, perceptions and other questions at baseline can be seen in appendix D.

Appendix C Key characteristics of survey samples at baseline

Table 3

Characteristic		Comparison pupils (%)	Participants (%)
School location	A	26	29
	B	19	27
	C	43	33
	D	12	11
Gender	Male	50	53
	Female	50	47
Age	14	93	91
	15	6	9
Ethnicity	White British	88	91
	Other	12	9
Household composition	Two-parent	85	83
	Single-parent	15	17
Eligible for free school meals	Yes	8	8
	No	77	76
	Not sure	15	16
Cigarettes (or e-cigarettes)	Ever	14	11
Alcohol	Ever	61	61
	Frequent	5	7
Gambling participation of parents or grandparents	Regular	22	27
	Problem	5	2
Gambling education	Taught before	7	14
N		622	642

Appendix D
Pre- and post-survey results in full

This appendix contains the full results from our pre- and post-surveys.

An important element of the analysis is comparing the changes observed among pupils in the participating schools with those changes seen in pupils in the comparison group schools. However, as is evident from the results, young people from the participating and comparison areas differed in their characteristics and behaviours before the intervention. In order to control for these pre-existing differences between the groups, the 'difference-in-difference' (DiD) approach was used. These DiD estimates derived from the model have been tested for statistical significance using procedures outlined below.

The analysis has not been as straightforward as planned. As explained in the main text, we sought to track pupils effectively between pre- and post-surveys, using the code generation sheet in appendix B (so that we could know definitively that these were the same group of pupils). This does not appear to have worked as well as hoped, and while we maintained large sample sizes for the non-matched data, when performing the matching for longitudinal analysis we saw a large reducation in the achieved sample size (see tables 4–13). This could be for a variety of reasons, for example, students not filling out the code correctly at either pre- or post-survey, or there being changes in the student population (pupils present or absent when surveys were administered, or even new arrivals and some students leaving the schools).

Because of this methodological complication, we have conducted two separate analyses on the survey data, comprising a type of cross-sectional[85] analysis using the full pre- and post-survey samples, and analysis on the smaller tracked dataset that we were able to attain. After consulting analysts we decided to present the cross-sectional results as the primary approach. Below we first outline some technical notes, then give the results tables for these different sets of analyses.

Technical notes

Approach to modelling

A key assumption underlying the DiD approach is the assumption of proportionate change over time between the control and treatment areas (participating schools) in relation to natural change in gambling behaviour. The assumption is that change in the control area between the two time points is what would have happened in the treatment area in the absence of the intervention. Subtracting the control area change from the treatment area change gives the estimate of net change: the treatment impact.

The basis of the primary estimation (using cross-sectional data) was taken as an intention to treat (delivering lessons to prevent problems with gambling), included all young people in the treatment areas (participating schools), irrespective of whether they received the treatment or not.[86] For a range of reasons, not all young people in the treatment group received the intervention; some received the treatment and others did not. This approach gives an average treatment effect where treatment is averaged over both participants and non-participants in the treatment schools. This is a conservative approach that offers minimal threats to the DiD assumptions of proportionate change over time between the control and treatment areas. However, it masks the size of the estimate of the impact on those who were treated.

The second set of results, using the matched sample, can be described as approximating a treatment on the

treated design. This has also excluded a subset of young people in the treatment group who self-identified as not having received treatment (based on the post-survey question asking if they had ever been taught about gambling before). Unfortunately, selecting those young people in the treatment group who actually received treatment potentially increases the chance of bias in the size of the impact estimate, so results are indicative rather than definitive estimates.

Significance testing

The DiD statistics were tested for statistical significance through a regression model, which used dummy coded binary variables to identify the pre- and post-treatment time period and an identifier for treatment and control group. The significance test was carried out using the interaction term between these two binary indicators of treatment group status and time period. The models were run using the mixed effects models available from lme4 library in the R statistical package, which allowed for the clustering of pupils within schools and the longitudinal nature of the design in following up some of the pupils over time. In practice, the school level clustering was often found to cause difficulties for many of the models because of the negligible between-schools variance. Consequently, many of the results presented were conducted with only the pupil level longitudinal clustering included in the random component of the model. Statistical significance testing was restricted only to those outcomes that appeared worthy of further investigation after visual inspection of the results.

Statistical significance testing assigns a risk to the probability of falsely concluding that an effect has occurred when in reality it has not. This risk arises from the fact that the sample used in the design represents just one of many samples that potentially could have been drawn from the population and these samples mostly give different results because they are composed of different people. Our concern is whether the differences observed in this study arose by chance from sampling error or reflect true differences caused by the treatment effect. We have chosen to use the arbitrary,

Primary analysis: cross-sectional pre- and post-survey results

Table 4 **Participation in gambling activities pre- and post-survey, primary analysis**

Gambling behaviour	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
Lotto (the main National Lottery draw)	1.50	4.38	2.89	2.41	3.70	1.29	−1.60	NA
National Lottery Scratchcards which you brought in a shop (not free scratchcards)	3.49	5.78	2.29	7.88	6.53	−1.35	−3.64	0.05
National Lottery instant win games on the internet	0.50	1.20	0.70	0.32	1.23	0.91	0.22	NA
Any other National Lottery games (eg EuroMillions, Thunderball, HotPicks)	0.33	1.20	0.86	0.64	2.29	1.65	0.79	NA
Fruit machines (eg at an arcade, pub or club)	13.12	10.96	−2.17	17.04	13.76	−3.29	−1.12	NA
Personally visiting a betting shop to play gaming machines	0.83	1.79	0.96	2.25	2.65	0.39	−0.57	NA
Playing other gambling machines	4.82	5.58	0.76	7.56	6.70	−0.85	−1.61	NA
Personally placing a bet at a betting shop (eg on football or horseracing)	3.99	2.99	−1.00	6.59	4.23	−2.36	−1.36	NA
Bingo at a bingo club	4.49	5.38	0.89	6.43	4.76	−1.67	−2.56	NA
Personally visiting a casino to play casino games	0.83	1.59	0.76	1.29	0.71	−0.58	−1.34	NA

Placing a private bet for money (eg with friends)	16.94	16.93	−0.01	20.58	16.93	−3.65	−3.64	0.30
Playing cards for money with friends	*8.31*	*12.75*	*4.44*	*14.31*	*11.64*	*−2.67*	*−7.11*	*0.01*
Gambling websites (eg internet poker, internet casinos, internet bingo, internet betting on sport or racing)	2.66	3.59	0.93	3.05	3.00	−0.06	−0.98	NA
Other lotteries (e.g the Health Lottery, People's Postcode Lottery, or other smaller lotteries available in shops)	0.17	1.00	0.83	0.64	1.41	0.77	−0.06	NA
Any other gambling	3.49	3.78	0.30	7.56	6.35	−1.21	−1.50	NA
No, none of the above	64.45	65.94	1.48	55.47	61.73	6.26	4.78	0.31
Gambling on 4 or more of the above	*2.99*	*4.58*	*1.59*	*7.56*	*6.35*	*−1.21*	*−2.80*	*0.00*
Has someone else asked you to spend money on their behalf on any of these?	12.85	8.85	−4.01	12.68	9.84	−2.84	1.16	0.81
N	602	502		622	567			

but conventional, 5 per cent significance level as our risk of getting a false positive. In other words, if we repeated the experiment 20 times we would expect a false positive once when analysing the results of the 20 trials. This is signified in tables 4–13 by a P value of less than 0.05.

NA in the tables

NA (not available) indicates that a significance test was not carried out. Multiple tests increase the risk of detecting a false positive across the set of all results, therefore we chose to restrict significance testing to a subset of variables deemed more likely to be significantly different. However, we have not formally adjusted significance levels to account for multiple testing so advise caution when considering results that are only just below the 5 per cent significance level.

Table 5 **Problem gambling incidence pre- and post-survey, primary analysis**

DSM-IV-MR-J Classification	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
Has not gambled in the last 12 months	86.53	85.38	−1.14	80.59	84.68	4.09	5.23	0.05
Social gambler	12.18	11.73	−0.44	17.21	13.13	−4.08	−3.64	0.44
At-risk gambler	0.81	1.35	0.53	1.56	0.67	−0.89	−1.43	NA
Problem gambler	0.49	1.54	1.05	0.63	1.52	0.89	−0.16	NA
N	616	520		639	594			

Table 6 **Gambling perceptions of participants pre- and post-survey, primary analysis**

	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
Gambling is an easy way to make money	8.20	13.77	5.57	11.62	11.37	−0.25	−5.81	0.59
The more you gamble, the better your chances of winning	9.32	8.62	−0.70	9.58	7.54	−2.04	−1.33	NA
Gambling is safer if you practice it first	18.20	17.24	−0.96	17.11	13.93	−3.19	−2.23	NA
Most people my age gamble	1.45	2.89	1.44	2.37	3.36	0.99	−0.45	NA
Gambling is dangerous	65.00	69.10	4.10	60.60	69.51	8.92	4.82	0.19
N	622	523		637	598			

Table 7 **The proportion of the entire population participants thought had gambled in the last 12 months pre- and post-survey, primary analysis**

	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
<25	1.48	3.47	2.00	1.90	2.89	0.99	−1.00	NA
25–34	4.76	7.34	2.57	3.01	4.08	1.08	−1.50	NA
35–44	14.45	15.64	1.19	9.49	10.71	1.22	0.03	NA
45–54	18.72	18.34	−0.38	21.36	19.05	−2.31	−1.93	NA
55–64	24.79	25.48	0.69	25.16	25.34	0.18	−0.51	NA
65–74	24.63	19.50	−5.13	23.89	25.34	1.45	6.58	0.05
75+	11.17	10.23	−0.93	15.19	12.59	−2.60	−1.67	NA
	609	518		632	588			

Table 8 **Learning objectives for participants pre- and post-survey, primary analysis**

	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
When presented with a risky situation I think carefully before acting	76.25	72.55	−3.70	71.54	72.82	1.28	4.98	0.14
I always keep my feelings under control	48.30	40.96	−7.34	43.64	41.85	−1.79	5.54	0.16
When I am really excited, I tend not to think of the consequences of my actions	44.98	42.69	−2.29	45.66	44.35	−1.30	0.99	NA
I have good techniques for managing peer pressure	52.19	54.81	2.62	55.05	55.46	0.41	−2.20	NA
I can describe what delayed gratification is	*8.67*	*12.33*	*3.66*	*9.69*	*25.17*	*15.48*	*11.82*	*0.00*
I have techniques to manage impulsive behaviour	41.24	34.04	−7.20	39.39	39.73	0.34	7.54	0.05

I can describe ways to help someone if their gambling behaviour worried me	*35.01*	*32.05*	*−2.96*	*36.44*	*53.30*	*16.86*	*19.83*	*0.00*
I would know where to go to talk about problems to do with gambling	33.87	33.21	−0.67	36.81	54.62	17.81	18.48	0.00
I understand how the gambling industry calculates odds	28.29	32.12	3.82	32.28	38.22	5.93	2.11	NA
I understand the techniques used by the gambling industry to persuade people to gamble	*48.30*	*53.46*	*5.16*	*53.23*	*68.86*	*15.63*	*10.46*	*0.00*
N	619	521		637	596			

Secondary analysis: tracked pre- and post-survey results

Table 9 **Participation in gambling activities pre- and post-survey, secondary analysis**

Gambling behaviour	Comparison group			Participants			Difference in difference	
	Pre-survey %)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD	P value
Lotto (the main National Lottery draw)	1.16	3.52	2.35	2.22	0.91	−1.31	−3.67	0.06
National Lottery Scratchcards which you brought in a shop (not free Scratchcards)	*1.55*	*3.52*	*1.97*	*8.00*	*6.36*	*−1.64*	*−3.60*	*0.02*
National Lottery instant win games on the internet	0.39	0.78	0.39	0.44	0.45	0.01	−0.38	NA
Any other National Lottery games (eg EuroMillions, Thunderball, Hotpicks)	0.39	0.39	0.00	0.00	0.91	0.91	0.91	NA
Fruit machines (eg at an arcade, pub or club)	*13.18*	*7.03*	*−6.15*	*14.22*	*11.82*	*−2.40*	*3.74*	*0.01*
Personally visiting a betting shop to play gaming machines	0.39	1.17	0.78	1.33	0.91	−0.42	−1.21	NA
Playing other gambling machines	*4.26*	*6.25*	*1.99*	*6.67*	*4.09*	*−2.58*	*−4.56*	*0.02*
Personally placing a bet at a betting shop (eg on football or horseracing)	4.26	1.95	−2.31	7.11	3.64	−3.47	−1.16	NA
Bingo at a bingo club	3.10	3.91	0.81	4.89	2.73	−2.16	−2.97	NA

Personally visiting a casino to play casino games	0.39	1.17	0.78	0.44	0.45	0.01	−0.77	NA
Placing a private bet for money (eg with friends)	14.73	14.45	−0.28	20.89	15.45	−5.43	−5.16	0.26
Playing cards for money with friends	*5.04*	*9.38*	*4.34*	*14.67*	*10.00*	*−4.67*	*−9.00*	*0.00*
Gambling websites (eg internet poker, internet casinos, internet bingo, internet betting on sport or racing)	1.55	3.52	1.97	2.22	3.64	1.41	−0.55	NA
Other lotteries (e.g the Health Lottery, People's Postcode Lottery, or other smaller lotteries available in shops)	0.00	0.78	0.78	0.89	0.91	0.02	−0.76	NA
Any other gambling	3.10	2.34	−0.76	7.11	2.73	−4.38	−3.63	0.06
No, none of the above	68.99	72.66	3.66	53.78	61.36	7.59	3.92	0.58
Gambling on 4 or more of the above	*0.78*	*3.91*	*3.13*	*5.33*	*4.09*	*−1.24*	*−4.37*	*0.00*
Has someone else asked you to spend money on their behalf on any of these?	9.38	6.77	−2.60	10.91	7.08	−3.83	−1.23	0.49
N	258	256		225	220			

Table 10 **Problem gambling incidence pre- and post-survey, secondary analysis**

DSM-IV-MR-J classification	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
Has not gambled in the last 12 months	89.69	88.72	−0.97	80.53	84.00	3.47	4.44	0.11
Social gambler	9.54	8.65	−0.90	17.26	14.22	−3.03	−2.14	NA
At−risk gambler	0.38	1.88	1.50	1.77	0.89	−0.88	−2.38	NA
Problem gambler	0.38	0.75	0.37	0.44	0.89	0.45	0.08	NA
N	262	266		226	225			

Table 11 **Gambling perceptions of participants pre- and post-survey, secondary analysis**

Gambling perceptions	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
Gambling is an easy way to make money	7.52	9.02	1.50	7.52	8.00	0.48	−1.03	NA
The more you gamble, the better your chances of winning	7.52	7.17	−0.35	7.96	7.14	−0.82	−0.47	NA
Gambling is safer if you practice it first	17.36	14.66	−2.70	15.49	13.33	−2.15	0.54	NA
Most people my age gamble	1.14	1.14	0.00	2.21	2.67	0.45	0.45	NA
Gambling is dangerous	67.29	71.21	3.92	62.83	72.44	9.61	5.69	0.29
N	266	266		226	225			

Table 12 **The proportion of the entire population participants thought had gambled in the last 12 months pre- and post-survey, secondary analysis**

	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
<25	1.15	3.01	1.86	1.78	2.23	0.45	−1.41	NA
25–34	4.96	7.14	2.18	1.33	3.13	1.79	−0.39	NA
35–44	14.89	15.79	0.90	10.22	12.95	2.72	1.82	NA
45–54	18.32	19.92	1.60	18.67	19.64	0.98	−0.63	NA
55–64	25.19	23.68	−1.51	24.44	25.45	1.00	2.51	NA
65–74	25.57	18.42	−7.15	27.11	25.45	−1.66	5.49	0.26
75+	9.92	12.03	2.11	16.44	11.16	−5.28	*−7.39*	*0.02*
N	262	266		225	224			

Table 13 **Learning objectives for participants pre- and post-survey, secondary analysis**

Learning objectives	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
When presented with a risky situation I think carefully before acting	83.46	77.44	−6.02	75.11	75.89	0.78	6.80	0.12
I always keep my feelings under control	49.62	41.89	−7.74	45.78	42.67	−3.11	*4.63*	*0.00*
When I am really excited, I tend not to think of the consequences of my actions	40.15	38.87	−1.28	41.26	43.11	1.86	3.14	0.54
I have good techniques for managing peer pressure	52.09	57.14	5.05	54.02	56.70	2.68	−2.37	NA
I can describe what delayed gratification is	8.37	10.53	2.16	7.69	27.80	20.11	*17.95*	*0.00*
I have techniques to manage impulsive behaviour	41.22	33.08	−8.14	41.36	37.05	−4.31	3.83	0.47
I can describe ways to help someone if their gambling behaviour worried me	34.34	32.33	−2.01	33.33	56.50	23.17	*25.18*	*0.00*

Table 13 continued **Learning objectives for participants pre- and post-survey, secondary analysis**

Learning objectives	Comparison group			Participants			Difference in difference	
	Pre-survey (%)	Post-survey (%)	Difference (%)	Pre-survey (%)	Post-survey (%)	Difference (%)	DiD (%)	P value
I would know where to go to talk about problems to do with gambling	34.34	30.45	−3.89	36.77	56.44	19.67	*23.56*	*0.00*
I understand how the gambling industry calculates odds	24.62	28.20	3.57	33.78	32.44	−1.33	−4.91	0.28
I understand the techniques used by the gambling industry to persuade people to gamble	47.92	52.26	4.33	53.78	70.22	16.44	*12.11*	*0.02*
N	266	266		225	225			

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This project is supported by:

GambleAware®

This report marks the culmination of a two-year project to develop, pilot and refine educational resources for British secondary schools as part of wider efforts to prevent gambling-related harms. The project has been a partnership between Demos, the PSHE Association, Mentor UK, the National Problem Gambling Clinic, and a range of independent teachers and advisers.

Four lessons were designed between January and September 2016 to be delivered as part of a planned programme of PSHE education provision for key stage 4 pupils (14-year-olds). The lessons encourage pupils to weigh risk, identify manipulative behaviour, manage impulses, and help others – covering a range of 'risky behaviours', but with gambling as a major case study.

The report outlines our background research on gambling and harm prevention, the processes involved in developing the lessons, and the findings of our evaluation of the pilot. It should be read alongside the refined educational resources, which are now available online.

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