

Targeting risk images to reduce alcohol misuse in young people: Development of an intervention based on the social reaction pathway in the Prototype Willingness Model

Emma L Davies (2013)

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**Targeting risk images to reduce  
alcohol misuse in young people:  
Development of an intervention  
based on the social reaction  
pathway in the Prototype  
Willingness Model**

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requirements of the award of Doctor of Philosophy

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## Abstract

**Background:** Alcohol misuse is associated with a number of health risks and harms that may be particularly detrimental to adolescents. Existing interventions for which there is evidence of effectiveness are time and cost intensive. Brief interventions or classroom delivered programmes are often ineffective, possibly due to their basis in rational models of behaviour. Young people's risk taking behaviour may be better understood from a dual process perspective, which assumes two routes to behaviour; one rational and planned, the other a faster, reactive and spontaneous route. The Prototype Willingness Model (PWM) assumes that for adolescents, reactive behaviour is a result of the contemplation of 'prototypes' or widely held social images about the type of person who engages in a risk behaviour. Evaluation of these prototypes influences 'willingness' or an openness to the opportunity to engage a specific behaviour through a process of social comparison.

**Aim:** The PWM has been applied to numerous risk behaviours and populations but there is less research in relation to its application to teenage drinking in a UK context. Thus, the overall aim of the thesis was to develop an intervention targeting constructs in the social reaction pathway in the PWM in order to explore its application to understanding and preventing alcohol misuse in young people.

**Method:** This project used mixed methods and had a multiphase design with separate stages. A framework to guide development of a theory based intervention was proposed. This seven step framework built on existing guidance from Intervention Mapping and the Medical Research Council. The findings from each step are set out below.

**Findings:** *Step One:* Evidence from a literature review suggested that the social reaction pathway in the PWM may be an appropriate theoretical basis for an intervention to reduce alcohol misuse in young people. Much of the evidence base comes from the USA or from studies that use college students.

*Step Two:* Four focus groups were carried out with 27 11-13 and 16-17 year olds and analysed using deductive thematic analysis. The findings from this

study show that young people in this sample were able to clearly describe the characteristics of social images (i.e. prototypes) in relation to alcohol.

*Step Three:* The results of an online questionnaire completed by 182 young people supported the application of the PWM in an alcohol misuse intervention aimed at UK adolescents. The results indicated the intervention should use behaviour change techniques (BCTs) that target prototype perceptions with a focus on characteristics related to sociability.

*Step Four:* The intervention was developed drawing the findings of steps one to three. Four BCTs reflecting the processes in the PWM were incorporated into an intervention in the format of an online quiz.

*Step Five:* Fifteen expert participants gave feedback on the planned intervention in a Delphi study that took place in two questionnaire rounds. Findings suggested support for the content and mode of delivery and suggestions were made for improvements to the intervention.

*Step Six:* Results of a questionnaire completed by 102 teachers and parents, and 16 think aloud interviews with young people found favourable responses to the format and content of the intervention. Feedback suggested that further development may be needed in terms of challenging coolness and peer pressure and in how plans to avoid drinking might be enacted.

*Step Seven:* The findings were integrated and five intervention development priorities were identified from the studies with experts, teachers, parents and young people. In addition, nine overarching meta-themes were identified across all studies, which are discussed in light of their implications for interventions and future research.

**Conclusion:** Drawing on these findings, a plan for intervention based on the social reaction pathway of the PWM, named the Alcohol Smart Quiz (ASQ) is presented. Strengths and weaknesses of the ASQ and the guiding framework used to develop it are discussed. The project highlighted the benefits of taking a clearly stated mixed methods approach, and shows the importance of early qualitative work in exploring theoretical constructs in intervention design.

## **Publications and conference presentations**

Parts of the work within this thesis have been published or presented at conferences.

### **Publications:**

*Work reported in chapter three*

Davies, E., Martin, J., & Foxcroft, D. (2012). Young people talking about alcohol: Focus groups exploring constructs in the Prototype Willingness Model. *Drugs: education, prevention and policy*. doi: 10.3109/09687637.2012.726662

(see Appendix G)

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# 1

## **Chapter One: Prevalence, prevention and theoretical perspectives on young people and alcohol**

## 1.1 Introduction

The World Health Organisation (WHO) cites alcohol as one of the leading causes of ill health and premature death around the world (WHO, 2002). Alcohol is a key public health concern across the population in the United Kingdom (The Home Office, 2012). In England the total cost of alcohol misuse to the NHS has been estimated to be around £2.7 billion per year (The NHS Information Centre, 2011).

The consumption of alcohol by children and young people aged under the age of 18 has been associated with a number of harmful consequences including problems with decision making, concentration, depression, sleep and mental health issues (Newbury-Birch et al., 2009). Additionally, while drinking alcohol young people often engage in other risky behaviours leading to accidents, fights or an increased likelihood of having unprotected sex (Alcohol Concern, 2011). Some studies also suggest that early onset of drinking is related to alcohol problems and dependency in adulthood (Williams, Holmbeck, & Greenley, 2002). Drinking in unsupervised outdoor locations, which is associated with further harms, peaks around the age of 15 (Department for Children Schools and Families, 2008). In 2007/2008 it was reported that 7600 children under the age of 17 were admitted to hospital in England as a result of drinking alcohol (Donaldson, 2009) and many more admissions may have alcohol as a contributory factor for example road accidents and other injuries (Alcohol Concern, 2011). Deaths from liver cirrhosis among 25-34 year olds are increasing and this rise has been attributed to earlier onset of heavy drinking (Beynon & Hungerford, 2012; Department of Health, 2007).

In the UK the sale of alcohol to those under the age of 18 is prohibited by law and it is an offence for someone under this age to buy or attempt to buy alcohol. It is also against the law for an adult to purchase alcohol with the intention of giving it to someone under the age of 18 for them to consume in a public place. Young people aged 16 and 17 who are accompanied by an adult are permitted to drink wine, beer or spirits with a meal and between the ages of 5 and 17 young people are permitted to drink alcohol purchased by a

parent within the home (Directgov, 2012). These laws exist to protect young people from the potential harms of drinking. There are strict penalties for selling alcohol to young people, and test purchase operations are often conducted to check that retailers are adhering to the law. Despite this, young people under the age of 18 are often easily able to obtain alcohol (Willner, Hart, Binmore, Cavendish, & Dunphy, 2000).

This chapter reviews literature on the prevalence, prevention and theoretical perspectives about drinking in teenagers. Part one summarises evidence on the prevalence of young people's drinking in the UK and considers existing approaches to preventing alcohol misuse. Part two looks at theoretical perspectives that could provide a basis for an effective intervention. It is argued that basing preventive interventions on the assumption that risk behaviour is rational or planned fails to address important factors that influence this behaviour in young people. A dual process approach to risk taking behaviour may offer a more suitable explanatory framework for the understanding of and prevention of alcohol misuse.

## **1.2 Part One: Prevalence and Prevention**

### **1.2.1 Prevalence**

In the UK the available data suggests that there may have been a decline in young people's drinking beginning in the early 2000s (Smith & Foxcroft, 2009a). In England the National Centre for Social Research conducts an annual survey on Smoking, Drinking and Drug (SDD) use among 11-15 year-old secondary school pupils. The most recent surveys have suggested that the proportion of 11-15 year-olds who have drunk alcohol at least once is in decline, from 61% 2003 to 43% in 2012 (Fuller, 2013). In 2012, older pupils were more likely than younger pupils to report having consumed alcohol at least once (12% of 11 year olds and 74% of 15 year olds). Of those who had drunk alcohol, 10% had done so in the last week (12% in 2011) rising from 1% of 11 year olds to 25% of 15 year olds (Fuller, 2013). Girls and boys reported similar levels of drinking in this survey. In Scotland, 44% of 13 year olds and 77% of 15 year olds reported ever having had an alcoholic drink in 2010 and the similar decline has been seen in recent years (NHS Scotland, 2010).

The Health Survey for England collects information on alcohol consumption among 16 and 17 year old adolescents; they are included in the 16-24 age category. The most recent survey found that 54% of 16-24 year olds reported drinking at least once in the last week and 10% reported drinking on five or more days (Health and Social Care Information Centre, 2012). The findings from this survey also point towards a recent decline in rates of drinking in young people (Health and Social Care Information Centre, 2012).

Unfortunately it is not possible to look separately at data from young people aged 16 and 17 who represent a section of this age category under the legal age of purchase (although data is collected from these respondents using a questionnaire rather than an interview to preserve their anonymity). This has been pointed out as a problem in enabling an accurate picture of consumption in this age group (Armitage, 2013). There are no other regular nationally representative surveys that collect data about alcohol consumption among 16 and 17 year olds; however a number of small surveys provide some evidence about drinking in this age group. For example one study of 15 and 16 year olds in the North West of England found that 83.3% of 16 year olds reported drinking alcohol and 58.4% reported drinking heavily (Bellis et al., 2010).

The downward trend towards fewer young people drinking alcohol appears to be good news for the reduction of alcohol related harms but it is important to also look at levels of consumption. Adults are advised that they should not exceed certain daily drinking limits in order to avoid harm (2-3 units for women and 3-4 units for men)(NHS Choices, 2011) and young people aged under 15 are advised to avoid alcohol altogether (Donaldson, 2009). Findings from the SDD surveys suggest that many young people under the age of 15 are drinking with the intention of getting drunk, which could therefore lead to increased risks and harms (Fuller, 2009, 2013).

Drinking large quantities of alcohol with the intention of getting drunk is known as binge drinking. The term 'binge drinking' is widely used (Plant & Plant, 2006) although researchers often use the term 'heavy episodic drinking'. The definition of binge drinking is contested but is often defined as the consumption of eight or more units in one day for men and the consumption of six or more units a in one day for women (NHS Choices, 2011; The Institute of Alcohol Studies, 2010) The World Health Organisation (WHO)

define binge drinking as “ a pattern of heavy drinking that occurs in an extended period set aside for the purpose” (WHO, 2012) and Coleman and Cater (2005a) defined binge drinking as “excessive drinking over the course of a single session resulting in self-reported drunkenness” (p126). The difficulties in defining what is meant by binge drinking and what young people interpret to be binge drinking in terms of their own alcohol consumption has implications for prevention. For example a study of university undergraduates found that only 13% interpreted binge drinking in terms of alcohol units. Most thought it referred to a high level of consumption on a night out or drinking to get drunk (Cooke, French, & Sniehotta, 2010). If young people do not think that their own drinking is harmful then they may be less accepting of prevention messages or intervention programmes.

Binge drinking or drunkenness may be particularly harmful to young people due to their physical size, developmental stage and likelihood of increased harms (Newbury-Birch, et al., 2009). A study that explored the relationship between age at first drink, drunkenness and five problem behaviours suggested that drunkenness was much more predictive of negative outcomes than age at first drink (Kuntsche et al., 2013). This means that while being cautiously optimistic about the fall in the number of 11-15 year olds who drink alcohol, it is important to focus on the amount of alcohol that is being consumed. Data from the SDD surveys shows that for those young people aged 11-15 who do drink, the median alcohol consumption reported in the last week was eight units and 27% reported drinking 15 or more units in the last week (Fuller, 2013). Median alcohol consumption in the last week for 11-13 year olds was 5.3 units in 2012 up from 3.9 units in 2007 (Fuller, 2013) although reported levels have fluctuated over time. Binge drinking or excessive consumption is not measured precisely in the SDD surveys however and so it is necessary to look to other sources. A study of pupils from two schools in the North of England aimed to address this area by asking more specific questions about excessive consumption. Armitage (2013) examined hazardous and binge drinking using the recommended adult levels and also included a clinical measure of drinking problems. Girls were found to be drinking at more hazardous levels than boys and older children were more likely than younger children to be drinking problematically (Armitage, 2013). Analysis of data from the Avon Longitudinal Study of Parents and Children

(ALSPAC) confirms that by age 16, a high number of young people report drinking at harmful levels (Heron et al., 2012). In this study, heavy drinking in early adolescence was strongly associated with hazardous levels of consumption as measured on the Alcohol Use Disorders Identification Test (AUDIT) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) at age 16 (Heron, et al., 2012). These findings show that there are worrying levels of alcohol consumption among young people in the UK.

Alcohol consumption is also a concern for young people across Europe (WHO, 2009). In the most recent wave of The European School Survey Project on Alcohol and Other Drugs (ESPAD) survey 87% of 15 and 16 year olds European pupils reported ever having tried alcohol; in the UK sample this proportion was slightly higher than average at 90%. Comparing the UK to other countries in Europe the data shows that the proportions who had used alcohol in the last 12 months and in the last 30 days were also both higher than the ESPAD average (although these numbers have decreased since 1995) (Hibell, et al., 2012). Unfortunately there were very low rates of participation from UK schools in the ESPAD survey, which limits comparison with other participating countries. However the UK is considered one of the higher alcohol consumption countries in the survey and levels of heavy drinking have not changed since 2003. Additionally more girls than boys are now reporting drunkenness in the last 30 days (Hibell, et al., 2012) in line with the findings discussed above. Another multinational survey, the Health Behaviour in School Aged Children (HBSC) study, reports data from 11, 13 and 15 year old pupils from 43 countries in Europe and North America. Young people in England, Scotland and Wales report higher levels of early drunkenness compared to most of the other participating countries (Currie, 2012). The gender differences reported above are confirmed in this survey where in England, 50% of girls and 44% of boys reported having been drunk at least twice compared to the survey average of 31% of girls and 36 % of boys (WHO, 2009).

At 21 in most states, the legal drinking age is higher in the United States of America (USA) than in the UK. The Substance Abuse and Mental Health Services Administration (SAMHSA) report shows that in 2010, 26.3% of 12-20 year olds had drunk alcohol in the last month and that 17% were binge

drinkers (SAMHSA, 2011). Data on 15-16 year olds from the USA is included in the ESPAD report as a comparison and comes from the Monitoring the Future project (Johnston, O'Malley, Bachman, & Schulenberg, 2012). These findings indicate that 27% of US 15-16 year olds have used alcohol in the past 30 days compared to 65% of UK students. When asked about the past 12 months, US students also report lower alcohol use than UK students at 50% compared to 85% (Hibell et al., 2012; Johnston, et al., 2012).

In summary, the available evidence suggests that the number of teenagers in the UK who drink alcohol might be falling, but that those who do drink are consuming potentially harmful quantities. High rates of drunkenness have been reported and girls seem to be drinking more problematically than boys. Young people in the UK report drinking more frequently and in greater quantities than their counterparts in Europe and the USA. It is important to plan effective prevention programmes in order to reduce the potential harms that are associated with young people's drinking.

### **1.2.2 Prevention**

The prevention of alcohol misuse in young people can be considered from a universal or a more targeted perspective (Gordon, 1983). Universal prevention is aimed at everyone in a particular population group regardless of individual susceptibility to harm (Foxcroft & Tsertsvadze, 2011c). Some prevention programmes are selective and targeted at young people who are at particular risk, for example due to personality characteristics associated with higher levels of substance misuse (Sargent, Tanski, Stoolmiller, & Hanewinkel, 2010). This section considers prevention from a universal perspective starting from a policy perspective and then looking at school and family prevention programmes.

In 2009, Sir Liam Donaldson, the UK Chief Medical Officer (CMO) at the time issued advice that young people under the age of 15 should avoid alcohol completely and that those aged 15-17 should only drink infrequently and in supervised circumstances (Donaldson, 2009). It is not clear if and how this advice has been translated into prevention efforts at present. However in England the coalition government issued an 'Alcohol Strategy' in 2012 designed to address alcohol harms across the population. This includes

proposing the introduction of a minimum unit price for alcohol (The Home Office, 2012) with similar plans in Scotland (The Scottish Government, 2009). One of the key objectives of the English government's strategy is to reduce the number of 11-15 year olds who drink and to reduce the amounts being consumed, seemingly linked to the CMO advice. The strategy proposes to do this in a number of ways starting with a marketing campaign to ensure that young people know the risks associated with alcohol. Secondly, the alcohol strategy proposes to offer guidance to parents on talking to children about alcohol and pledges support for 'troubled' families. It also highlights the role of schools and improving the quality of Personal, Health and Social Education (PSHE) (The Home Office, 2012).

Alcohol and drug education often falls under the category of PSHE in school, although it may also be covered in science or other lessons. PSHE is currently a non-statutory part of the state curriculum in England (Department for Education, 2012). A recent review of the evidence for the National Institute for Clinical Evidence (NICE) suggests that current alcohol education in schools can have an effect on young people's alcohol knowledge but it found a lack of evidence about its impact on actual alcohol use (Jones, Bates, Downing, Sumnall, & Bellis, 2009). The non-statutory status of PSHE means that there is often wide variation in how and what young people learn about alcohol in schools (Macdonald, 2009).

If, as suggested, there is wide variation in alcohol PSHE provision in schools, then it is important to identify the existing approaches that may be the most effective, and for these to be adopted by schools. A Cochrane review of school-based prevention found evidence to show that some generic skills based programmes showed promise in reducing multiple risk behaviours (including alcohol) in young people (Foxcroft & Tsertsvadze, 2011c). The Life Skills programme, the Good Behaviour Game and the Unplugged programme were specifically identified in the review (Foxcroft & Tsertsvadze, 2011c). The Life Skills programme for example teaches young people a wide range of skills to enable them to resist the social pressure to use alcohol and drugs (Botvin, Griffin, Paul, & Macaulay, 2003). Within the programme teachers encourage students to develop cognitive behavioural skills by facilitating role play activities, demonstrations and by setting homework tasks. This programme is



delivered in 24 classes over three years indicating the need for high level commitment by schools to both train their staff and implement the programme faithfully. The Cochrane review concludes that the evidence for this type of programme indicate their potential but that their effects would need to be evaluated across different settings and populations (Foxcroft & Tsertsvadze, 2011c). Much of the evidence base for this kind of programme comes from the United States so they may need to be tested and adapted for use in the UK.

Another Cochrane review looked at the effectiveness of alcohol misuse prevention programmes involving the family (Foxcroft & Tsertsvadze, 2011a). This review found that the effects of family-based programmes are often small but are maintained over the medium to long term. The Strengthening Families Programme (SFP) is an example of family-based prevention where children and their families attend training sessions over a set period. Originally from the USA, it has been adapted for use in the UK (Allen, Coombes, & Foxcroft, 2007) and is comprised of a number of strategies. For example, the programme encourages better communication between young people and parents to improve their relationships. There has also been another Cochrane review of multicomponent programmes, which are those that combine both school and family-based approaches (Foxcroft & Tsertsvadze, 2011b). This review also found evidence of potential effectiveness for this kind of programme, although a variation in effect sizes was noted and the authors concluded that they were no more effective than single component programmes overall.

The evidence from the Cochrane reviews suggests that prevention programmes delivered over extended time periods, involving families and comprising multiple components all have the potential to reduce alcohol related harms in young people. However the problems of implementing such costly and time consuming prevention activities will undoubtedly be a real barrier to their widespread adoption. Moreover, schools in the UK report being under considerable pressures in terms of the statutory curriculum already and feel under too much pressure to take part in additional activities (Alibali & Nathan, 2010). Any prevention programme that aims to be widely taken up and delivered needs to be able to be implemented easily and

effectively. Moreover while family-based programmes can have beneficial effects, it is important to note that not all parents would take up such a programme if it was offered and this may mean that young people who are at greater risk of alcohol related harms are missed (Tigges, 2003).

An alternative approach is to develop a smaller scale programme that can be delivered directly to young people, either in schools in brief lessons or more widely via the television or internet. There are many media campaigns both in the UK and in the US that aim to educate adolescents about the dangers of drinking, smoking or substance use. In the USA, the National Youth Anti-Drug Media Campaign was carried out between 1998 and 2004 with the aim of reducing adolescent marijuana use (Hornik, Jacobsohn, Orwin, Piesse, & Kalton, 2008). The campaign messages delivered via the television and other media were designed to be hard hitting and focussed on the negative consequences of using marijuana. Most evidence suggested that this campaign was ineffective in reducing risk behaviours, and in some cases researchers found that exposure to this type of campaign was associated with increased drug use (Fishbein, Hall-Jamieson, Zimmer, von Haeften, & Nabi, 2002; Hornik, et al., 2008). These 'boomerang effects' are clearly unintended consequences of the campaign: any similar effort to reduce alcohol related harms must ensure from the outset that the opposite outcomes will not occur. Moreover, a recent Cochrane review was unable to conclude that mass media campaigns such as this demonstrated effectiveness in reducing drug use in young people (Ferri, Allara, Bo, Gasparrini, & Faggiano, 2013).

As well as looking at effectiveness of prevention campaigns and education it is also important to determine their cost effectiveness. A large scale review of the effectiveness and cost effectiveness of alcohol education in schools was conducted for the National Institute for Clinical Excellence (NICE) in 2007 (Jones et al., 2007). This review found that most school based preventive interventions did not include enough information for estimates of cost effectiveness to be determined. The findings of this review were similar to the Cochrane reviews described above showing that some family based or life skills approaches to prevention were the most effective programmes. This review also looked at brief intervention programmes delivered in the classroom. They found that there was no evidence that these programmes

had any effect on reducing alcohol consumption by young people in the long term. The evidence for one such programme, the Drug Abuse Resistance Programme, has consistently demonstrated it is ineffective in reducing drug and alcohol use (West & O'Neal, 2004), but it nevertheless remains popular in the United States (Birkeland, Murphy-Graham, & Weiss, 2005). Other similar USA based programmes that were included in the NICE report were abstinence based interventions, which the authors argued are inappropriate for a UK context (Jones, et al., 2007).

In summary, there appears to be a wide range of existing prevention programmes and interventions aimed at reducing risky drinking in young people under the age of 18. This section has shown that there is evidence to suggest that large scale prevention programmes delivered in schools or in conjunction with the family may be effective in reducing alcohol consumption and alcohol related harms. However they are costly, time consuming and they may not reach the people at most risk. In addition most of the programmes for which there is evidence for effectiveness originate from the United States so they may be unsuited to young people in the UK. Moreover, less time consuming interventions that may be easier to implement in schools often have no effect or even unintended consequences. There is also a lack of evidence around the cost effectiveness of most prevention programmes.

There are two main potential explanations as to why these campaigns might be ineffective. One possible explanation is a lack of a theoretical basis. Without a theoretical basis programmes may fail to address the determinants of adolescent alcohol use (Michie & Prestwich, 2010). Another explanation is that the theories they are based upon may fail to account for adolescent risk taking behaviours, such as alcohol consumption (Reyna & Farley, 2006). The second part of this chapter discusses these two explanations in detail by looking at the contribution of theory to preventive interventions and considers how best to understand and prevent risky drinking in young people.

## **1.3 Part Two: Theoretical perspectives**

### **1.3.1 Why is theory important?**

There has been some debate in the literature around the relative importance of theory for developing interventions. Crossley (2001) argues that theories

are unable to account for health related behaviours because of their narrow focus on a small number of cognitive processes. She argues that conceptualising behaviours as either 'healthy' or 'risky' ignores some of the complex psychosocial meanings that people place upon them. For example risk taking behaviours maybe be seen as symbolising rebellion or a transgression of accepted societal values (Crossley, 2001). Traditional theories of health behaviour fail to acknowledge this aspect of drinking behaviour, which may relate to young people's consumption of alcohol. For example some evidence shows that college student drinking is associated with a desire to stand out from the crowd (Ferrer, Dillard, & Klein, 2012).

Oxman, Fretheim and Flottorp (2005) also argue against the need for theories in behaviour change interventions. They propose that instead of theory, researchers should use logic and common sense, using existing evidence to guide the design of interventions. Despite these arguments, the use of theory dominates the intervention literature and evidence from a number of systematic reviews supports this position. Interventions that are theory based are consistently reported as having larger effect sizes than those that are not based on theory (Albarracin et al., 2005; Webb, Joseph, Yardley, & Michie, 2010a).

In addition to greater effect sizes there are a number of other reasons to support the use of theory in the development of interventions to change behaviours such as risky drinking. Using a theory that has been generated from evidence allows the intervention developer to target causal determinants of behaviour; these mechanisms can then be tested in intervention evaluation and developed to fit different contexts and behaviours (Michie, Johnston, Francis, Hardeman, & Eccles, 2008). If on the other hand an intervention is not theory based then it is difficult to know what does and what doesn't work and it is harder to draw inferences about potential causal mechanisms of behaviour (Michie et al., 2008). Additionally, the use of specific techniques based on particular theoretical constructs allows for more faithful replication between researchers and research groups (Abraham & Michie, 2008).

Taking these factors into account then it is clear that a preventive intervention to reduce risky drinking in young people should have a strong basis in theory in order to maximise potential programme benefits and to contribute to the

understanding of the behaviour. A discussion of some leading models of behaviour change that could be applied in the current project now follows.

### **1.3.2 Theories of health behaviour change**

The Transtheoretical Model, The Health Belief Model and the Theory of Planned Behaviour are three popular behaviour change theories in the intervention design literature (Painter, Borba, Hynes, Mays, & Glanz, 2008). The Transtheoretical Model (TTM) (Prochaska & Diclemente, 1983) is a stage based model of behaviour change that has been a basis for many interventions (Bridle et al., 2005). Stage models assume that people progress through a number of different phases as they try to change their behaviour. The TTM proposes five stages from 'pre-contemplation' where there is no intention to change to 'contemplation', 'preparation', 'action' and 'maintenance' of the change. Intervention content depends on the stage of change the individual is assessed as being in. Despite the large body of literature, a systematic review concluded that there was a lack of evidence for the effectiveness of interventions based on the TTM (Bridle, et al., 2005). Conceptualising behaviour change in distinct phases may also be an inappropriate way to address risky drinking in young people, if prevention of problematic drinking rather than intervention is the goal.

Continuum models assume that behaviour occurs as a continuous process rather than in discrete stages. The Health Belief Model (HBM) is an example of a continuum model. This model assumes that behaviour depends on the value that an individual places on a particular goal and their own estimate of how likely they enacting a particular behaviour will help them to achieve that goal (Janz & Becker, 1984). The model proposes that perceptions of susceptibility, severity, benefits and barriers are important predictors of health behaviours. The HBM has also been popular in the intervention literature over the years. Interventions based on this model try to change people's perceptions, for example by focusing on the benefits of giving up smoking and helping them to overcome the barriers to stopping. Again, despite the popularity of this model a recent meta-analysis found evidence to suggest interventions based on the HBM showed inconsistent effects (Carpenter, 2010). The results of the meta-analysis suggested that of all the constructs in the model, perceived susceptibility and perceived severity were the least predictive of subsequent

behaviour. This suggests that highlighting that people might be susceptible to negative consequences, an approach that is often seen in campaigns to reduce risky drinking, may not be effective in encouraging people to drink less, even if people perceive the consequences to be severe. In research with young people the HBM was found to be limited for the explanation of safer sex related behaviours such as condom use in university students. (Lollis, Johnson, & Antoni, 1997).

The Theory of Reasoned Action (TRA)(Fishbein & Ajzen, 1975) and its successor, the Theory of Planned Behaviour (TPB) (Ajzen, 1991) have both been influential in the study of health behaviour (Armitage & Conner, 2001). According to these models, intentions are the most important predictor of behaviour and the stronger the intention to carry out the behaviour, the more likely it is to be performed. The theory assumes that intentions are formed through conscious deliberation of personal outcomes and feelings (attitudes), beliefs about what others think (subjective norms), and in the TPB the consideration of belief in ability to carry out the behaviour (perceived behavioural control, PBC) (Ajzen, 1991). The inclusion of subjective norms in the TPB indicates an acknowledgment of other people's influence on behaviour, which was not clearly included in the TTM and HBM. There is a large body of literature on the TPB and it has been applied to a number of behaviour change interventions (Hardeman et al., 2002).

In general, TRA/TPB based interventions aim to change attitudes and intentions through giving persuasive information about the consequences of a target behaviour (Hardeman, et al., 2002). UK University students' intentions to binge drink have been shown to predict binge drinking behaviour (Cooke, Sniehotta, & Schuz, 2007; Norman & Conner, 2006) suggesting that targeting attitudes, norms and PBC may be effective in changing intentions to drink and reduce risky drinking. French and Cooke (2012) suggest that TPB interventions should also target young people's beliefs about drinking. Their research indicated that changing beliefs about the ease and acceptability of binge drinking might be an appropriate focus for an intervention. One way to try to change young people's beliefs is by challenging social norms about drinking. Social norms based approaches attempt to correct young people's misperception that most other young people drink to excess (Perkins,

Meilman, Leichliter, Cashin, & Presley, 1999). Whilst this type of approach has been popular, especially in the United States, there is mixed evidence of its effectiveness (Moreira, Smith, & Foxcroft, 2009; Thombs et al., 2007).

While TPB and similar approaches are quite widespread, meta-analyses indicate that intentions predict, on average, 28% of the variance in behaviour across a wide range of behavioural domains (Sheeran, 2002). However, this leaves a large proportion of the variance unexplained (Abraham et al., 1999) and there is often a discrepancy between what people intend to do and what they actually do (Sheeran, 2002; Vlaev & Dolan, 2009). This intention-behaviour gap is particularly problematic in predicting and explaining adolescent health risk behaviours (Pomery, Gibbons, Reis-Bergan, & Gerrard, 2009). Intentions are also less able to predict behaviours that are undertaken in social situations and when there are vivid images associated with those who engage in them (Webb & Sheeran, 2006). A review of interventions to prevent HIV through increased condom use concluded that social cognitive theories failed to provide an adequate account of the social or contextual factors that influenced young people's sexual behaviour (Michielsen, Chersich, Temmerman, Dooms, & Van Rossem, 2012). Young people may have limited experience with a particular behaviour and therefore their attitudes and intentions about it are unlikely to be fully formed or easily accessible. Moreover where behaviours involve other people, such as condom use, social cognitive models may not take into account the balance of power in a relationship or the influence of wider societal norms of behaviour (Michielsen, et al., 2012).

A common critique of the theories that have been discussed is that they assume behaviour is always rational and that people consciously deliberate before engaging in health or risk behaviours (Crossley, 2001; Thaler & Sunstein, 2009). To further understand why rationally based theories such as the TPB are unable to fully account for young people's risk taking it is necessary to consider some of the other key influences on this kind of behaviour. Firstly, adolescence is a period of key developmental changes. The frontal cortex develops gradually throughout adolescence meaning that impulse and emotion regulation are not yet fully operational (NIAAA, 2009; Steinberg, 2008). Additionally, some researchers implicate the reward system

in the teenage brain as responsible for strong desires to seek pleasurable and new experiences. From an evolutionary perspective, adolescence would once have been the time to leave the family and seek out a mate, which would require independence and high risk taking (Powell, 2006). These explanations may account for the high levels of impulsivity that characterise adolescence. Impulsivity is associated with sensation seeking, a personality characteristic that has been consistently found to be related to risk taking behaviour (Sargent, et al., 2010; Watten & Watten, 2010). Sensation seeking is a trait characterised by a need for stimulation and a tendency to seek out highly arousing, novel or complex situations (Arnett, 1996). This need for stimulation often leads high sensation seekers to engage in risky behaviours in order to satisfy their desires including an increased participation in substance use (Zuckerman & Kuhlman, 2000). Moreover it has been found that sensation seeking peaks between the ages of 12 and 19 (Arnett, 2007) the time that most people start experimenting with alcohol (Fuller, 2012) suggesting a possible link between brain development and impulsivity.

As risk taking behaviour so often takes place in social situations for young people, strong peer influences may provide a challenge to the developing adolescent brain (Blakemore & Robbins, 2012). Adolescents are thought to be more sensitive to the reward and social facilitation afforded by alcohol consumption but less sensitive to any aversive affects such as impaired walking ability (Spear, 2013). Aversive effects such as feeling intoxicated may limit alcohol consumption in adults. Additionally young people seem to be less sensitive to hangovers than adults (Spear, 2013). Adolescence is also characterised as a time where there is a strong need to fit in with other people and to engage in social comparison (Blanton, Gibbons, Gerrard, Conger, & Smith, 1997) and so peer influence to drink may be difficult to resist (Albert, Chein, & Steinberg, 2013). In a laboratory study Albert et al, (2013) found that young people took significantly more risks in a driving task when they were watched by peers than when they were alone. Moreover young people's drinking motives have been found to be shaped by the motives of their classmates (Kuntsche & Stewart, 2009) and adolescents around the age of 11 are thought to be particularly susceptible to this type of influence (Kelly et al., 2012). In 2010, additional questions about alcohol were included in the SDD survey. The results indicated that the most common reason 11-15s thought



that people their own age drank was to look good in front of peers (Fuller, 2011). Other reasons were to be sociable, because they were pressured into it, or to get a buzz from it. There were differences between those who had tried alcohol and those who had not, with drinkers thinking that people the same age as them were doing it for social reasons and non-drinkers putting it down to peer pressure (Fuller, 2011). A recent Australian study found higher levels of alcohol related harms for those who had first consumed alcohol with their friends than for those who had first consumed it with parents (Kelly, Chan, & O'Flaherty, 2012). These findings highlight that if most alcohol consumption occurs in social situations for young people then it is important to take peer influences into account (Gibbons, Gerrard, & Lane, 2003).

A tendency for impulsivity and the social context of drinking behaviour may then explain why traditional theories and models fail to fully account for adolescent risk taking. Prevention approaches based on assumptions of rationality and reasoned decision making will be unable to account for unplanned or reactive alcohol consumption. An alternative approach is to consider the application of dual process theories of behaviour to prevention and intervention. Dual processing theories may be able to offer an explanation for the 'gap' between intentions and behaviour for young people as they do not assume that all behaviour is rational and planned.

### **1.3.3 Dual processing theories**

Dual processing theories assume that there are two different systems underlying behavioural decision making. The first involves a rational and planned consideration of the costs, benefits and outcomes of undertaking a particular behaviour. This reasoned system requires cognitive effort and attention. The second process is faster and activated by associations in the physical or social environment. This reactive system needs little cognitive effort and attention and may occur outside of conscious awareness (Strack & Deutsch, 2004). Hofmann, Friese and Strack (2009) distinguish between the two processes by describing a battle between self-control and impulses. They define self-control as the ability to override impulsive behaviours and as something that requires attention and effort. Strack and Deutsch (2004) conceptualised their theory of dual processing in the Reflective-Impulsive

Model (RIM). In the reflective system knowledge about the potential consequences of a particular course of behaviour activates intentional behaviour. In the impulsive system, behaviour is activated by perceptual inputs such as cues in the environment (Strack & Deutsch, 2004). Kahneman (2011) made a similar distinction in his recent book about human decision making; 'Thinking, fast and slow'. He called the two processes 'system 1' and 'system 2'. System 1 is the faster, automatic system whereas system 2 requires thought and effort. Kahneman described the effortful system as lazy and suggests that we rely on system 1 as it is easier to do so. If necessary we can switch between the two systems in order to solve a problem or to complete a more challenging task, but it requires more resources leaving us depleted of energy (Kahneman, 2011).

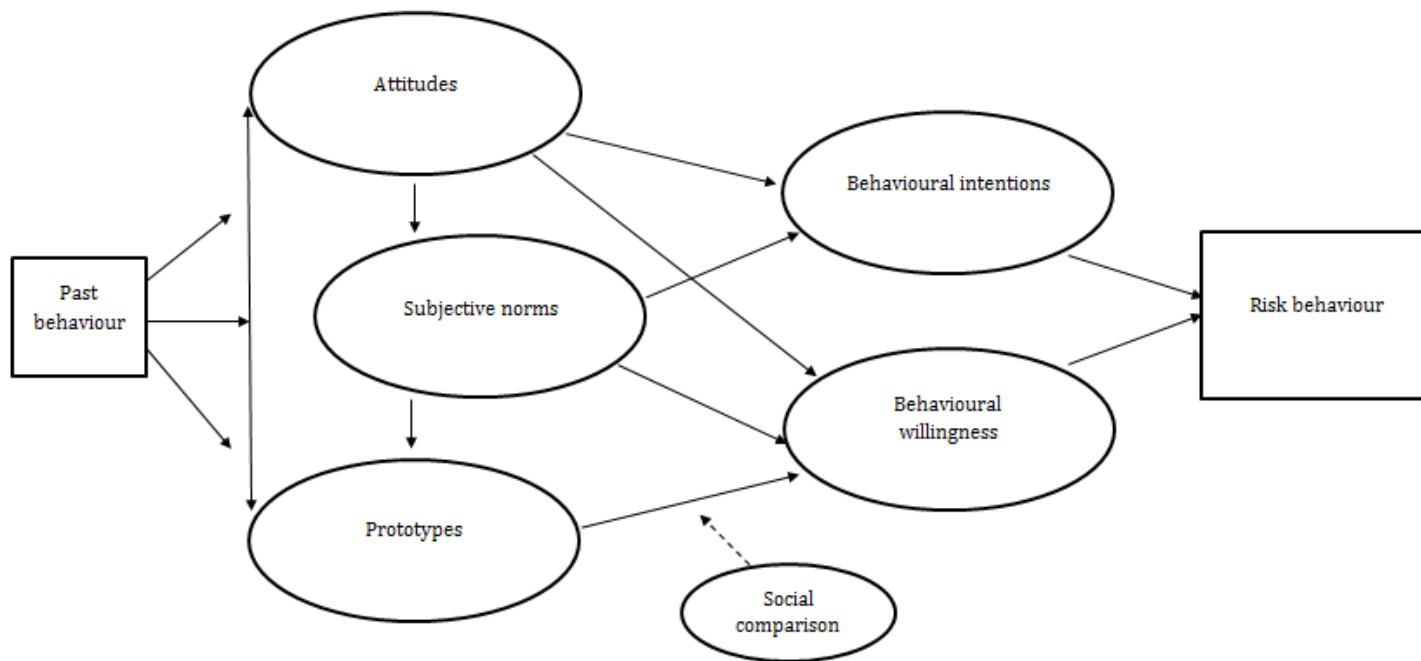
Dual process models of behaviour also acknowledge that these two methods of decision making can occur simultaneously (Gerrard, et al., 2008). Fuzzy-trace theory for example suggests that the automatic system is more sophisticated than the effortful system and requires better developed decision making skills (Reyna & Brainerd, 1995). It is cognitively less effort to use the subconscious system and so this is preferential to analysing situations using the more effortful conscious system. However in an unfamiliar or stressful situation the effortful system may still be activated even in the enactment of a habitual or cued sets of behaviours (Ouellette & Wood, 1998). Thus it is possible to override the automatic system when situations might be dangerous or risky. This sophisticated dual decision making does initiate during childhood but it may not become fully developed until adulthood. Thus, adolescents who are cognitively less advanced than adults, may be susceptible to bypassing important cues and information thus leading to increased risk behaviour because their effortful system may not become activated (Boyer, 2006).

From a dual process perspective then, risky behaviour may occur because of a learned association between social or environmental cues and the behaviour. For example over time one may learn to associate being in the pub with drinking or feeling stressed with drinking alcohol to relieve this feeling. Risky behaviour may also occur reactively as a result of being in a social situation

where there is an opportunity to engage in the behaviour and strong social influences (Gibbons, et al., 2003; Gibbons, Kingsbury, Gerrard, & Wills, 2011).

#### **1.4 The Prototype Willingness Model**

The Prototype Willingness Model (PWM) (Gerrard, et al., 2008; Gibbons & Gerrard, 1995) extends the TPB with the addition of a social reaction pathway to behaviour. It accounts for adolescent health risk-taking on the basis that this type of behaviour is driven by social reactions to risk-conducive situations. In common with other dual process models, there are two routes to behaviour within the PWM; the first a rational, planned route via attitudes, subjective norms and intentions and the second reactive pathway is a faster, more spontaneous route, operating outside of conscious control (Gerrard, et al., 2008). The spontaneous pathway takes into account that for young people risky behaviours tend to occur in a social context and are often unplanned (most adolescents, for example, are unlikely to report that they intend to get drunk, but may well do so if they find themselves in certain situations) (Gerrard, et al., 2008). Within this pathway the images or 'prototypes' that young people have about typical people their age that drink or abstain from drinking are influential for an individual's own 'willingness' to consume alcohol due to the importance of self-image and social comparison in adolescence (see figure 1). When prototypes for drinkers and drinking are more favourable, then young people will be more willing to drink (and therefore gain some of the associated prototype characteristics). As figure 1 illustrates, past behaviour is important in the PWM, and may influence current behaviour through attitudes and intentions or prototypes and willingness.



**Figure 1.1** The Prototype Willingness Model (Gerrard, et al., 2008; Gibbons & Gerrard, 1995)

### 1.4.1 Prototypes

There are two key constructs within the social reaction pathway in the PWM. Prototypes are assumed to be quite distinctive images and they may have both positive and negative characteristics associated with them. For example adolescents often have a clear idea about the typical person their age that drinks and might describe them as self-confident, popular, attractive, or careless for example. This image is assumed to be widely recognised and that most young people will tend to agree on what a particular risk taker is like (Gerrard et al., 2006). According to the PWM, it is these clear and powerful images that motivate the decision to engage in risk behaviour by a process of social comparison. If the image is evaluated in a positive light (prototype evaluation) and is perceived to be more similar to oneself (prototype similarity), the individual is more likely to engage in that risk behaviour (Gibbons & Gerrard, 1995). Conversely, if the image is evaluated in a negative light and is inconsistent with self-image, the individual is more likely to not engage in the risk behaviour (Gerrard, et al., 2006). Engaging in risk behaviour thus has social consequences; by performing the risk behaviour, the individual will become labelled as the 'type of person' who engages in that behaviour and will assume all the characteristics associated with the prototype, whether positive or negative. Gaining aspects of the associated prototype is an important social consequence for adolescents whose self-image is still under construction. The more favourable the prototype, the more likely one will be to want to gain the associated characteristics. Prototypes are not only associated with those who engage in the target behaviour (actors) but also with those who do not (abstainers).

Rivis et al (2006) suggested that both positive and negative prototype images might be used in interventions depending on the type of behaviour to be targeted. Drinker prototypes were evaluated more positively and more similar to the self but 'fatty food eater' prototypes were evaluated more negatively (Rivis, et al., 2006). Other studies have looked at the favourability of actor and abstainer prototypes in relation to alcohol use. Gerrard et al (2002) found that abstainer prototypes were sometimes seen as goal states by non-drinkers whereas actor prototypes were sometimes seen as more negative than the self-image. Rivis and colleagues studied prototypes in UK adolescents whereas Gerrard et al's study was carried out in the United States,

which may account for these differing results. As discussed in part one, young people in the UK appear to drink more than their counterparts in other countries. This highlights the importance of exploring how prototypes are evaluated for a particular behaviour in a given target population from the outset. It would therefore be advisable to examine the prototype characteristics for a specific behaviour during the development of an intervention based on this model.

#### **1.4.2 Willingness**

The second key construct within the social reaction pathway is willingness. The extent to which a person is willing to engage in risky behaviour is assumed to represent the spontaneous and non-intentional nature of decision making in relation to risk-behaviour (Gibbons, Gerrard, Blanton, & Russell, 1998a). According to the PWM, the effect of prototype perceptions on behaviour is mediated by behavioural willingness; the extent to which someone is prepared to engage in a risk behaviour in a given risk-conducive situation. Willingness can also be described as openness to risk opportunity and rests on the assumption that although someone may have no intention or expectation about undertaking certain behaviours they do have an idea about how they might react in certain situations (Gibbons, et al., 2003). Intentions require effortful consideration of how undertaking certain behaviours might impact upon a person's goals and what any other implications might be. In contrast with intentions, willingness is assumed to operate in a subconscious way with little thought about any consequences of engaging in a behaviour (Gibbons, Gerrard, Ouellette, & Burzette, 2000). It is assumed that those who may be willing but not intending to engage in risk behaviours rarely seek out opportune situations and therefore asking about or trying to alter intentions offers no insight or intervention opportunity. However given the right set of social circumstances those who are willing will be likely to engage in risk behaviour.

Gibbons et al (2000) also argue that individuals who are intending to drink might be more accepting of the consequences (such as a hangover) whereas individuals who are willing to drink will not have considered any adverse outcomes. This lack of forethought means that unplanned behaviour is likely to be more harmful to young people as they do not consider themselves to be

personally vulnerable to any risks (Gibbons, Gerrard, Ouellette, & Burzette, 1998b). As individuals gain more experience with a behaviour there may be a shift from willingness based to intention based decision making. For example once a young person has been to a number of parties and consumed alcohol they may associate parties with drinking and plan to do so. Evidence for a developmental shift from reactive to planned behaviour was found in research with adolescents in the United States (Pomery, et al., 2009). For young people with experience of smoking, measures of intentions to smoke were more predictive of smoking behaviour than measures of willingness to smoke. Similarly with age, willingness was less predictive of behaviour than intentions (Pomery, et al., 2009). These findings suggest that the PWM may an appropriate basis for an intervention targeting young adolescents who are less experienced drinkers.

#### **1.4.3 Research evidence in support of the Prototype Willingness Model**

There is a growing body of evidence to support the notion that prototypes and willingness are able to contribute to the understanding and prediction of risky behaviours. The PWM has been applied to the study of a wide range of risk taking behaviours including drinking alcohol, smoking, sexual behaviour and drug use. A number of studies have also examined whether PWM constructs are able to add something over and above the constructs in the TPB.

Gibbons and Gerrard (1995) investigated adolescents' prototypes in relation to drinking, reckless driving, smoking and contraception use. They asked first year college students to complete questionnaires about their behaviour, intentions, prototype perceptions and social comparison at the start of the semester and then again 6-7 months later. Participants who reported an increase in the target behaviour at time two also reported more positive and similar prototype perceptions. Furthermore the predictive power of prototypes was found to be independent of intention showing that for some respondents risk behaviours were dependent on the particular situation regardless of any previous decision they had made about it. (Gibbons & Gerrard, 1995). Another study looked at young people's willingness to smoke cigarettes (Gibbons, et al., 1998b). The findings indicated that willingness could be used to account for this situational aspect of risk behaviour when intentions were not sufficient. They also demonstrated that willingness was a

clearly separate construct from those in the TPB. More recently, Hukkelberg and Dykstra (2009) also looked at smoking in adolescents and they found that willingness was a significant predictor of the behaviour but intention was non-significant. They concluded that intentions may be a reflection of subjective norms rather than a considered deliberation of smoking and that willingness is better able to capture this kind of unplanned decision making (Hukkelberg & Dykstra, 2009). In a UK study of 16 year old pupils, the inclusion of prototype measures also improved the predictive validity of the TPB. The addition of prototype perceptions and descriptive norms added 5% to the variance explained by the model. (Rivis, et al., 2006).

Sexual health risk behaviours such as condom use have been explored using the PWM. Studies have found that the model is able to account for this type of behaviour showing that although young people expect that they will engage in safe sex they are also willing to engage in unprotected sex if the opportunity arises (Thornton, Gibbons, & Gerrard, 2002). Prototypes of condom or contraceptive pill users have also been found to be related to willingness to engage in risky sexual behaviours (Myklestad & Rise, 2007).

A number of studies have applied the PWM to the understanding of performance enhancing drug use in athletes. A US study of male athletes found that favourability and similarity to a male user prototype predicted willingness to use illegal performance enhancing drugs (Dodge, Stock, & Litt, 2013). A UK study explored prototypes of performance enhancing drug users and non-users. An online questionnaire was used to ask athletes to describe positive and negative characteristics of users and non-users, which could then be targeted in a subsequent intervention (Whittaker, Jong, Petroczi, & Backhouse, 2012). This study found a mixture of positive descriptions such as 'high in motivation to succeed' and 'confident' as well as negative descriptions such as 'unreliable'. These findings highlight the need to explore relevant prototype characteristics for unique behaviours and specific populations.

Other evidence has found that prototype similarity and subjective norms might interact to influence risk behaviour highlighting the importance of context. The PWM was applied in a study of binge drinking in UK students where prototype perceptions and intentions were measured over one week (Norman, Armitage, & Quigley, 2007). The results showed that prototype



perceptions were more likely to influence behaviour when participants perceived high levels of normative support for the behaviour. (Norman, et al., 2007). This suggests that it is important to consider the role of social pressure to drink alcohol as this may enhance the salience of prototypes. Together these findings provide support for the utility of prototypes and willingness as constructs and for their ability to explain risk behaviour in social contexts.

The PWM has also been applied to health promoting behaviours as well as health risk behaviours. Research has looked at exercise (Rivis & Sheeran, 2003b), healthy eating (Gerrits, de Ridder, de Wit, & Kuijer, 2009) and organ donation (Hyde & White, 2010). Lane and Gibbons (2007) found that high ratings of similarity to the 'typical student' prototype was a significant predictor of how long students stayed enrolled at school and their academic performance. Another study has investigated prototypes in relation to help-seeking in relation to psychological distress finding implications for the field of counselling (Hammer & Vogel, 2013). These studies highlight the range of evidence from different behavioural domains in support of the PWM.

#### **1.4.4 Interventions based on the PWM**

The PWM has been shown to be able to offer a good explanation for risk behaviours and a number of studies have now also shown that it may offer a suitable basis for an intervention. Work in a number of behavioural domains has been undertaken including substance misuse (Gerrard, et al., 2006), condom use (Blanton et al., 2001), sun tanning (Gibbons, Gerrard, Lane, Mahler, & Kulik, 2005) and physical activity (Ouellette, Hessling, Gibbons, Reis-Bergan, & Gerrard, 2005). Evidence from a range of PWM intervention studies is discussed below.

The Strong African American Families Programme (Gerrard, et al., 2006) is a family centred intervention programme designed to enhance parenting practices and reduce alcohol use in rural African American adolescents. One aspect of the programme involves challenging the prototypes that adolescents have of people their age who drink. In order to assess prototype favourability adolescents are given the descriptors of the typical drinker and asked to rate them. They use the characteristics popular, careless, smart, cool, attractive, immature and dull. Prototypes are challenged through a combination of activities including learning to recognise similarities and differences between

themselves and people their age who drink, having information about the prevalence of drinking in their age group and being shown videos of older adolescent dealing with high risk situations (Brody et al., 2004). Overall the programme has been successful in delaying the onset of alcohol use and those who take part in the programme rated drinker prototypes less favourably and exhibited lower rates of increase in alcohol use over time compared to a control group. The effects of this intervention were still present at five year follow up showing the potential benefits of targeting aspects of the PWM in an intervention programme aimed at young adolescents (Brody, Chen, Kogan, Murry, & Brown, 2010). This intervention programme was identified as being effective in some of the reviews mentioned earlier and involves family sessions delivered over a period of time. However there is also evidence that brief, less intensive PWM interventions may also be effective.

Blanton et al (2001) proposed that people are more motivated to change their behaviour in order to avoid association with risk prototypes than to try and associate with the non-risk prototypes. They constructed a fake newspaper article that reported young people's views about people who did not use condoms. By framing messages about non users of condoms in a negative way and associating these messages with negative prototypes, participants reported more willingness to use condoms. Another intervention attempted to reduce UV exposure from the use of tanning booths (Gibbons, et al., 2005). A camera with a UV filter, which shows the damage that tanning does to the skin, was used in this study to attempt to alter the prototype image of the typical person who uses tanning booths. Participants who saw UV photographs of themselves reported significantly less favourable tanner prototypes than a control group and at follow up reported a decline in tanning booth use (Gibbons, et al., 2005). Using UV photographs was also found to be an effective method of increasing the favourability of images of men who used sun protection and increasing the use of sun protection in male highway workers (Stock et al., 2009).

A further intervention based on the PWM aimed to change people's exercise behaviour (Ouellette, et al., 2005). The intervention involved the completion of one of four questionnaires where participants were instructed to write a description of an image and then encouraged to think about it carefully by the completion of several questions about this image. In this study the

researchers compared prototypes with possible future self-images and associated characteristics. They also compared level of social comparison and to extent to which future consequences were contemplated. The main finding was that participants who had a strong tendency to socially compare with others and who had contemplated prototypes (of exercisers or non-exercisers) significantly increased the amount of exercise they undertook during the course of the study. Those who were low in consideration of future consequences also increased exercise as a result of prototype contemplation. Within participants who contemplated images of possible selves only those who were high in consideration of future consequences significantly increased the amount of exercise undertaken. This study illustrates that encouraging participants to think about prototype images could be a simple and effective means of intervention. They also found that there was no difference between contemplating actor or abstainer images. The authors suggest that this may be because exerciser and non-exerciser images were equally vivid whereas in health risk behaviour the abstainer may be less easy to visualise (Ouellette, et al., 2005).

An internet delivered school based intervention targeting PWM variables has also been shown to be effective in reducing willingness and intentions to smoke cigarettes in US 5<sup>th</sup> grade pupils (age 10-11) (Andrews et al., 2011). 'Click City' has a number of components including activities that highlight a negative image of young people who smoke. It is delivered in eight sessions using a website that provides the activities for pupils. Activities include estimating how other young people perceive smokers, choosing characteristics to describe young people who smoke and viewing images of smokers to see that they are not seen as cool or popular by other young people. Using a website is a good way to ensure programme fidelity and delivering this in a small number of sessions is something that UK schools might find acceptable. However, although this programme was effective in reducing willingness and intentions to smoke compared to a control group, the authors did not measure actual smoking behaviour (Andrews, et al., 2011).

In summary this section has shown that interventions based on the PWM usually attempt to change young people's perceptions of risk prototypes. Young people also often think that others have more favourable risk images than they really do so altering normative prototype perception may also

change behaviour (Gerrard, et al., 2008). Moreover, young people who do not intend to engage in risky drinking may be at more risk than those who do because they may not actively consider the consequences of doing so. By making young people aware that their own behaviour may be unplanned, interventions could attempt to encourage them to plan ahead to either avoid or deal with them (Gibbons, et al., 2003).

The evidence suggests the social reaction pathway in the PWM may be an appropriate theoretical basis for an intervention to reduce alcohol misuse in young people. The success of some of the brief interventions based on this model indicate that it may offer a more practical alternative to costly and time-consuming skills based or family based prevention programmes. However, much of the evidence base comes from the USA or from studies that use college students. If young people in the UK do hold similar prototypes for drinkers then an intervention targeted at altering prototypes could reduce risky drinking.

## **1.5 Conclusion**

Young people who drink alcohol are at risk from a number of harms. While the number of adolescents aged 11-15 who drink appears to be falling in the UK, the evidence suggests that those who do drink may be consuming at hazardous levels. Although a number of prevention programmes targeting risky drinking in young people within this age group do already exist, many come from the United States and therefore may not be appropriate for young people in the UK. Additionally, those that have been identified as effective would require a substantial investment of time and engagement by schools and parents, which may limit their reach. There is a need to develop effective measures to reduce risky drinking in young people that can be easily implemented. In order to be effective, it is important that preventive interventions to reduce alcohol misuse take into account the determinants of young people's drinking. Models such as the TPB that assume that behaviour is rational and under conscious control are often applied in interventions. However, they may be unable to account for the reactive nature of risk taking for young people, particularly during early adolescence before drinking alcohol becomes a normal activity. Dual process models such as the PWM may offer a more appropriate means of explaining and predicting this type of

behaviour. The social reaction pathway in this model proposes that risk images, known as 'prototypes', influence young people's 'willingness' to engage in risk behaviour through a process of social comparison. Evidence suggests that targeting and altering these images may be an appropriate focus for interventions aimed at a range of behaviours. Thus the social reaction pathway in the PWM may also provide a suitable basis for an intervention to reduce alcohol misuse in young people under (potentially specifically those aged 11-15) in the UK.

The overall aim of this project was to develop an intervention to reduce alcohol misuse in young people based on the social reaction pathway in the Prototype Willingness Model. The next chapter of the thesis addresses how to develop an intervention based on this specific pathway.

# 2

## **Chapter Two: Frameworks and methods for intervention development**

## **2.1 Introduction**

In chapter one, the need for an intervention to reduce alcohol misuse in young people was demonstrated in the reported patterns of drinking and related harms. It was argued that an intervention is likely to be more effective if it has a strong theoretical basis. The Prototype Willingness Model (PWM) was identified as an appropriate basis because it offers an explanation for unplanned or reactive alcohol consumption in young people that may not be sufficiently addressed by traditional theoretical explanations. Specifically, the evidence suggested that an intervention based on this model might be an effective in reducing alcohol consumption in teenagers aged 11-15 before drinking becomes a normal and planned activity (Coleman & Cater, 2005b). Dual process theories such as the PWM have been less well researched than other social cognition models described in chapter one. There is need to explore the application of reactive constructs to understanding and preventing alcohol misuse because they may account for important influences on young people's drinking behaviour. Thus the overall aim of the thesis is to develop an intervention targeting constructs in the social reaction pathway in the PWM in order to explore its application to understanding and preventing alcohol misuse in this population.

There are a number of different frameworks and pieces of guidance in existence that could be used to inform this project. These frameworks highlight what needs to be considered in terms of development, evaluation, implementation, and reporting of intervention research. This chapter aims to review current frameworks that guide intervention development and to set out the approach used in the current project. The chapter also specifies the overall research question and the steps by which this question is addressed within the thesis.

### **2.1.1 Theory driven versus problem driven research**

At the outset, there is an important distinction to be made in terms of the overall aim of theory driven and problem driven intervention research. Lippke and Ziegelmann (2008) identified three ways that interventions are developed. They are either a) strictly based on one theory b) use several theoretically based strategies but are not necessarily based on one theory or they are c) not based on theory. They propose that if the intervention

developer wants to contribute to theoretical knowledge then a single theory approach is appropriate, whereas for more effective interventions they suggest the second option (Lippke & Ziegelmann, 2008). Similarly, Brug, Oenema and Ferreira (2005) distinguish between theory driven and problem driven research. Problem driven research aims to address a specific behaviour and will therefore draw on insights from multiple theories in order to develop an effective intervention. Theory driven research on the other hand is focussed on the goal of exploring and improving theoretical explanations of the behaviour. It therefore aims to contribute to the understanding of that behaviour and highlight new ways that it could be tackled in the future (Brug, et al., 2005).

Thus, in the current project, a single theory approach is warranted as the identified theory has been relatively less well researched both in the target population and in a UK context. Moreover there is a need to clearly specify behaviour change techniques (BCTs) that are clearly linked to this theory and that can be applied to young people's alcohol consumption.

It is first important to establish whether the theory can adequately account for the specified behaviour in the target population. As shown in chapter one much of the evidence in support of the PWM comes from the United States or has been undertaken with university aged samples so it will be important to establish the extent of its relevance to UK teenagers at the outset. It is also important to establish what behaviour change techniques (BCTs) should be selected and how they are linked to the social reaction pathway in the PWM. A strong basis in theory however does not necessarily translate into a feasible intervention in terms of acceptability to the target population and implementation practicality (Bowen et al., 2009). Equally it is important to consider how the effectiveness of the intervention will be judged from the outset. Outcome measures should be clearly linked to the theoretical determinants of the behaviour and to the behaviour itself (Campbell et al., 2007). When an intervention is shown to be effective the ultimate goal is that it should be rolled out in the real world. This can be hampered by inadequate reporting practices meaning that in some cases the science is lost, development time has been wasted and the important contributions of participants are undermined. The CONSORT statement (Moher et al., 2010) and the work of a group researchers striving to define and classify BCTs



(Michie et al., 2011a) contribute to more accurate reporting of intervention studies. Thus, the development of an intervention is a complex process requiring a systematic and organised approach from the outset.

This chapter presents the method that was used to develop an intervention based on the social reaction pathway of the PWM, taking into account the important issues outlined in the previous paragraph. In the first part of this chapter a review of the intervention design literature summarises a number of prominent frameworks in order to present a current picture of the field. In the second part of this chapter the framework, design and methods that were used in the development of the current project are specified.

## **2.2 Part One: A review of frameworks for developing interventions**

There are a number of existing frameworks incorporating a range of methods that could be used to guide the development of the current intervention. Each framework conceptualises the processes slightly differently. Some frameworks focus on the whole process from start to finish whereas others provide specific details on one or two parts of the process. This section reviews a range of current frameworks and guidelines in order to provide a broad overview of the state of the science of intervention design. The review is structured using the headings; development, evaluation, reporting and implementation reflecting the important phases in intervention design.

### **2.2.1 Development**

The Medical Research Council (MRC) issued initial guidance for the development and evaluation of complex interventions in 2000 (Campbell et al., 2000). The proposed framework recognised the challenges associated with behaviour change interventions and suggested steps that were based on those used in clinical trial evaluation. This guidance presents the development process as a continuum where the amount of evidence for a programme increases through a series of phases. At the pre-clinical phase the exploration of theory allows the designer to establish a suitable basis for the programme. Phase I involves modelling the processes and outcomes to illustrate how different components might relate to each other. At phase II, an exploratory trial is conducted before a definitive RCT at phase III. The final

phase involves planning the long term implementation of the intervention and how it can be replicated in the real world. This framework has been very influential and has generated much debate; however there has also been some criticism. For example, Hardeman et al (2005) suggested that it was not clear exactly how intervention developers should complete their review of theory at phase one and modelling in phase two. Work at these early stages may be important for ensuring that intervention components are clearly linked to the theory they are based on.

Hardeman et al (2005) propose that causal modelling could be used to extend the MRC framework. They propose that intervention design should begin with a generic model comprising four levels: behavioural determinants, behaviour, physiological and biochemical variables, and health outcomes. The designer should then tailor their model to the specific features of the target population, taking into account the social context and outcomes associated with the behaviour. Causal modelling also provides criteria for adopting a specific theoretical basis. The authors argue that this approach extends the MRC framework by providing more detailed guidance about intervention points, choice of techniques and assessment of intervention fidelity. They also claim that it allows for the statistical modelling of the relationships between those behaviours that are measured and the health outcomes (Hardeman, et al., 2005). This approach was applied in the development of an intervention to increase physical activity in patients at risk of diabetes (Kinmonth et al., 2008) and to an intervention to increase patient's rehabilitation goals (Scobbie, Dixon, & Wyke, 2011). Although these studies used the approach and the papers discuss details of how their programmes were designed, it is not clear from the papers if using causal modelling was advantageous over other approaches.

In 2007, The National Institute for Health and Clinical Excellence (NICE) issued guidance on interventions to change attitudes and behaviour (NICE, 2007). This guidance focuses on three key areas; planning, delivery and evaluation, and it suggests eight principles around these key areas. An important section of the NICE guidance makes recommendations for researchers, specifically around the reporting of intervention trials to enable meaningful contributions to be made to the evidence base. This guidance has been welcomed by behaviour change researchers because it sets a clear

agenda for the funding of research to examine intervention effectiveness (Abraham, Kelly, West, & Michie, 2009). However it also suggests that there is no clear overall 'best' psychological theory upon which to base a behaviour change intervention, possibly pointing towards the need for further theory development, or the need for integration of existing theories (Abraham, et al., 2009).

The MRC published an updated set of guidelines in 2008 (Craig et al., 2008). The revised guidelines acknowledge that the design of complex interventions may not be suited to the clinical trial model that the original framework was based upon and they took new developments in the field into account. There are four elements to the process viewed as an iterative series of phases rather than a linear process. The revised guidelines also recognise the importance of context to the intervention and highlight the need for replicable reporting. The four elements in the revised guidelines are development, feasibility and piloting, evaluation and implementation. The new development phase appears to encompass the previous pre-clinical and the modelling phase and covers the important stage of identifying the evidence base and ensuring the intervention is clearly linked to theory, a step that is sometimes neglected (Michie & Abraham, 2004). The feasibility and piloting stage involves testing the intervention, estimating sample size and the recruitment process before an evaluation. At the evaluation stage it is important to understand the change processes involved and assess the effectiveness and cost effectiveness of the intervention. Cost effectiveness might be measured by determining reduced costs to the National Health Service (NHS) for example. The final stage of implementation highlights the need for long term follow up once an intervention has been implemented. The revised guidelines highlight the contribution that qualitative methods can make to the process.

The MRC guidelines are widely cited but it is difficult however to find studies that specify how they have addressed each stage in the process, although many discuss them in relation to pilot studies and exploratory trials. One exception to this is a report detailing a number of stages in the design of an intervention to prevent falls in older adults (Faes, Reelick, Esselink, & Rikkert, 2010). The authors describe in detail how they have met the aims of each part of the MRC 'development', 'feasibility and piloting' and 'evaluation' phases by undertaking literature reviews, qualitative and quantitative primary research.

However this level of reporting appears to be an exception and the guidelines were not intended to prescribe an exact procedure for designers to follow but to highlight important considerations in the process (Craig et al., 2008). Thus the guidance appears to be open to interpretation and this may leave some parts of the process lacking in rigour.

Another influential framework for intervention development is Intervention Mapping (IM) (Bartholomew, Parcel, & Kok, 1998). This approach was specifically designed with behaviour change programmes in mind and from a psychological perspective in contrast with the clinical trials based MRC framework. IM highlights the importance of theory while acknowledging the contribution that both quantitative and qualitative methods might make to the process. IM, like the revised MRC framework, envisages development as an iterative and cumulative process. It highlights three core processes; literature searching, using theory and collecting new data (Kok, Schaalma, Ruiters, Van Empelen, & Brug, 2004). There are six key stages outlined in the framework. Firstly, a needs assessment including a literature review should be conducted to find out where an intervention is required and what might influence the target behaviour. The second is to identify proximal programme objectives that specify the population and the behaviour that needs to change. The third step is to identify the theoretical methods and practical strategies in order to apply the chosen methods. Step four relates to the design of the programme, where materials are produced and tested. The fifth step involves planning programme implementation, fidelity and acceptability to the target population. Step six is concerned with evaluating the process and the outcomes of the intervention. Advantages of this approach are that it clearly addresses the importance of theory based techniques; it incorporates a programme planning stage, which is not clearly delineated in the MRC framework; and that each stage has a number of clear objectives to meet. IM highlights the importance of working with patients and practitioners to develop interventions that can be implemented by people in the real world, thus increasing the ecological validity of the programme. This is an important consideration to be taken into account in the current project. If the intervention is not perceived as interesting or credible to young people then it may not be taken seriously, undermining its effectiveness.

An example of IM in practice can be seen in the development of a programme that aimed to increase physical activity in people employed in sedentary office based jobs (McEachan, Lawton, Jackson, Conner, & Lunt, 2008). In the initial stages; focus groups were undertaken to identify barriers to physical activity ensuring the intervention was grounded in the experience of those it was intended to benefit. The authors report that they valued using Intervention Mapping as a tool, but that they also found the process to be time consuming and produced a large amount of information at some stages. They also report that they were unable to incorporate all of the objectives suggested by the process, suggesting that despite using a systematic framework, researcher preference or bias could have been responsible for their final choice of strategies. Another example is from a programme designed to help young people aged 16-20 to stop smoking cigarettes (Dalum, Schaalma, & Kok, 2012). The authors of this and the previously described study report their findings for each of the six stages of Intervention Mapping to increase transparency in the development process and potentially enables more accurate replication. However the second paper also reported a failure to complete all the required Intervention Mapping tasks. The authors cite both time and funding restrictions as barriers to completing each stage in full. Overall, it appears that although Intervention Mapping provides a clear series of stages for programme development it may be impractical to use in all situations. When stages are not completed or designers are unable to process all the data produced this may ultimately lead to some non-evidence based decisions being made.

A common central tenet of the frameworks described so far is the importance placed on using theory to design interventions. As described in chapter one, interventions that are based on theory are often more effective than those that are not (Albarracin, et al., 2005; Webb, et al., 2010a). Recognising that there were weaknesses in both the selection and application of theory in many cases, a group of researchers have proposed the need for a method of integrating theories and making them more accessible (Michie et al., 2005). The aim was to bring together common features of existing theories where they were ostensibly measuring the same or similar constructs. This could potentially make health psychology theory accessible to intervention developers from other backgrounds as well as produce a simplified list of

behaviour change processes. A consensus approach incorporating behaviour change theory experts was used to develop 12 domains and then refine this to 14 domains and 84 components (Cane, O'Connor, & Michie, 2012). The resulting Theoretical Domains Framework (TDF) was proposed to be used to aid intervention designers in the choice of intervention targets. The 14 domains are; 1) knowledge, 2) skills, 3) social/professional identity, 4) beliefs about capabilities, 5) optimism, 6) beliefs about consequences, 7) reinforcement, 8) intentions, 9) goals, 10) memory, attention and decision processes, 11) environmental context and resources, 12) social influences, 13) emotion and 14) behavioural regulation (Cane, et al., 2012).

An example of an intervention incorporating this approach was developed in the field of smoking cessation in pregnancy (Beenstock et al., 2012).

Researchers used a questionnaire that aimed to identify the domains that were influential in Midwives' decisions to undertake four behaviours related to smoking cessation in pregnant women. The findings were fed back to health professionals in order for the programme planners to be able to work in conjunction with them to find a way to increase the four behaviours.

Another example used focus groups to explore TDF domains with GPs in Australia (French et al., 2012). Barriers to implementation of best practice were identified, related to the domains and then behaviour change techniques were then mapped to the domains. The TDF is still a very new approach in a rapidly developing field and so further evidence taking into account a variety of behaviours is needed. An important advantage of this approach is the simplification of theoretical constructs, but this may need to be continually updated as new theories and techniques are tested or as existing theories become replaced or enhanced. Work on behaviour change technique (BCT) taxonomies to link techniques with these domains is currently on-going but will potentially be able to remove some of the subjectivity from this part of the process (Michie, et al., 2008).

It is clear from the different approaches described above that intervention developers are faced with a number of different options when embarking on a programme of research. In recognition of this and to try and come up with a unifying and coherent framework Michie, van Stralen and West (2011d) first conducted a review of existing literature. They aimed to determine the extent to which available frameworks met their criteria of being comprehensive,

coherent and linking to an overarching model of behaviour. The resulting framework is the Behaviour Change Wheel (BCW) comprising three layers incorporating sources of behaviour, intervention functions and policy categories (Michie, et al., 2011d). The authors suggest that the BCW could be used to determine the behaviours that need to be changed, how they might be changed using BCTs and then what policies should be used to bring about the change. They highlight the importance of considering behaviour in context, which they argue is an under-researched area. Taking into account the context of behaviour is important when considering that some behaviours, such as drinking alcohol, are driven by habits or cues in the environment and are not always under conscious control (Strack & Deutsch, 2004).

The extent that external cues in the environment might influence people's behaviour has been examined in detail in the influential book 'NUDGE' (Thaler & Sunstein, 2009). The authors argue that intervention designers or 'choice architects' should focus their efforts on making the environment more conducive to healthy outcomes. Environmental cues should then automatically lead people to healthier choices. NUDGE has been influential in the setting up of a Behaviour Insight team by the current UK coalition government and a report has recently made some recommendations to incorporate these ideas in order to change behaviours (Cabinet Office, 2011). MINDSPACE is an acronym for the proposed checklist for intervention designers to consider that purports to account for environmental influences (Institute for Government and Cabinet Office, 2010). MINDSPACE stands for; messenger, incentives, norms, defaults, salience, priming, affect, commitment and ego. These nine influences on behaviour are proposed as key considerations for programme planners and policy makers to take into account. The authors draw on insights from dual process explanations for behaviour that were identified in chapter one as having the potential to contribute to an understanding of risk behaviours over and above rational models. However the evidence for this approach is drawn from economic decision making and as yet has not been applied to risk behaviours such as alcohol misuse. Additionally no published papers incorporating this approach have been identified at the time of writing. It is also important to note that the MINDSPACE report was a discussion document rather than an attempt to clarify the process for developing interventions.

### **2.2.2 Evaluation**

The frameworks discussed have also highlighted the importance of considering intervention evaluation throughout the process of development. The Intervention Mapping approach suggests that evaluation should be planned at the development stage in order that designers are clear about what they are trying to achieve and so that they specify appropriate outcome measures (Kok, et al., 2004). Randomised controlled trials (RCTs) are considered the 'gold standard' in assessing the effectiveness of an intervention and the MRC framework appears to guide developers towards the specification of this type of evaluation. However some researchers have questioned the over-reliance and the suitability of this type of trial for all interventions (Grossman & Mackenzie, 2005) and in particular those aimed at children (Stewart-Brown et al., 2011).

One approach to evaluating the impact of an intervention is to use the RE-AIM framework (Glasgow, Klesges, Dzewaltowski, Estabrooks, & Vogt, 2006; Glasgow, Vogt, & Boles, 1999). Impact in the RE-AIM framework is determined as the public health impact of a programme or intervention (Glasgow, et al., 2006). RE-AIM is an acronym for the following components: 1) Reach, the representativeness of participants, 2) Effectiveness, whether the intervention changes the outcomes it targets, 3) Adoption, representativeness of settings, 4) Implementation, adherence to the intervention as proscribed and 5) Maintenance, whether behaviour change is sustained in the long term (Glasgow et al., 2006). The authors proposed these components to be a useful measure of how an intervention could be evaluated in a real world setting. They point out that programmes that have been shown to be effective in trials are often ineffective when translated into practice. RE-AIM offers a method by which the real world application of an intervention can be measured answering questions about external as well as internal validity.

### **2.2.3 Reporting**

Consistent standards for the reporting of interventions are also essential. If a report of an intervention lacks sufficient detail then accurate replication is not possible and it may not be able to contribute to meta-analyses and other reviews (Abraham & Michie, 2008). It could also be suggested that this raises ethical issues if participants have given their time to a study and it does not



make a contribution to knowledge. Checklists for reporting standards described below could be used at the development stage to ensure that rigorous procedures are being followed and to prevent criticism of the subsequently reported work.

The Consolidated Standards for Reporting Trials (CONSORT) guidelines were designed to improve the reliability and reporting of randomised control trials (RCTs) in clinical research (Moher, et al., 2010). The CONSORT statement comprises a checklist for researchers to use to ensure they report what has been deemed to be essential information in their description of trials. This allows for easier replication, judgement of validity and inclusion in systematic reviews so that the findings of different intervention research can be compared. Davidson et al (2003) argued that the principles of CONSORT must also be adopted by those designing behavioural interventions to ensure comparative rigorous standards are applied. They discuss how existing CONSORT items relate to the specific challenges of behavioural interventions and propose five additional requirements. Firstly they suggest that the training and professional status of treatment providers should be detailed. Next they state that information about the supervision of treatment providers should be included. Thirdly, in order to account for biases, the treatment preferences of participants and providers should be reported. Fourth, the extent to which the treatment was delivered according to the protocol, and whether this was adhered to across settings and between providers is important. This is important for intervention fidelity and is also important at the evaluation stage. Finally, the level of adherence to all the specified parts of an intervention should be recorded (Davidson, et al., 2003).

Another initiative, the Workgroup for Intervention Development and Evaluation Research (WIDER) was also formed with the aim of standardising and improving the reporting of behaviour change interventions (Abraham, 2012b). The WIDER statement has four recommendations that journal editors should require for papers reporting interventions. These recommendations are based on and further develop the information from item four of the CONSORT guidance. Item four of the CONSORT guidance requires that the intervention itself be clearly detailed, to include content, provider, mode of delivery, recipients, control condition, intensity, duration and fidelity. The WIDER recommendations are that the following should also be included in

published papers: detailed description of interventions, clarification of assumed change process and design principles, access to intervention manuals or protocols and detailed description of active control conditions.

Logic models are one technique that intervention designers can use to clarify change processes and outcomes and meet the aims of the WIDER statement. A logic model is intended as a tool to aid in the planning of policies or programmes and to illustrate the pathways between different processes and a desired end goal (Millar, Simeone, & Carnevale, 2001). Logic models have been applied in the past to community initiatives and domestic violence programmes (Hill & Thies, 2010; Kellogg Foundation, 2004). Logic models have also been used in complex interventions such as the Strengthening Families Programme (SFP)(Allen, et al., 2007). The advantages of producing a logic model are that it can help to clarify the assumptions and goals of an intervention, highlight what the specific processes should be and aid in the evaluation of its success (Kellogg Foundation, 2004). A logic model breaks the intervention into 'inputs', 'activities' or 'processes', immediate outputs and outcomes (short term and long term). In this sense it shares some features with IM although with more emphasis on longer term impacts. It appears that logic models may often be required in public health grant applications to clarify the intended processes and outcomes within a planned intervention and they are widely considered a useful tool in the prevention field (Anderson et al., 2006; Centers for Disease, 1999; Cheadle et al., 2003).

Although the RCT is often considered best practice in evaluation terms, the MRC guidance does recognise that this is not always appropriate in interventions to change behaviour (Craig et al., 2008). The Transparent Reporting of Evaluations with Nonrandomized Designs or TREND statement is a further checklist developed to try to increase reporting standards for non-randomised trials (Des Jarlais, Lyles, & Crepaz, 2004). TREND was devised by researchers working in HIV prevention and includes 22 items corresponding to CONSORT but taking into account the challenges faced in this type of trial. The CONSORT statement, the WIDER recommendations or the TREND statement could all be used to guide intervention development as by highlighting what is important to report, they show what should be considered from the start.

Defining the specific BCTs used in interventions and encouraging this approach to be taken up widely is one way that the quality of intervention reporting might be improved. BCTs have been defined as the 'building blocks' or the 'active ingredients' of an intervention in the same way that a particular compound might comprise a pharmaceutical intervention (Michie & Johnston, 2012). In many cases the reporting of an intervention fails to adequately describe the specific techniques that have been employed (Michie & Abraham, 2004). This means it is hard to know exactly what works and what doesn't work for a given behaviour and makes replication challenging.

Abraham and Michie argue that this also limits scientific advances in theory development and evidence based practice (Michie & Abraham, 2004). In order to standardise and improve descriptions of intervention techniques, Abraham and Michie (2008) developed an initial taxonomy consisting of 26 different techniques. It was one of the first attempts to start to identify a common language for the field of behaviour change that allowed researchers to compare interventions. Recognising the need to adapt this approach to apply to specific targets of behaviour change, researchers have subsequently developed more specific taxonomies for healthy eating and physical activity (CALO-RE) (Michie et al., 2011b), smoking cessation (Michie, Hyder, Walia, & West, 2011c) and excessive alcohol use (Michie et al., 2012b). At the time of writing, a taxonomy of techniques for prevention of alcohol misuse in young people has not yet been developed.

A revised taxonomy of general techniques has subsequently been published containing 40 items for use in written health communication messages such as leaflets (Abraham, 2012a). This taxonomy grouped the techniques according to different assumed change mechanisms that underlie them. For example, in order to prompt changes in risk perception an intervention designer could use technique 3: *Emphasise personal susceptibility to negative consequences following from behaviour* or technique 4: *Prompt recipients to assess their own risk* (Abraham, 2012a). Although the 40 BCTs are defined as being linked to underlying change processes they are not linked to specific named theories. An advantage of this approach is that it is possible to extract particular techniques from interventions for meta-analysis and to identify those that are effective or ineffective for a particular behaviour or target group. For example a recent review applied CALO-RE to a review of interventions to manage

childhood obesity (Martin, Chater, & Lorencatto, 2013). The authors were able to reliably code the specific techniques used in 17 separate trials and identified the components of effective interventions that could then be used in future programmes (Martin, et al., 2013).

The drive to develop a common language of BCTs has progressed further very recently and has resulted in 'BCT Taxonomy v1', a list of 93 techniques grouped into 16 clusters (Michie et al., 2013a). A consensus method was used to bring together international experts in the field to rate published techniques from existing classification systems. The project authors propose that this will form the basis of future work and suggest that taxonomies of the mode of delivery, context and competence of the person delivering the intervention may follow. Although BCT Taxonomy v1 does not group BCTs according to theory or change processes, the work should mean that intervention development can be undertaken in a more systematic and transparent way.

Nonetheless there is not as yet a prescribed systematic tool for the development and testing of novel BCTs in order to target the assumed change process in less well established or under-researched theories. In particular this seems to apply to dual process theories such as the PWM because many of the identified BCTs in the taxonomies appear to be target deliberative constructs such as intentions. There is therefore a compelling need to conduct theory driven research that may lead to the specification of new understanding of behaviour and new BCTs.

#### **2.2.4 Implementation**

The subject of implementation has been covered in a number of the frameworks and guidance discussed above. Implementation can be considered to include how well the intervention is received and delivered as planned in the real world. Implementation is considered in the MRC framework where the importance of process evaluation is highlighted. The IM approach considers acceptability and feasibility as important determinants of programme implementation. Conducting feasibility studies, which are often small scale tests of intervention components or materials, is one way that implementation plans can be strengthened. Feasibility studies can look at acceptability, practicality, demand, limited efficacy testing and integration for

example (Bowen, et al., 2009). As such they may employ a variety of methods from qualitative interviews to small scale pilot trials.

### **2.2.5 Summary of part one**

Table 1 summarises the guiding frameworks that have been discussed in this chapter so far and summarises them under the four identified key considerations; development, evaluation, reporting and implementation. Some were designed to address specific weaknesses in one or more of the four key areas such as the reporting of trials in the CONSORT and TREND statements. Others have been designed to try to aid the intervention designer from the outset. A common feature is that each presents a drive towards a systematic and transparent process of intervention development.

**Table 2.1** Comparison of some existing frameworks for the design of interventions

| Framework        | Components                                   | Development   | Evaluation   | Reporting  | Implementation   | Strengths   | Weakness   |
|------------------|--|---|--|--|--|---|--|
| MRC (2000)       | Phased from development to implementation    | Phased approach, continuum of increasing evidence                   | In RCTs (phase 3)  | Not specifically addressed                         | Long term implementation at phase IV                             | Popular, clinical trials approach                       | Based on medical trials, not clear how to undertake early stages |
| MRC (2008)       | Iterative process of development             | Systematic, based on theory & new evidence, modelling & feasibility | Does not have to be in RCT (although this is preferred). | Important at each stage – refers to other guidance | Evaluation and implementation occur together, process evaluation | Takes into account that it may not be a linear sequence | Does not prescribe exact methods, open to interpretation         |
| Causal Modelling | Guide to how to achieve first two MRC phases | Intervention points, measures techniques                            | Suggests how to select measures to use in evaluation     | Not specifically addressed                         | Not included   | Shows how to get from theory to technique               | Only deals with development stage                                |

| Framework                     | Components   | Development  | Evaluation  | Reporting  | Implementation  | Strengths   | Weakness   |
|-------------------------------|--|--|---|--|---|---|--|
| NICE (2007)                   | Eight principles of good practice (correspond to IM) | Planning stage taking into account socio-economic and cultural factors | Stresses need for rigour in monitoring & evaluation | Highlights the need to contribute to the evidence base | Take into account social contexts and barriers                            | Comprehensive and highlights importance of psychological factors        | Not suited to theory exploration. Few examples of use identified |
| Intervention Mapping          | Iterative process from development to evaluation     | Use literature, theory and new data                                    | Evaluation plan should be made                      | Not specifically addressed                             | Importance of planning implementation, links developers and end users     | Includes all key stages of development, many examples in the literature | Papers suggest not enough time to complete all the steps         |
| Theoretical domains framework | Integrated theoretical framework                     | Identify behavioural determinants and BCTs                             | Not included  | If specified BCTs used then reporting standardised     | Link between theory & BCTs, helps to address problems with implementation | Moving away from single theory approach – links theory with BCT         | Little evidence of its use at present                            |

| Framework              | Components  | Development   | Evaluation  | Reporting   | Implementation  | Strengths   | Weakness  |
|------------------------|---|---|---|---|---|---|---|
| Behaviour change wheel | Design framework incorporating behaviour, function & policy | Simplified theory COM-B, intervention functions are defined | Not included  | Not specifically addressed                                  | Considers behaviour in context                                | Attempts to integrate approaches, incorporates policy | Little evidence of use at present   |
| MINDSPACE              | Nine key influences on behaviour                            | Six 'E's to suggest framework for applying nine influences  | Highlights importance of evidence based decision making | Not specifically addressed                                  | Gives example of how it might work in practice but not tested | Appears to take dual process influences into account  | No published examples of use<br>Discussion document rather than framework |
| RE-AIM                 | Focus on public health impact                               | Not included  | Specific model for evaluation                           | Not specifically addressed but highlights important aspects | Reach, adoption as key measures of impact real world          | Widely cited  | Unclear if actually incorporated in planning                              |



| Framework    | Components                         | Development  | Evaluation                                   | Reporting                         | Implementation  | Strengths   | Weakness  |
|--------------|------------------------------------|--|--|-----------------------------------|---|---|---|
| CONSORT      | Checklist to improve trial reports | Not included   | participant allocation & outcomes            | Specific reporting guidance RCTs  | Not specifically included                               | Widely recognised and used  | Limited to RCTs,  |
| WIDER        | Checklist for reporting            | Requires development to be reported in detail        | Change processes should be reported          | Specific guidelines for reporting | Access to intervention manuals should be provided       | Drive to improve reporting standards and best practice            | Not a framework for development as such                   |
| Logic Models | A tool to aid programme planning   | Shows how components are expected to impact outcomes | Can be used to check implemented as expected | Not specifically addressed        | Highlights what might be expected to happen in practice | Shows clear links between assumptions and intervention components | Not widely cited in psychological intervention literature |

| Framework          | Components   | Development                                     | Evaluation                            | Reporting  | Implementation   | Strengths  | Weakness   |
|--------------------|--|---|---------------------------------------|--|--|--|--|
| TREND              | Adaptation of CONSORT statement for non-randomised designs | Not included                                    | Shows how outcomes should be reported | Specific reporting guidance                            | Not specifically included                                | Inclusion of factors important in non-randomised designs | Space issues often a problem in journals leads to poor reporting       |
| Taxonomies of BCTs | Specification of active ingredients                        | Specify determinants of behaviour to apply BCTs | Not specifically included             | Reporting of techniques is standardised and replicable | Not included (how the BCT might apply in the real world) | Drive to build a common language                         | Not determined for all behaviours little evidence of use in literature |

The frameworks described in this section and summarised in Table 1 highlight a number of key pieces of work in the intervention design field but this is by no means exhaustive. What is important to conclude is that not all of the frameworks each conceptualise the four key components of development, evaluation, reporting and implementation. Therefore an intervention developer might use or adapt any one of these frameworks and use two or more in combination to address the four components. The MRC framework and Intervention Mapping approaches both provided good detail about how to address three of the four components but neither prescribed what should be reported in detail from the development process or in a trial. Moreover none of the frameworks described appeared to provide a comprehensive framework for the undertaking a specifically theory driven project compared to a problem driven project in line with the distinction made at the start of the chapter.

While there is a clear argument for applying a number of BCTs in a problem led programme (and a number of frameworks, in particular IM offer a systematic approach to addressing this), there is less formal guidance on how to approach a theory led project. The MRC framework highlights the importance of theory in its development phase and there are a number of ways that theory can be linked to BCTs using the taxonomy projects and insights from causal modelling. However there appears to be a lack of guidance about how to undertake a specifically theory driven project, particularly at the early stages, and how to specify and report on the development of novel BCTs for less well researched theories. Part two of this chapter sets out a specific framework, design and methods by which this theory led project was undertaken. The project draws on and extends the 'development' phase of the MRC framework using insights from IM.

In order to ensure a rigorous and systematic approach for the current project a clear framework for a theory driven project was required. The project attempted to extend the intervention framework set out by the MRC (2008) to specify in more detail how to undertake the early 'development' stage where exploration of theory is a key objective while taking into account aspects of evaluation, implementation and reporting. The design, framework and the methods used in this project are set out below.

## **2.3 Part Two: The current project**

This part of the chapter sets out the framework and methods used in the current project. It begins with the overarching research question to be addressed in the thesis and sets out a systematic framework for answering this question. The framework consists of seven separate steps, each with a number of related aims and objectives and is set out below.

### **2.3.1 Research question**

The overall aim of the thesis is to develop an intervention targeting constructs in the social reaction pathway in the PWM in order to explore its application to understanding and preventing alcohol misuse in young people. Thus the work in the thesis was conducted in order to answer the following overarching research question:

*Does the social reaction pathway in the Prototype Willingness Model offer an appropriate basis for an intervention to reduce alcohol misuse in young people under the age of 18 in the UK?*

### **2.3.2 Design**

This project utilised a multiphase mixed methods design, combining both qualitative and quantitative methods to contribute towards the design of the intervention. A multiphase mixed methods design employs connected qualitative and quantitative studies in iterative steps each building towards a central objective (Creswell & Plano Clark, 2011). Mixed methods approaches are increasingly popular in health psychology as they provide a means of exploring complex real world health behaviour (Doyle, Brady, & Byrne, 2009; Dures, Rumsey, Morris, & Gleeson, 2011). An intervention project is a process of product design and the multiple considerations needed to design an operational product are ideally suited to be undertaken using mixed methods. The rationale for this approach is that qualitative and quantitative data can contribute to a richer understanding of complex social phenomena (Dures, et al., 2011). It is important to acknowledge that quantitative and qualitative methodologies are based upon very different underlying paradigms (Morgan, 2007). Quantitative research is situated within the positivist paradigm and assumes that we can objectively measure things and make predictions about their causes (Creswell & Plano Clark, 2011). Qualitative research on the other

hand is situated within the constructivist paradigm and assumes that there are multiple realities and we should seek to understand and interpret the experiences of individuals (Doyle, et al., 2009). This project is situated within the 'pragmatic paradigm', acknowledging the differences between positivism and constructivism, and allowing the researcher to draw on the assumptions of both positions (Creswell & Plano Clark, 2011; Morgan, 2007). This decision is driven by a practical sense of using the best method to address each research question for each step in the project. Many other intervention design projects have also taken a mixed methods approach and the MRC and IM frameworks highlight the benefits of including qualitative exploration at the outset (Bartholomew, et al., 1998; Craig, et al., 2008). Using a clearly stated mixed methods design has been recognised as a useful way of addressing the complex research questions raised in intervention development (Nastasi et al., 2007; Yardley, Miller, Teasdale, Little, & Primit, 2011). Some of the parts of the project took a sequential approach to data collection with studies building on the findings of previous steps. Others took a concurrent approach where different studies were undertaken simultaneously. Due to different aims of each distinct stage of the project, the individual method and analysis undertaken is described within each chapter where each study is reported separately. The findings are then combined in light of the overall research question. Advantages of this approach are that they allow for separate studies to stand alone, flexibility in addressing different research questions at each stage, and that it can provide a framework for future work (Creswell & Plano Clark, 2011). Towards the end of the thesis (chapter eight) the integration of the quantitative and qualitative studies and their contribution to the final specification of the intervention are discussed. The integration of findings in mixed methods research is a crucial stage and must be approached with a clear strategy (Howe, 2012). As the data for each separate stage of the project was first analysed separately the project employed merged mixed methods analysis, bringing the findings of the studies together at the end of the process (Creswell & Plano Clark, 2011). The results were then drawn together and inferences made from the entire body of data collected during the project. A meta-matrix was employed to display this analysis process as used in previous mixed methods research (O'Cathain, Murphy, & Nicholl, 2010; Wendler, 2001).

### 2.3.3 Framework

A number of considerations influenced the final framework that was used to underpin the work undertaken within this thesis. Firstly, like Intervention Mapping, the project began with the identification of a need for a preventive intervention to reduce alcohol misuse in young people. The proposed theoretical basis was then chosen due to an acknowledgment that a dual process approach might better be able to explain adolescent health risk behaviour than the more widely used rational models. Although it comes from the discipline of psychology where the theory has its basis, the Intervention Mapping framework is not suited to a single theory approach as previously discussed (Bartholomew, et al., 1998).

The PWM extends the more widely researched Theory of Planned Behaviour (TPB) upon which a number of interventions have been based (Hardeman, et al., 2002). As identified in chapter one, spontaneous aspects of young people's risk taking behaviour are under researched and so the current project focused on the reactive pathway in the model, specifically on prototypes and willingness as shown in figure 1.1. Because there was a lack of clear guidance about how to undertake this type of project, it was necessary to specify a series of steps that would allow the research question to be addressed in a transparent and systematic manner.

The guiding framework that underpinned the current project is shown in Table 2.2. The framework for this theory driven intervention development project was conceptualised in seven distinct steps. The project itself was split into two main data collection phases reflecting the course that the PhD project took pre and post defining the BCTs and drafting the intervention materials. The first phase comprised steps one to four; reflecting the work undertaken to explore the theory and design the initial draft of the intervention. The second phase comprised steps five to seven when the proposed intervention was refined using the findings of the studies with experts, stakeholders and young people themselves (referred to as 'the feedback studies' within this thesis). Table 2.2 illustrates how each of the seven steps considers the key aspects identified; developing, evaluating, implementing and reporting. Although this project is situated at the 'development' phase it aimed to take into consideration how it would eventually be evaluated and implemented at each

step. Additionally, the heading 'reporting' in the table suggests how the outcomes of each step in the planned development framework should be reported. Figure 2.1 displays each of the seven steps and the sequence of data collection undertaken. The seven steps and their aims are then described.

**Table 2.2** *Multiphase mixed methods design framework for the development of an intervention based on the Prototype Willingness Model*

| Step   | Method  | Development   | Evaluation  | Implementation   | Reporting   |
|--|---|---|---|--|---|
| One: Review of theory and evidence                     | Literature review   | Build strong evidence base for theory                     | Identify existing outcome measures                              | Review applications of the theory                          | Report conclusions of literature review                   |
| Two: Qualitative exploration of theory                 | Focus groups  | Explore key theoretical constructs with target population | Use participants' words to construct outcome measures           | Confirm relevance of theory to target group                | Report findings of qualitative studies according to COREQ |
| Three: Test theoretical assumptions & target behaviour | Questionnaires  | Assess relationship between theory and target behaviour   | Explore outcome measure relationships to theory & behaviour     | Confirm relevance to target group in a larger sample       | Report findings of questionnaires using STROBE            |
| Four: Define BCTs and mode of delivery                 | Use existing literature and integrate findings from two & three | Determine procedure for selecting and applying BCTs       | Ensure BCTs fit theory and how effectiveness will be determined | Ensure BCTs can be applied to appropriate mode of delivery | Logic model to show link between theory, BCTs & outcomes  |



| Step  | Method                                  | Development  | Evaluation   | Implementation                                   | Reporting   |
|---|---|--|--|--|---|
| Five: Review planned intervention with relevant experts | Delphi consensus method                 | Seek expert feedback on the process to expand insights     | Check process with expert group to ensure rigour           | Expert input on application in practice          | Report findings of Delphi as in existing literature   |
| Six: Identify key stakeholder and end user feedback     | Questionnaires & think aloud interviews | Acceptability and practicality of planned programme        | Is intervention practical to deliver as planned?           | Is intervention content acceptable and credible? | Report qualitative and quantitative findings as above |
| Seven: Integrate findings & specify intervention        | Meta matrix of findings                 | Show how findings relate to and inform final specification | Report how trial will be evaluated and theory contribution | Use insights to plan implementation              | Report decisions made at integration phase in full    |

### ***Step one***

The aim of the first step in this framework was to review the existing research evidence for the identified theory in order to build an argument for applying it to young people and alcohol misuse. The literature review reported in chapter one concluded that the project should focus on spontaneous or reactive influences on behaviour as proposed in the social reaction pathway in the PWM. It is important to understand more about this part of the PWM given its potential utility in explaining unplanned risky behaviour in early adolescence. Moreover the application of these concepts is less well researched in young people under the age of 18. This stage is essential in order to demonstrate a strong rationale for the selection of theoretical constructs at the development stage. The literature review also allowed for the identification of outcome measures and applications of PWM research, which is important in order to consider both evaluation and implementation at the outset.

### ***Step two***

The aim of step two in the framework was to explore the key theoretical constructs from the PWM with young people in the target population. The focus group study conducted to meet the aims of step two is reported in chapter three of this thesis. The main objective of this study was to explore PWM constructs with a group of young people in the UK to establish they were relevant to this target population. The main assumption in the social reaction pathway of the model is that young people have clear prototypes of the typical person of the same age who drinks (or who does not drink) alcohol and that these are widely held. Thus, focus groups are an appropriate method for this type of study. It was also important to use culturally specific prototype descriptions and so focus groups would allow the identification of appropriate language used to describe any prototypes that the participants held.

### ***Step three***

The aim of step three in the framework was to explore the relationship between the theoretical constructs and alcohol consumption in the target population. This study drew on a larger sample and a quantitative method to build on the findings of part two. It aimed to determine the relationship between prototypes and measures of alcohol consumption that could be used

in an intervention. At this stage it was also possible to explore potential moderators and other intervention outcome measures. Chapter four reports the findings of an online survey conducted to meet the aims of step three.

#### ***Step four***

Step four used the findings of steps one to three to define BCTs and a mode of delivery for the intervention. This process was conceptualised and presented using six guiding questions. It involved using a generic BCT taxonomy to identify the components of published PWM interventions and to define appropriate additional BCTs to be applied. This process involved building a logic model for the intervention to clearly specify the inputs (BCTs), processes and outcomes. Part one in chapter five of the thesis reports this process.

#### ***Step five***

In order to obtain feedback on the development process and the subsequent planned intervention a Delphi study was conducted. The second part of chapter five reports the process of the Delphi study and the suggestions of expert participants. This part of the framework was designed to formalise a process of obtaining feedback on the early part of the development of a novel intervention.

#### ***Step six***

The sixth step in the framework aimed to incorporate input from key stakeholders and intervention recipients into the process. Parents and teachers were identified as two key stakeholder groups for an intervention aimed at reducing alcohol misuse in young people. Their views were sought via an online survey reported in chapter six. Young people's views on the planned intervention were sought via a think aloud study reported in chapter seven.

#### ***Step seven***

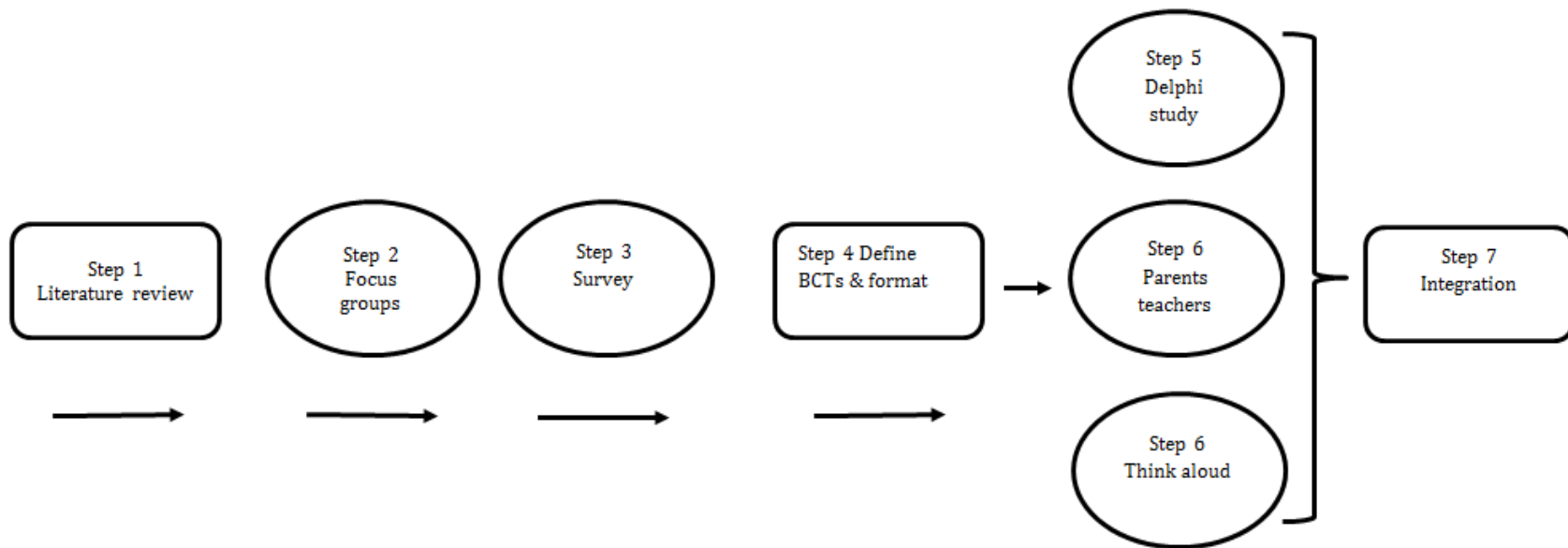
The final step in the framework was to integrate the findings of the other stages and to specify the content and format of the intervention. This aim was achieved through summarising the findings of the Delphi study, parent and teacher survey, and think aloud study (referred to in the thesis as the feedback studies), and identifying how the intervention should incorporate these

findings in light of the literature. A meta-matrix was then used to look across the whole data set to identify implications of the findings related to applying the social reaction pathway in the PWM to young people's alcohol consumption. Step seven is reported in chapter eight of this thesis. The final chapter of the thesis (chapter nine) discusses implications of the findings and evaluates this seven step framework. It also presents limitations of the thesis and considers areas for future research.

Figure 2.1 illustrates the sequence of work that was undertaken to meet each step in the framework for this thesis. Most steps were taken sequentially with each building the evidence towards the final specification of the intervention. Steps five and six were undertaken concurrently with the findings of the three studies undertaken within these steps integrated in step seven. Each of the studies used different methods with specific aims and objectives that are reported separately within each chapter. Table 2.3 illustrates how these stages relate to two of the most influential frameworks discussed in the review section. Steps one and two relate to the first parts of the MRC guidance and IM approaches. Steps three to five map onto the identifying and developing theory part of the MRC framework and the identification of outcomes and change objectives part of IM. Steps six and seven relate to modelling the process of the intervention within the MRC framework and theory based methods in IM. The planned steps in the current project attempted to provide detailed guidance on how to achieve the objectives of the stages of the MRC framework and IM for a specifically theory driven project.

**Table 2.3** *Overview of the current project showing how it relates to the MRC and Intervention Mapping stages*

| <b>MRC guidelines:<br/>'Development 'phase</b> | <b>Intervention Mapping:<br/>First three steps</b>   | <b>Current project:<br/>Project steps</b>   |
|--|--|---|
| Identifying evidence                           | Needs assessment                                     | 1. Literature review<br>2. Exploration of theory  |
| Identifying &<br>developing theory             | Identification of<br>outcomes & change<br>objectives | 3: Testing theoretical<br>assumptions<br>4: Define BCTs and<br>mode of delivery<br>5: Review with experts |
| Modelling process &<br>outcomes                | Theory based methods<br>& practical strategies       | 6: Stakeholder and user<br>group feedback<br>7: Integration and<br>specification                          |



**Figure 2.1** Diagram of the seven step framework for developing a theory driven intervention used in this thesis

### **2.3.4 Participants and ethics**

The overall aim of this project was to develop an intervention to reduce alcohol misuse in teenagers. Although the potential target group for the intervention was teenagers aged 11-15, participants in the project included young people aged 11-17, parents (or carers), teachers, and experts in intervention development. Due to different procedures and sample characteristics the recruitment process and composition of each study sample is described separately in the following chapters.

There are a number of ethical issues concerning the participation of adolescents in research (Mahon, Glendinning, Clarke, & Craig, 1996; Punch, 2002). Young people under the age of 16 cannot consent to or refuse medical treatment but there is no set guidance in the UK around the legal age for participation in research. Although many authors demonstrate the competency of adolescent participants and their ability to participate of their own accord (Skelton, 2008) it is common to find that ethics review boards take a cautious approach and requiring parental consent as well as consent from the young person themselves. Furthermore, the purchase of alcohol is prohibited for this age group, meaning that undertaking research of this nature may raise issues of legality requiring a particularly sensitive approach. The British Psychological Society (BPS) code of conduct and the University ethics procedures were consulted in the preparation of the research study protocols for this project. During the process of obtaining ethical approval for the studies involving young people a number of considerations were taken into account in order to safeguard participants. Participants were made aware that if anything came to light that indicated that they were at risk of harm or abuse that the researcher would have to inform a named person at their school. The researcher sought a contact person at the school who would be able to provide support in this instance and was made aware of school procedures and guidelines. The researcher also obtained full CRB clearance prior to the studies taking place and presented this to the schools.

Letters to parents about the studies asked them to read through the information sheet with their child to ensure they understood the study and what taking part would involve. The letters to parents included information about where to seek advice about alcohol and young people. Young people in

the qualitative studies were not asked about their own alcohol consumption. However at the end of the sessions they were given advice about where to seek further sources of information and advice if they needed it.

Ethical approval was sought for each separate stage of the project from Oxford Brookes University Research Ethics Committee (UREC). Each study received full ethical approval from the committee (UREC approval numbers 110531 (Focus groups), 110572 (Online questionnaire), 120618 (Delphi study), 120617 (Survey of teachers and parents) and 120619 (Think aloud study). Copies of the approval letters for each of the studies reported in the thesis can be found in Appendix A. For the research studies involving adolescents, full written parental consent was required for those under the age of 16.

## **2.4 Conclusion**

This chapter discussed the methods to be used in the current project to achieve the overall aim of developing an intervention to reduce alcohol misuse in young people based on the Prototype Willingness Model. A review of a number of existing frameworks demonstrated that there has been a drive to improve the process of intervention development in recent years. In some of the frameworks described the means by which the early stages of intervention development should be undertaken are left unclear, and there are a number of examples of how this stage has been interpreted in the literature. Moreover there is less guidance on what might be the optimal strategy to use when undertaking a theory driven project or how to design and specify any novel BCTs.

A specific set of seven steps in a multi-phase mixed methods design was proposed as a framework for the current project. These steps aimed to address the 'development' phase of the MRC guidance for a single theory approach paying attention to four key components; development, evaluation, application and reporting. The steps were 1) reviewing the evidence for the identified theory, 2) qualitative exploration of the theory with the target population, 3) testing theoretical assumptions and target behaviour, 4) defining behaviour change techniques and mode of delivery, 5) reviewing the process and the planned intervention with experts, 6) obtaining feedback from key stakeholders and end users of the intervention and 7) integrating the



findings of the preceding steps and specifying a fully designed intervention. The following five chapters of the thesis now report the studies outlined in this chapter, before they are integrated as outlined in step seven.

# 3

**Chapter Three: Focus groups with young people  
talking about constructs in the Prototype  
Willingness Model**

## **3.1 Introduction**

The Prototype Willingness Model (PWM) was identified as a potential basis for an intervention aimed teenagers because it recognises the importance of the social context and the often opportunistic nature of risk taking behaviour in this population. As discussed in chapter one a number of interventions based on this model have shown promise in promoting condom use (Blanton, et al., 2001), reducing tanning behaviour (Gibbons, et al., 2005) increasing physical activity (Ouellette, et al., 2005) and reducing substance use (Brody, et al., 2004). The majority of the evidence for this model comes from outside of the UK and much of it draws on samples of University students so it is important to assess whether the theoretical constructs can be applied in the target population of young people under the age of 18 in the UK. In chapter two a guiding framework for the development of this intervention was set out. Within this framework it is proposed that it is important to explore the relevance of the theory with the target population. The guiding framework proposed drew on the influential MRC and IM approaches, which both emphasise the value of initial qualitative work (Craig, et al., 2008; Kok, et al., 2004). Qualitative methods are ideal for this type of exploratory work because they allow the researcher to gain an in depth understanding of a topic from the perspective of the participants (Bryman, 2004).

This chapter addresses step two in the framework for intervention development in a qualitative exploration of theory. It reports the findings from a focus group study that aimed to explore constructs in the PWM to establish if it provides a basis for understanding and preventing alcohol misuse in teenagers in the UK.

### **3.1.1 Exploring prototypes with young people**

Prototypes are defined as widely recognised social images (Gibbons & Gerrard, 1995) therefore exploring how groups discuss these images and whether there are disagreements is important. Focus groups are an appropriate method to investigate participants' perceptions and attitudes on a given topic using group processes (Kitzinger, 1995). When participants discuss a topic in a group they are prompted by other members and therefore may respond differently than they might on a one to one basis (van Teijlingen

& Pitchforth, 2006), potentially revealing how they might act in social situations.

Focus groups have been used in previous studies to explore young people's views about drugs and alcohol. For example, drinking motives in young people aged 13-25 were explored using focus groups and interviews in a study aiming to contribute to intervention design (de Visser, Wheeler, Abraham, & Smith, 2013). In this study the data was analysed using Interpretative Phenomenological Analysis, which focuses on participants' experiences and beliefs. In this sense, it took an inductive approach, guided by the words of the participants rather than driven by theory (Braun & Clarke, 2006). Group interviews in this study were able to highlight areas of disagreement among participants and this allowed the researchers to understand how complex situations are negotiated by young people. Another focus group study with young people, this time employing thematic analysis, explored the views of young people about celebrity drug and alcohol use (Shaw, Whitehead, & Giles, 2010). This study was conducted in response to concerns that the UK media had glamorised or misreported risky behaviour by those who might be seen as potential role models or idols by young people. As little was known about the impact of celebrities on young people's own views about substance use an exploratory focus group study was an ideal method by which to uncover the way this activity was viewed and discussed. Rather than being influenced by the media the researchers revealed that young people had a sophisticated interpretation of news stories and viewed famous people's substance use in a critical way (Shaw, et al., 2010).

Researchers have also conducted focus groups with young drinkers at the time they were drinking, either on the street or in parks in Scotland (Galloway, Forsyth, & Shewan, 2007). In this study the analysis was explicitly stated as of a theory driven deductive nature. Theory driven analysis allows the researcher to take a top down approach specifically aimed at addressing research questions from a specific theoretical perspective (Braun & Clarke, 2006). This study was novel in its approach to recruitment and data collection that took place on the street at the time of drinking. The results were able to draw attention to this complex social behaviour while making the implications for prevention messages clear (Galloway, et al., 2007). Demant and Jarvinen

(2011) also conducted focus groups with young people with their analysis guided by their own research questions and theoretical perspective. Young people aged 18-19 discussed aspects of drinking alcohol and the researchers were interested in how social capital was gained or displayed through this behaviour. The authors are careful to point out that conversations within focus groups are negotiated and that some participants may be more dominant than others but that these individuals are likely to be more outgoing in natural social situations as well (Demant & Jarvinen, 2011). Thus the method offers a suitable means of finding out about social behaviours such as alcohol consumption.

In summary, focus groups have been shown to be an appropriate method of exploring the relevance of theoretical constructs with young people in the current study. They have been used in previous studies looking at young people's views about substance use and the analysis can take either an inductive or deductive approach according to the aims of the study.

### ***Aims***

The main objective of this study was to explore PWM constructs with a group of young people in the UK to establish if it was relevant to this target population. The main assumption in the social reaction pathway of the model is that young people have clear prototypes of the typical person of the same age as themselves who drinks (or who does not drink) alcohol. Therefore the study also aimed to uncover the nature of any alcohol prototypes held by the young people that potentially could be targeted in an intervention. The findings of this study have been reported in a published paper that is presented in Appendix G (Davies, Martin, & Foxcroft, 2012).

## **3.2 Method**

### **3.2.1 Focus Groups**

Due to the exploratory nature of this study, and based on the number of groups used in other similar research (Coleman & Cater, 2005a; Foster, Read, Karunanithi, & Woodward, 2010; Nicholls, 2009), four focus groups were conducted. It can be beneficial for focus groups to comprise individuals with shared characteristics in order to capitalise on their common experiences on a

given topic and because this means they have the potential to reflect real life interactions (Kitzinger, 1995; Powell & Single, 1996; van Teijlingen & Pitchforth, 2006).

### **3.2.2 Participants**

In this study the four groups involved 27 participants from one Oxfordshire secondary school. Participants were recruited through the school and asked if they (and a parent or carer if they were under 16) would consent to taking part. The school was state funded, in an urban location and had a slightly higher proportion of pupils eligible for free school meals (16.1%) compared with the national average for secondary schools (15.4%) (Department for Education, 2010). This information is a commonly used measure of deprivation of a given area, based on parents' income (Gorard, 2011). In two of the groups, individuals were aged 16 and 17; evidence suggests at this age that teenagers may be drinking regularly (Newburn & Shiner, 2001). In the other two groups individuals were aged 11-13; the age that many young people start experimenting with alcohol (Fuller, 2011; Newburn & Shiner, 2001). Group One (G1) contained four boys and four girls aged 16-17 who agreed most of the time with members participating equally. In Group Two (G2), consisting of six girls and two boys aged 16-17, two girls spoke infrequently compared to the others and one of the boys held very negative views about young people's drinking, although this received little support from the rest of the group. There were seven boys aged 11-13 in Group Three (G3) and all contributed equally although there were two slightly more dominant members. One had a negative attitude towards drinking compared with the others, which he maintained despite being challenged. There were four girls aged 11-13 in Group Four (G4), two were more dominant and all held strong negative views about drinking alcohol.

### **3.2.3 Procedure**

The focus group schedule consisted of three main questions and a number of prompts (see box 3.1). First, as an "ice breaker" participants were asked their views about the Chief Medical Officer's advice to avoid alcohol completely before age 15 (Donaldson, 2009). The next question probed the images that the participants held of people their own age that drank alcohol, and then

about the images they had of young people who did not drink alcohol. This question was posed in a similar style to previous research (Gibbons, Gerrard, & McCoy, 1995), specifically ;

*I am really interested to know about your ideas about typical members of different groups. When we think about the typical person who does something we often get an image in our heads about that person. For example if you were to ask me what the typical grandmother is like I might say that she is sweet. If you asked me about the typical movie star I might say they are pretty or rich. Can you tell me what words you might use to describe the image of the typical person of your age who drinks alcohol / does not drink alcohol? (Gibbons et al, 1995, p87)*

Finally, participants were asked to discuss situations or places in which people of their own age might experience being offered or drinking alcohol. Prompts were used by the researcher to explore responses and to ensure the participants remained focused on the topic. At the end of the focus group, participants were advised they could seek further sources of information from [www.talktofrank.co.uk](http://www.talktofrank.co.uk), an independent UK government funded website providing advice and information about drugs and alcohol. The study received full ethical approval from Oxford Brookes University (study reference number 110531) and the approval letter is presented in Appendix A.

Focus group sessions took place at school in a quiet room during school time with the researcher and a note-taker present. The main researcher, a female PhD student, had undertaken training on focus groups and was experienced in working with young people. No relationship was established prior to the study. The participants were made aware that the researcher was a student interested in alcohol use in young people and were assured of the confidentiality of the sessions. The note-taker, a colleague of the researcher, sat to one side away from the discussion and did not participate but was introduced as a helper who was making notes about the topics discussed.

**Box 3.1:** *Focus group schedule of questions and prompts*

1. One piece of government advice is that young people should completely avoid drinking alcohol until the age of 15. Can you tell me what you think about this advice?  
*- What other advice you have heard? Who is the best person / where is best place to get advice about alcohol from?*
2. (Introduction to question as per Gibbons et al, 1995); can you tell me what words you might use to describe a person of your age who drinks/ does not drink?  
*- What might they be like? How would you describe them?*
3. Can you imagine a situation or a place where you might be offered an alcoholic drink?  
*- What might you be tempted to do in that situation? What else might you do in that situation? Can you think of any other places people your age might drink?*
4. Does anyone have anything else that they would like to add to the discussion?

### **3.2.4 Analysis**

Focus groups lasted between 40-60 minutes and were audio recorded and then transcribed by the main researcher within a week of taking place. The data was analysed using thematic analysis guided by the phases described by Braun and Clarke (2006); 1) familiarization, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes and 6) producing the report. In line with a realist approach, the meaning of what respondents said was taken at face value (Millward, 2006).

The analysis took a deductive theory driven approach as it was guided initially by the aim of looking for evidence of specific constructs as set out in the PWM. Initial ideas relating to PWM constructs and other common topics were noted during the transcription and familiarization phase. An initial set of 18 codes was generated that reflected the content of discussions and initial relations to the PWM. Once the data had been coded, overarching themes were generated by combining some of the codes into groups related to the PWM. At this stage some codes not relevant to the model or with little supporting evidence were



discarded. Others codes were refined using further evidence from the data set to develop and test relations until a thematic ‘map’ was developed showing the three main themes and their relationship to sub themes (see table 1). The three main themes were named ‘prototypes’, ‘drinking contexts’ and ‘attitudes and norms’ and they are discussed in this chapter. An inductive analysis of the data resulted in the identification of two additional themes. These themes are relevant to an understanding of young people’s experiences of learning about alcohol and drinking alcohol. They were named ‘alcohol awareness’ and ‘alcohol acquisition’ and are discussed elsewhere. The themes and their interpretation were reviewed and revised through a number of discussions and written reports between the researcher and supervisors until a final set of themes was agreed upon.

### 3.3 Results

Table 1 shows the main themes and subthemes identified and defined from the analysis of the transcripts. The themes are reported below and a selection of quotes from participants that justify each theme and sub-theme are provided. Participant names have been replaced with pseudonyms to maintain their anonymity. The group number is shown to indicate which of the four groups the participant was in and to show where interactions between participants begin and end in the quotations.

**Table 3.1** *Themes and subthemes identified during analysis of focus group transcripts*

| Theme                         | Sub themes  |
|-------------------------------|---|
| <i>1. Prototypes</i>          | a) Drinker prototypes, b) non-drinker prototypes, c) ‘other’ prototypes |
| <i>2. Drinking context</i>    | a) Planned drinking b)unplanned or pressured drinking                   |
| <i>3. Attitudes and norms</i> | a) Attitudes about drinking alcohol b) drinking norms                   |

### 3.3.1 Theme 1: Prototypes

It was evident from the focus group discussions that the young people in the sample were able to describe key features of drinker and non-drinker prototypes. They also reported other kinds of drinking related prototypes that were different from the typical drinker or non-drinker. Many of the descriptions of prototypes varied between the older and younger participants and so are contrasted in the discussion below.

#### *Drinker prototypes*

In both age groups the participants were easily able to describe characteristics of drinkers of the same age. Drinkers were often described as 'cool' and sociable people who liked to have fun. Younger participants' descriptions were more negative than the older participants and they discussed reasons for drinking such as the pressure felt by those who drank to conform to a particular image, or to seem more grown up.

*G3: They want to like show off (Owen)*

*They want to make themselves look hard, like oh yeah I drink (Steve)*

*It's probably because of peer pressure, more than anything else (George)*

*G4: Drinking is associated with being an adult, like you know, smoking, doing all those things which like adults do, if you are younger and you do the things adults do then it makes you seem older and I think that's what they want (Poppy)*

Older participants' descriptions focused on the social and positive aspects of drinking.

*G2: I see them as quite sociable....someone who just parties a lot but they are really sociable when hanging out with crowds they really mix with other people (Aisha)*

*Yeah, and probably like not focussed on like education stuff (Alex)*

*G1: I think it's also like a sociable thing like if you go out with a group of people and you get drunk – it's not like a bonding kind of thing but you do... it's just what people do (Josie)*

There was also evidence from the discussions that the older participants had that drinkers were seen as 'normal' and so although they could describe specific characteristics associated with drinkers they also felt that they might be describing 'everyone'.

### ***Non-drinker prototypes***

There were fewer characteristics generated to describe non-drinkers than for drinkers. Younger participants reflected upon older teenagers they knew who did not drink in response to this question.

*G3: I reckon they're sensible (Jack)*

*Respectful (George)*

*They are just happy with who they are (Steve)*

*G4: They seem more calm, they seem nicer (Beth)*

Older participants' descriptions of non-drinkers were typically negative and they reported knowing few people who did not drink.

*G1: It's a bit strange to be honest – people who don't drink (Ollie)*

*I don't think I know anyone who drank and then like stopped drinking  
(Adam)*

*G2: I think most people would say that they're boring and that they  
probably don't know how to have fun (Lucy)*

However, it was also acknowledged that some people did not drink for health reasons and that there were some members of the peer group who looked after the others when they went out, and these people were viewed positively.

### ***Other prototypes***

In response to the prototype questions participants in the older age groups frequently discussed how they liked to have stories to take away from their nights out, particularly if someone in the group had been ill or suffered a minor misfortune:

*G1: Everyone can say that it's a good night if one person has a really bad  
night as long as it's funny for everyone else (Adam)*

*Yeah, if you have something memorable to take back from the night it's not just like a waste of time we didn't just like go and get really drunk and do nothing (Kieran)*

Story telling was usually accompanied by laughter and a sense of shared experiences was demonstrated through their interactions. The frequency of these stories shows that talking about drunkenness in a humorous way had been normalised in these adolescents. The protagonists in these stories were presented as different from the 'typical' drinker but still described positively, as 'very drunk' or 'mashed'.

Although most of the stories told were accompanied by laughter, there were two experiences recounted involving drink spiking, and one involving a house party where some property damage had occurred. The protagonists in these stories were viewed negatively as stupid or careless.

A list of 18 commonly used characteristics used to describe all drinking prototypes was extracted from the transcripts for use in the next stage of this project. Some of the characteristics were used to describe both drinkers and non-drinkers. The characteristics used were cool, sociable, fun, boring, careless, responsible, aggressive, healthy, pressured, rebellious, confident, respectful, tough, anti-social, stupid, grown-up, sensible and calm.

### **3.3.2 Theme 2: Drinking context**

It was identified that there were specific contexts in which alcohol drinking occurred. Some reports of drinking were clearly planned (and therefore intentional), and some were unplanned, which may indicate evidence of reactive drinking.

#### ***Planned drinking***

In the younger groups, three participants reported that they had heard about other people their own age who had planned to drink alcohol, for example by taking drinks from home and concealing them to drink in secret, and some suggested how people their age might plan to drink.

*G4: It might just be... inviting some friends round and lock your door (Beth)*

Nearly all participants in the older groups discussed making plans to go somewhere to drink; this was usually a club, pub, or a party. These participants intended to drink and usually to get drunk when they went out. The planned nature of these situations was reflected by preparatory behaviours such as arranging the purchase of alcohol, obtaining some age identification in case they were challenged, and discussion of how a typical night might progress.

*G1: Couple of bottles of wine first [at home] (Jessica)*

*And then we'll go out and have like a vodka and coke, no maybe all go to the pub first and have another glass of wine and then we'll go to somewhere else like a bar (Katie)*

The cost of alcohol and the amount of money to be spent on the night out was also indicative of the planned and intentional nature of drinking in the older groups. Participants discussed preferences for types of alcoholic drinks based on strength vs. cost and would plan to make the most of their budget to maximise the amount of alcohol they could consume.

### ***Unplanned or pressured drinking***

The influence of peer pressure was frequently cited in all groups as a reason for drinking and for displaying positive attitudes towards drinking in a social group. Older participants talked about how wanting to “fit in” with certain groups when they were younger had influenced their behaviour.

*G2: Because that's the time when all the groups are forming...so then you want to fit in... so then you feel the pressure to do what everyone else is doing so you're like them (Aisha)*

The planned nature of going to the pub or purchasing drinks for the older participants contrasted with the of younger participants who discussed opportunistic drinking, which could happen at parties, sleepovers and family events.

*G3: We went to this party and they left all these bottles of wine on the table (Owen)*

In these types of places the younger participants recognised that there may be situational or peer pressures, which meant they might drink when they did not plan to or want to.

*G3: I think people get influenced to drink like if they go to a party...cos you don't want to look bad in front of your friends (Harry)*  
*Like saying oh you're a chicken if you don't and like making you feel really bad (George)*

The influence of peer pressure and thinking about how they might act in a situation where other people were drinking was clearly worrying for some participants.

*G4: I'd feel really bad cos I'd feel so pressured that if I didn't drink they wouldn't want to hang out with me anymore (Poppy)*

One of the older participants summed up how she felt ill prepared to deal with peer pressure when she was younger:

*G2: We never really talk about peer pressure that's like on the spot, cos that's more on the spot peer pressure isn't it, like to drink or not, but we generally talk about stuff in school where you can come back to the situation and decide (Aisha)*

This final quote indicates this participant acknowledging the situational influence on her decision making may mean that traditional alcohol education would be ineffective. This is a strong piece of evidence to suggest that rational models are not a suitable basis for interventions that aim to change behaviour that occurs in social contexts.

### **3.3.3 Theme 3: Attitudes and norms**

Focus group participants displayed a mixture of favourable and unfavourable, sometimes contradictory attitudes towards alcohol. From the data attitudes about drinking, drinking norms and views on alcohol advice and education were identified.

### ***Attitudes about drinking alcohol***

Younger participants were more negative than the older participants about drinking alcohol. The younger girls displayed the least favourable attitudes towards alcohol and young drinkers:

*G4: I don't think anyone should get drunk before the age of 20, um I mean I don't think that anyone should get drunk at all, cos it's stupid, it's like a point of disadvantage and it's when most accidents happen (Poppy)*

The younger boys talked about alcohol as a part of everyday life for adults and older teenagers, some had themselves had experiences of experimenting with alcohol, which they thought of as positive and a normal part of growing up. Older participants acknowledged that there may be negative consequences of drinking, but that in their experience, 'everyone' started drinking when they became a teenager. When they reflected upon their own reasons for drinking some said they drank because of stress from exams or school work whereas others suggested they drank purely to get drunk and have fun.

*G1: When I'm older, I'll probably still drink, but not to get drunk, just to enjoy it, whereas at the moment I'm probably just drinking to get drunk (Ollie)*

*Yeah I don't really like alcohol I just like getting drunk (Kirsty)*

The older participants viewed themselves as experienced drinkers and had a negative view of younger teenagers' drinking.

*G1: I reckon our age have got it right, I'm possibly worried about younger ages.....like my little sister (Kieran)*

*G2: I think people who are younger...like they're not as experienced and when you go to our year people yeah they know their limits (Dylan)  
I don't mean to sound like we're amazing but some of them want to be like sixth formers kind of and they like try and act really big and macho so some of them might like do exactly what we do (Aisha)*

These quotes illustrate how the older participants' attitudes towards drinking seemed to have changed as they got older and their own experiences meant that they felt able to comment about younger people's drinking.

### ***Drinking norms***

There was agreement in all groups that drinking alcohol was a normative behaviour for young people. In both age groups some participants discussed parents' drinking. Many younger participants reported seeing a parent or a family member intoxicated on a regular basis, but only a few mentioned whether these family members might approve or disapprove of the participant themselves drinking. One common attitude in all groups was to suggest that young people drank alcohol because it was something forbidden and they were not meant to be doing it.

*G1: t's just British culture that you start drinking (Kieran)*

*Half the excitement is you kind of know you're not supposed to as well so like at least when you're like a certain age..... You smoke cos you know you shouldn't and also you drink because you know you could get told off (Josie)*

Some younger participants had been given a sip of alcohol at family events and a few discussed how this was the expectation and perhaps related to a European approach to introducing alcohol. Although the younger participants were more negative about alcohol overall they seemed to assume that as they got older, drinking would become more of a normal routine behaviour.

*(G3) Isn't it like the younger you are like the less chance there is that you're gonna have alcohol? Or something like because you're like more sensible about that sort of thing when you are younger (George)*

*Isn't it alcohol poisoning? (Jack)*

*than when you are older, because like little kids think that it is something really really bad and then when you get to teenagers you're like oh it's not that bad (George)*

*It's not really though (Owen)*

*When your mum and dad come in drunk yeah you think like yeah i don't want to be like that but when you are older (Henry)*



*I think it's funny when my mum's drunk – like huh you can't catch me*

*(Liam)*

*You're gonna feel like left out (Owen)*

This exchange from the younger boys illustrates their familiarity with their parents' drinking and possibly hints at the inevitability of their own future drinking.

### **3.4 Discussion**

This study was conducted as a qualitative exploration of theory as per step two of the framework for intervention development set out in chapter two of this thesis. It aimed to explore constructs in the Prototype Willingness Model with teenagers in the UK to establish if it would provide a suitable basis for a preventive intervention in this population. The findings of the study provide strong support for the existence of distinct alcohol prototypes, which are the main assumed influence on risk behaviour within the PWM. Moreover the results provide evidence of a clear difference between planned and unplanned drinking supporting the assumption of two potential pathways to risk behaviours in the model.

Some of the prototype descriptions generated by the focus group participants, such as cool and confident were similar to those found in other PWM studies (Gerrard, et al., 2002; Zimmermann & Sieverding, 2011b). In addition there were a number of characteristics that were not found in other studies such as calm, respectful and pressured. This demonstrates the importance of exploring how prototypes are described by different population groups in order to use appropriate and relevant language.

Some of the discussions also suggested that the distinction between drinker and non-drinker may perhaps be too simplistic. For example, drinkers were seen as 'cool' and sociable by both age groups, but could also be viewed as people who succumbed to peer-pressure or were trying to appear older than they were. Most of the older participants were drinkers themselves or saw drinking as something most people their age did and so simply targeting 'drinker' prototypes in a preventive intervention aimed at 16 and 17 year old

adolescents may not be effective. A number of different types of drinker prototypes (negative excessive drinkers, moderate responsible drinkers for example) have been explored in relation to young adults in the Netherlands (Van Lettow, Vermunt, de Vries, Burdorf, & van Empele, 2012a). It would be useful to explore how these different prototypes are viewed by teenagers in the UK.

In the current study, non-drinkers were viewed negatively by older participants. On the other hand, most in the younger age group did not drink and so they found it harder to think of as many specific distinguishing characteristics. This suggests that a different approach will be needed for adolescents of different ages. For example there was evidence of positive 'drunk' prototypes, the kind of person who had a funny story to tell; and a negative 'drunk' prototype, someone who had done something careless. These stories may be important for increasing young people's social capital (Demant & Jarvinen, 2011) and might be sought out or exaggerated. This suggests that the intervention may need to distinguish between heavy or excessive drinkers and responsible drinkers for older adolescents and to highlight negative consequences while carefully considering how drinking stories may be received. Due to the small sample used in the current study, further research is needed to explore this matter and the implications for an intervention.

The distinction between planned and unplanned drinking identified in the data demonstrated that participants themselves were able to identify differences between these two situations. Younger participants recognised that social situations might influence their decision making, whereas older participants made plans to drink. This concurs with previous findings showing transitions in drinking motivations and practices during adolescence (Coleman & Cater, 2005a) and previous research suggesting that with experience, risk behaviours become less reactive and more reasoned i.e., planned (Pomery, et al., 2009). This also suggests that an intervention based on the social reaction pathway in the PWM would be better suited to younger adolescents. Once young people start to make plans to drink, behaviour is assumed to shift from the reactive to the planned pathway in the model. Prototypes will become less influential and therefore targeting them in an intervention may be ineffective. This hypothesis will be tested in the next

phase of the project. The discussions of peer pressure as a precursor to drinking in an unplanned context indicates that social influence is an important factor to address in an intervention and is in accordance with other findings (French & Cooke, 2012; Stigler, Neusel, & Perry, 2011). This should therefore be incorporated into the intervention.

Attitudes and social norms are important constructs within the PWM. Younger participants tended to have more negative attitudes than older participants but all saw drinking alcohol as something commonplace for British teenagers. The PWM highlights descriptive (what other people do) rather than subjective (what other people think) norms. There was a common suggestion from the participants that young people drank because they were not supposed to, which may suggest that what parents thought about the behaviour is not as important as what peers are perceived to be doing. Research from The Netherlands using simulated chat rooms supports this assertion (Teunissen et al., 2012). High status peers were found to be influential for participants' conformity to pro as well as anti-alcohol norms. Descriptive norms have been also been found to be predictive of willingness to drink in other research (Litt & Stock, 2011); however young people often have misperceptions about the amount that other people drink (Borsari & Carey, 2001). This highlights the need for drinking norms to be addressed in the current intervention as if young people perceive levels of alcohol consumption to be high among their peers they may not accept or believe in the prototypes that are presented.

It is important to note that this study was carried out with a small, self-selecting sample of young people from one school and so generalisations are difficult to make. The potential target age group for an intervention based on the social reaction pathway is young people aged 11-15 so it may have been preferable to also include focus groups with young people aged 14-15. However, the differences between the age groups that were selected serve to illustrate some important differences between younger and older adolescents.

Some of the quotations used to support the themes within this chapter are from single participants whereas others demonstrate an interaction between participants. Focus group studies are sometimes criticised on the basis of

including such single quotes. However Morgan (2010) argues that these still arise from the interaction produced by the group and thus are justified.

Although focus groups are considered to be a good method for this kind of study (Millward, 2006) they can be criticised for exaggerating the collective attitudes of members due to group influence (Demant & Jarvinen, 2011). As drinking tends to occur in social situations for young people, focus groups potentially produce the opportunity to examine the kinds of interactions that might take place in real situations (De Visser, Smith, & McDonnell, 2009), but should also be treated with some caution for this reason. Additionally, using a theory driven approach can lead to loss of richness in the description of data (Braun & Clarke, 2006), although it can also ensure that group discussions are focussed, when there may potentially be an extensive range of views on a topic (Millward, 2006).

#### **3.4.1 Implications for intervention development**

This study contributes to the intervention framework set out in chapter two of this thesis firstly by establishing that the PWM would provide a good basis for an intervention with UK adolescents. The discussion of prototypes generated a wide range of characteristic descriptions that can be used to inform intervention development through the use of the participants' own words. This is an important consideration for the construction of the intervention components, specifically in terms of the positive and negative words used to describe drinkers and non-drinkers. It is also important for the construction of outcome measures, most specifically the way in which prototypes are described and evaluated, but also in the use of drinking related language. Finally, the findings have implications for the way in which the intervention is framed as this must take into account young people's prevailing attitudes and social norms of drinking.

This focus group study contributed a novel approach to theory evaluation of the PWM while also informing the next and subsequent stages of the project. The findings have been used to generate a list of 18 prototype characteristics used in the questionnaire reported in the next chapter, and to inform the generation of a harm scale used in the same questionnaire. The contribution

of this focus group study to the final specification of the intervention is shown in the meta-matrix in chapter eight.

### **3.5 Conclusion**

This study has contributed new qualitative findings to support the growing body of evidence for the application of constructs within the PWM to young people's alcohol consumption. Overall the study has demonstrated that this model is an appropriate basis for an intervention to reduce alcohol misuse in UK adolescents. The findings have also generated some cultural and age relevant prototype descriptions that can be utilised in the next stage of the project to test the assumptions of the model. Identifying the distinction between 'planned' and 'unplanned' drinking supports the application of the PWM as a potentially more relevant basis for an alcohol intervention than one based on intentional decision making alone. The following chapter reports on a survey conducted to explore the quantitative relationship between PWM constructs and alcohol use within young people. The survey included prototype descriptions and drinking scenarios identified in the focus group study and drew on a larger sample to provide further evidence to support the application of the model.

# 4

**Chapter Four: A cross sectional survey exploring the relationship between prototypes, willingness and alcohol consumption in young people**

## **4.1 Introduction**

Findings from the focus group study reported in chapter three demonstrated that young people held identifiable alcohol prototypes. This study also provided some evidence for the distinction between planned and unplanned drinking in line with the two pathways in the Prototype Willingness Model (PWM). These findings provided some support for the selection of this model as the basis for an intervention to reduce risky drinking in young people in the UK. Previous research, as discussed in chapter one, demonstrated that there was a relationship between prototype perceptions (favourability and similarity) and willingness in relation to alcohol consumption in US college students (Gerrard, et al., 2002), UK students (Norman, et al., 2007), and 16 year old teenagers in the UK (Rivis, et al., 2006). It is important to assess the relationship between the constructs in the PWM and alcohol consumption within the specific target population for this intervention.

The purpose of step three in the framework for intervention development is to explore the relationship between the theoretical constructs and alcohol consumption in the target population. This chapter reports the findings of a cross sectional survey that was conducted to complete this step in the framework. It also offered an opportunity to explore relationships between PWM variables, intervention outcome measures and possible moderators.

### **4.1.1 Prototypes**

Prototype perceptions have been measured in two ways within existing studies. Some studies use a list of adjectives and ask participants to evaluate the prototype using this list (Gibbons, et al., 2003). Participants are either provided with a previously generated list of characteristics or the descriptions are generated from the participants themselves. For example in some of the PWM studies from the US the pre-determined characteristics used were: cool, popular, smart, attractive, sexy and dull (Gibbons, et al., 2003; Gibbons et al., 2010). Favourability of the prototype is then calculated from the ratings from 1 (not at all like this) to 3 (very much like this) with the final negative item reverse scored. Other studies have used a favourability thermometer from 0-100 and included a measure of prototype similarity rated from 1-7 (Rivis, et al., 2006; Zimmermann & Sieverding, 2011b). In a study that applied the PWM to student drinking in the UK, favourability and similarity were both measured

on a ten point scale from 1-10 (Atwell, Abraham, & Duka, 2011). Thus, there are variations within PWM research on how prototype perceptions are measured. Therefore this study includes an adjective list as well as favourability and similarity measures in order to explore the potential application in this population and to determine their relevance for an intervention.

The research evidence discussed in chapter one highlighted the need to determine how specific prototypes are perceived for a number of target behaviours. It is vitally important to understand exactly how alcohol prototypes are described and evaluated by young people in the target population if they are to be targeted in an intervention programme. The terminology used should be both culturally and age relevant to the population. Thus, in the current study it is important to use an adjective scale. Some previous studies have examined the specific characteristics of drinker and non-drinker prototypes. In Germany, researchers used an elicitation study and previous literature to generate 11 pairs of semantically opposed descriptive adjectives (Zimmermann & Sieverding, 2011b). Participants were required to use a seven point rating scale to indicate their impression of the prototype on each of the differential pairs, for example social versus unsociable or reasonable versus unreasonable. Factor analysis revealed two underlying dimensions labelled 'sociability/ hedonism' and 'responsible' (Zimmermann & Sieverding, 2011b). In the Netherlands, young people aged 18-25 were asked to describe five different drinker prototypes (abstainer, moderate drinker, heavy drinker, tipsy, and drunk person) and generated 23 descriptive words (Van Lettow, Vermunt, de Vries, Burdorf, & van Empele, 2012b). However, no previous studies have been identified that have examined prototype descriptions with young people in the UK aged 11-17. Thus, the current study used prototype descriptions generated by the participants in the focus group study reported in chapter three.

#### **4.1.2 Willingness**

Willingness is usually measured by presenting participants with risky scenarios and asking them how willing they would be to engage in the risk behaviour of interest. It is measured this way based on the assumption described earlier that although young people may not intend to carry out a



particular risk behaviour they do have an idea about how they may act if they found themselves in a tempting or risk conducive situation (Gibbons, et al., 1998a). For example in one study participants were first asked to imagine they were at a party where a friend offered them a drink. They then indicated in a scale from 1 (not at all likely) to 7 (very likely) how likely it would be that they would 1; take a drink and try it, 2; say no thank you and 3; leave the situation. Items two and three were reverse scored and then all three items were averaged to create a single score for willingness to drink (Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999). In the same study an additional situation was used to measure willingness to drink to excess. In another study participants were asked to indicate whether it was likely they would continue to drink in two given situations. They read each scenario and then rated the statement 'I continue drinking' on two scales; yes and no from 1 (not at all likely) to 7 (very likely) and this was also averaged to create a willingness score (Zimmermann & Sieverding, 2011a).

One of the potential issues with applying a dual process model such as the PWM to the development of an intervention is around the measurement of constructs in the social reaction pathway of this model, which are assumed to act in an automatic way. Attempts are often made to assure participants that there is no assumption that they have been or ever will be in the given situation in order to try to ensure that the measure reflects an openness to opportunity rather than intention (Gibbons, et al., 1998a). However, concerns have been raised about the measurement of willingness because asking young people to consider the types of situations used does seem to involve a certain amount of deliberation (Fishbein, 2008). One solution is to consider the inclusion of indirect measures of participants' attitudes towards drinking alcohol. Implicit attitudes are widely researched in the area of alcohol and other drug misuse and may offer a means of addressing measurement issues in a dual process intervention approach.

#### **4.1.3 Implicit attitudes**

Implicit attitudes have been defined as traces of past experience that form associations in memory and influence our current behaviour in relatively automatic way (Pieters, van der Vorst, Engels, & Wiers, 2010; Thush & Wiers, 2007). Implicit attitudes are formed by repeated exposure to a stimuli and

outcomes; for example the presence of alcohol being repeatedly associated with celebration could lead to positive implicit attitudes towards alcohol (Hofmann, et al., 2009). Implicit measures are proposed to be able to determine the strength of implicit attitudes from the assessment of memory associations in reaction time tasks. The Implicit Attitude Test (IAT) is one of the most well-known of these measures and involves the pairing of words and categories (Greenwald, McGhee, & Schwartz, 1998). In contrast to explicit attitudes it is proposed that measures of implicit attitudes are less susceptible to bias because they measure the strength of unconscious associations that are not easily overridden.

There is a substantial body of research that implicates a role for implicit attitudes in the prediction and explanation of alcohol use in young people (Goodall & Slater, 2010; Houben, Havermans, & Wiers, 2010; Pieters, et al., 2010; Thush & Wiers, 2007; Thush et al., 2007). Thush and Wiers (2007) for example measured implicit and explicit cognitions and alcohol use in young people aged 12 and 15. They found that young people who were heavier drinkers had stronger implicit positive alcohol-related cognitions and weaker implicit negative alcohol related cognitions. Moreover this study showed that implicit measures were able to predict binge drinking a year later when other variable were controlled for. In another study, Pieters, van der Vorst, Engles and Wiers (2010) adapted the IAT for use with 11-13 year old children. Rather than using words they used pictures of alcoholic and soft drinks and happy and unhappy faces. They found that the children who used alcohol showed a stronger association between alcohol and angry faces than alcohol and happy faces (Pieters, et al., 2010).

Willingness is hypothesised to operate spontaneously and therefore it is possible that implicit measures offer a way of assessing something more akin to this construct than a deliberative measure. A recent study has found that implicit attitudes are related to willingness; as implicit alcohol attitudes became more positive participants became more willing to engage in high risk situations (Goodall & Slater, 2010). Although this study drew on a student sample these findings suggest there may be some utility in exploring the measurement of implicit attitudes as a proxy measure for willingness in adolescents. Moreover the specific mechanisms underlying many intervention programmes remain unclear and it could be argued that an approach using a

measure of implicit cognition has the potential to offer something new to the understanding of processes involved (Stacy & Wiers, 2010). This is particularly warranted in an intervention aimed at young people where educational approaches are often ineffective or have the unwanted outcome of actually increasing risk behaviours (Fishbein, et al., 2002; Hornik, et al., 2008). This may also have the potential to add further to the understanding of the gap between intention and behaviour often particularly found in young people (Sheeran, 2002; Webb & Sheeran, 2006). With age and experience alcohol use is hypothesised to become more planned and less reactive (Pomery, et al., 2009) and implicit attitudes more positive as repeated exposure strengthens memory associations (Hofmann, et al., 2009). This study therefore includes a measure of implicit attitudes in order to compare this with willingness and contribute to an understanding of how the PWM might be effective in an intervention.

#### **4.1.4 Alcohol and intervention outcome measures**

The main aim of the current study was explore the relationship between the PWM and alcohol consumption in young people. The inclusion of a number of other identified alcohol related outcome measures allowed an exploration of their relationship with PWM constructs and to assess whether they should be included in the intervention.

Interventions to reduce alcohol misuse will typically measure the quantity and frequency of alcohol consumption with success inferred from a significant reduction in consumption post intervention. Quantity and frequency of drinking are therefore important measures to include in the current study. The recent Alcohol Strategy proposed by the UK government aims to reduce both the number of young people who consume alcohol and the amount consumed by those who do (The Home Office, 2012). However, chapter one reported that early drunkenness rather than early drinking might be associated with longer term problems (Armitage, 2013; Kuntsche, et al., 2013). This suggests that the quantity consumed may be more important than the frequency of consumption. Thus, a measure of drunkenness was incorporated into the current study in order to explore its relationship with PWM constructs.

As discussed in chapter one, drinking alcohol is associated with numerous harms for young people. These include getting into fights, accidents and being admitted to hospital (Alcohol Concern, 2011; Donaldson, 2009). The School Health and Alcohol Harm Reduction Project (SHAHRP) is a harm reduction focused intervention originating from Australia. Rather than encourage abstinence from alcohol, the programme aims to build young people's skills and knowledge to reduce the number of harms that they experience. The programme is delivered during ten sessions and associated activities in schools at two time points with pupils aged 13-15. This intervention was demonstrated to be successful in its aims in Australia (McBride, Farrington, Midford, Meuleners, & Phillips, 2004) and has recently been adapted for use in Northern Ireland where it was also effective in reducing alcohol related harms (McKay, McBride, Sumnall, & Cole, 2012). Another harm reduction programme, Drug Education in Victorian Schools (DEVS) has also shown recent promise in its focus on harm reduction (Midford et al., 2012). DEVS consists of a 10-12 week set of lesson plans aimed at young people aged 13-15. This intervention was successful in reducing alcohol consumption and harms experienced by young people who had received it in comparison to young people in a control group (Midford et al., 2013). Reducing harm has therefore been shown to be a realistic outcome for interventions aimed at young people. Thus, in addition to measuring any changes in quantity and frequency of drinking, the measurement of drunkenness and drinking related harm may therefore be an appropriate additional focus for an intervention aimed at adolescents. The current study included a harm scale incorporating insights from the studies described here and findings from the focus group study reported in the previous chapter.

#### **4.1.5 Moderators: Age, Personality and Gender**

##### *Age*

Age is an established factor in alcohol consumption; older teenagers are more likely to drink than younger teenagers (Fuller, 2012). Newburn and Shiner (2001) suggest that by age 16-17 drinking is seen as a normal activity compared with a concealed or experimental activity at a younger age. Evidence suggests that the descriptive norm component of the PWM might better predict the health risk behaviours of younger adolescents than older

adolescents (Rivis & Sheeran, 2003a). Other studies suggest that spontaneous decision making based on prototype evaluation might only apply to those with less experience with drinking. For example it has been demonstrated that with age and experience of a particular behaviour there is a shift from reactive to planned decision making (Pomery et al, 2009). Thus, there may be a difference in the underlying mechanisms and effectiveness of a prototype based intervention between younger and older participants, specifically that prototype targeting may be less effective for those who already have experience of drinking alcohol. The findings from the focus group study reported in chapter three showed that there was a clear difference between older and younger participants; older participants did make plans to drink thus their drinking was usually intentional. The younger participants did not suggest that they made plans to drink but most had a clear idea about drinking situations that they might find themselves in and how they might react. Together, this evidence provides some justification for targeting a social reaction based intervention at younger adolescents. The current study therefore included young people aged 11-15 and 16-17 in order to compare their responses to prototype perception and alcohol measures. If there are clear differences between age groups as suggested by the evidence then this will provide further justification for targeting the intervention at younger teenagers. Intentions to drink and intentions to get drunk are included as a measure by which to compare age groups to explore this factor.

### ***Personality***

Personality factors may also play a role in both the initiation of risky drinking behaviour and responsiveness to intervention messages. One previous study that looked at personality and prototype perceptions focussed on the 'big five' traits of neuroticism, extraversion, conscientiousness, openness and agreeableness (Rivis, Sheeran, & Armitage, 2011). In a sample of young people from UK secondary schools this study showed that lower levels of neuroticism, lower levels of agreeableness and higher levels of openness were associated with prototypes having a greater amount of control over behaviour than intentions (Rivis, et al., 2011). These findings suggest that there may be individual differences in young people's susceptibility to prototype influences that could influence an intervention. Although the 'big five' traits are well established in the literature, sensation seeking may be a more useful factor by

which to investigate the different effects of prototype perceptions and influence. Sensation seeking is a personality characteristic characterised by high levels of impulsivity that has been consistently linked to increased levels of risk behaviours including drinking in young people (Arnett, 1996; Sargent, et al., 2010; Watten & Watten, 2010). In relation to prototypes, sensation seeking has been found to be associated with increased favourability of social images of risk takers in U.S. adolescents (Hampson, Andrews, & Barckley, 2008). Thus it is possible that high sensation seekers report greater risk prototype favourability and greater willingness to drink than low sensation seekers. Moreover, intervention messages with high sensation value have been found to be more effective in high sensation seekers (Stephenson & Palmgreen, 2001). Sensation seeking has been investigated in relation to young people's drinking in the UK and specific personality targeted interventions focussing on this characteristic have been shown to be effective (Conrod, Castellanos-Ryan, & Mackie, 2011). The specific relationship between prototype perceptions and sensation seeking has not been investigated in young people in the UK. It is possible that this factor may moderate the relationship between prototypes and alcohol consumption and that a PWM intervention could have different effects on high and low sensation seekers. This study therefore incorporated a measure of sensation seeking to explore this relationship.

### ***Gender***

Evidence presented in chapter one also suggested that teenage girls consume more alcohol than boys (Hibell, et al., 2012; WHO, 2009). Therefore gender differences in prototype perceptions and alcohol consumption may also be important to explore. A questionnaire study conducted in Germany with a sample of young adults (average age 24.7 years) suggested that there were also gender differences within PWM pathways (Zimmermann & Sieverding, 2011a). Men's drinking appeared to be influenced by reactive constructs whereas women's drinking appeared to be planned in advance (Zimmermann & Sieverding, 2011a). It is important to consider the possible influence of gender and how this might impact an intervention based in the social reaction pathway.

#### **4.1.6 Questionnaire**

A questionnaire is an appropriate means of testing the underlying theoretical assumptions and their relationship with the target behaviour at this stage of development. It can also be used to explore different kinds of outcome measures that could be incorporated in to the intervention and can take a similar format as the measurement tool used in a full trial. A questionnaire is also an appropriate method to use to collect a large amount of data on a number of measures. Moreover due to the potentially sensitive nature of the topic questionnaires have the advantage of anonymity for the participants encouraging accurate and less sociably desirable responses. Sobell and Sobell (1990) suggest that if confidentiality can be guaranteed then self-report measures in questionnaires can be considered to be valid and reliable.

##### ***Aims***

The overall aim of this questionnaire study was to establish if PWM constructs were related to alcohol consumption in the target population and to explore their relationship with identified moderating variables and intervention outcome measures. The specific aims were as follows:

- 1) To describe the relationship between prototypes, willingness and alcohol consumption in the target population.
- 2) To explore how drinker and non-drinker prototypes are rated using descriptive characteristics derived from the target population
- 3) To explore if there are differences in prototypes, willingness and intentions by age, personality and gender.
- 4) To explore the relationship between PWM constructs and other potential intervention measures; harms and implicit attitudes.

#### **4.2 Method**

The method of data collection used in this study was an online questionnaire with the following sections; demographic information, intensity seeking, prototypes, willingness, alcohol and implicit attitudes. The sections were counterbalanced to attempt to control for order effects.

#### **4.2.1 Pilot**

The questionnaire was piloted using a think aloud interview (French, Cooke, McLean, Williams, & Sutton, 2007). Five participants aged 11-16 read through the questionnaire and were prompted to say aloud what they thought about each section as they read it. For example they were asked if the question made sense to them, whether it was easy to understand what they needed to do and if they had any suggestions to improve the wording of the instructions or any of the questions. This resulted in a number of amendments to the questionnaire. In summary the changes consisted of clarifying instructions, including further examples in the implicit attitudes section and changing the wording of terms to clarify their meaning. The final version of the questionnaire is presented in Appendix B.

#### **4.2.2 Participants and procedure**

The recruitment of participants into this study was opportunistic in nature and a number of approaches were taken including contacting schools, parents and youth groups. No payment or incentive was offered to participants although the researcher offered to help schools and youth groups, for example by visiting them to talk to students about the project. A signed parental consent form was required for participants under the age of 16. A website address and unlock code was sent to participants via their teacher or parent (only once the consent form had been received for those aged under 16). The first page of the questionnaire comprised a participant information sheet with a box at the bottom for participants to enter the unlock code if they were happy to take part. On the final page participants were advised that if they wanted to then they could seek further sources of information about alcohol from [www.talktofrank.co.uk](http://www.talktofrank.co.uk), an independent UK government funded website providing advice and information about drugs and alcohol. One hundred and eighty two young people aged 11-17 completed the questionnaire during the recruitment period; 85 males (47%), 93 females (51%) and 4 (2%) who did not record their gender. The study received full ethical approval from Oxford Brookes University (study reference number 110572) and the approval letter is presented in Appendix A.



### 4.2.3 Measures

#### *Prototypes*

There were two subsections in this section, one about drinker and the other about non-drinker prototypes. The order in which each appeared was counterbalanced. Prototype questions were posed in the same style as in the existing literature by beginning the question with the following text:

*The following questions concern your images of people. What we are interested in here are your ideas about typical members of different groups. For example, we all have ideas about what typical celebrities are like or what the typical teacher is like. When asked, we could describe one of these images – we might say that the typical celebrity is attractive or rich, or that the typical teacher is strict or clever. We are not saying that all celebrities or all teachers are exactly alike, but rather that many of them share certain features. Take a moment to think about the typical person who is the same age as you who drinks/ does not drink alcohol. (Gibbons, et al., 1995)*

Following this text participants were presented with a list of 18 characteristics derived from the focus group study; careless, sociable, cool, fun, responsible, aggressive, healthy, boring, pressured, rebellious, confident, respectful, tough, anti-social, stupid, grown-up, sensible and calm. The characteristics were generated by extracting words used to describe drinkers and non-drinkers from the focus group transcripts and then counting the frequency of their use. Some, which were only used by one participant (e.g. vile), were excluded, and others that were not descriptive were discarded. The questionnaire pilot participants confirmed that the final 18 characteristics were appropriate for use. Participants were asked to rate how each characteristic described the typical drinker or non-drinker from 1 (not at all like this) to 7 (exactly like this). The order in which characteristics appeared was counterbalanced. Prototype favourability and similarity were measured in the same way as in previous research (Rivis, et al., 2006; Zimmermann & Sieverding, 2011b). To assess favourability participants were asked to rate their image of this person from 0 (extremely negative) to 100 (extremely positive) and for similarity to rate how similar they were to this person from 1 (not at all similar) to 7 (very similar).

### ***Willingness***

Willingness to drink was also measured in the same style as in the existing literature using three hypothetical scenarios; a family wedding, a house party and at the park. The scenarios were based on drinking experiences described by focus group participants. Each question began with the following text:

*Think carefully about each of the following situations. You may not have ever been in any of these situations but we would like you to imagine that you are and to say what you would do*

The three hypothetical risk-conducive situations were described and participants were asked how likely it was that they would a) take a drink and drink it from 1 (unlikely) to 7 (highly likely) and b) say no thanks from 1 (unlikely) to 7 (likely). In order to calculate a total willingness to drink score the responses to item b in each situation were reverse scored and then all six items were summed to produce a willingness variable where a low score indicated a low level and a high score indicated a high level of willingness to drink.

### ***Alcohol***

As described in the introduction it was important to include frequency measures as well as a measure of drunkenness. The measures used in the alcohol section were drinker status (ever drunk alcohol, yes or no), age of first drink, intentions to drink/ get drunk, frequency of drunkenness in the past month, usual quantity of units consumed when drinking, most amount of units consumed on a single occasion in the last month and number of alcohol related harms experienced.

Participants were asked about their intentions to drink alcohol or get drunk in the next month using a standard approach to designing theory of planned behaviour questionnaires (Francis et al., 2004).

*Thinking about what might happen in the next month, to what extent do you intend to do the following? A) Have an alcoholic drink, B) get drunk*

Responses were recorded from 1 (definitely do not intend to) to 7 (definitely intend to). In the same way as in the annual smoking, drinking and drug use survey (Fuller, 2012), participants were asked 'have you ever had an alcoholic

*drink – a whole drink and not just a sip?’* and required to respond yes or no. They were then asked to state at what age they had their first alcoholic drink. A definition of drunkenness was provided as *“by drunk we mean that you may not have remembered what you’ve been doing, or felt a bit dizzy, or may have been sick, or not been able to walk straight, or may have had a hangover”* (Coleman, Ramm, & Cooke, 2010) and participants were asked to respond yes or no to report if they had ever been drunk. Frequency of drunkenness was assessed by asking how many times in the last week (from none to four or more times) and in the last month (from none to nine or more times). Quantity of alcohol consumed was asked in the same style as used in other research with adolescents (Coleman, et al., 2010) and then adapted using the results of the focus group study. Participants were asked to report what they drank when they normally consumed alcohol by indicating the number of pints, cans, bottles, glasses of wine, shots or alcopops they had. They were then asked what was the most that they had consumed on a single occasion in the last month using the same measures. This resulted in two variables that indicated the usual amount consumed and the most consumed in number of drinks.

A drinking harm scale was constructed that was similar to that used in the SDD survey (Fuller, 2013) and incorporated harms mentioned by the focus group participants to ensure they were relevant to young people aged 11-17. Participants were asked to tick a box next to each of the following consequences if they had ever happened to them when they had been drinking; been sick, suffered from memory loss, been embarrassed by something they had done, been in trouble with the police, suffered an injury, been taken to hospital, had a fight with someone, lost something belonging to them such as keys or mobile phone or to indicate if there was something else that had happened to them. The numbers of harms that occurred were summed to comprise a harm score where a higher score indicated a higher number of harms had been experienced.

### ***Intensity seeking***

Impulsivity is a subscale of sensation seeking as measured by the Arnett Inventory of sensation seeking (Arnett, 1994). This has been shown to be related to alcohol and drug consumption in adolescents and have good

predictive validity with samples of young teenagers (Comeau, Stewart, & Loba, 2001; Conrod, Stewart, Comeau, & Maclean, 2006). The intensity sub-scale of the Arnett Inventory of Sensation Seeking consists of ten statements on a four point scale where participants responded this statement describes me 'very well' to 'not at all'. Previous research shows that this sub-scale has good predictive validity, is related to drinking behaviour in adolescent samples and it has been used as a measure in personality targeted interventions (Conrod, et al., 2006).

### ***Implicit attitudes***

The paper and pen version of the IAT was adapted for use in the online questionnaire. This has been found to have similar test-retest reliability and validity to the computer based test (Lemm, 2008). This format of the test has been used in previous research with young people that investigated their preference for different types of snack food (Jones, Kervin, Reis, & Gregory, 2012). Paper and pen IAT measures have been suggested as a means of measuring implicit attitudes when computer based measurements are impractical (Vargas, Sekaquaptewa, & von Hippel, 2007), such as in the current study where it was not possible to measure reaction times due to the limited capability of the survey software. In the questionnaire, participants viewed two lists of 24 items, half of which were drinks (either alcoholic or non-alcoholic) and half of which were emotional words (either positive or negative). In the first task, participants categorised positive and non-alcohol words together and negative and alcohol words together. In the second they categorised positive and alcohol together and negative and non-alcohol words together. The order that the tasks were presented was counterbalanced and participants had 30 seconds to complete as many categorisations as they could, this timing was used in line with previous research with the paper and pen format IAT (Mast, 2004). The total number of correct answers in each section was recorded.

### ***Demographic information***

In this section of the questionnaire participants were asked their age, gender, school year group, and whether English was their first language. If it was not then they were asked to indicate their first language.

#### **4.2.4 Analysis**

The data was entered into SPSS and analysed using descriptive and inferential statistics. Data met the assumptions required in order for parametric tests to be carried out except where indicated. Twelve participants completed only the first section of the questionnaire leaving 170 who completed two or more. Unless stated the analyses used pairwise deletion to deal with missing variables. Pairwise is preferable to listwise deletion with a sample of this size because listwise deletion would reduce number of cases and the contribution of the participants would be lost.

##### ***Scoring***

Four variables, drinker prototype favourability (DPF), drinker prototype similarity (DPS), non-drinker prototype favourability (NDF) and non-drinker prototype similarity (NDS) were the main outcome measures in the prototypes section. Willingness was calculated by reverse scoring the 'say no thanks' items and computing the total score for all six items. The scores on this variable, which was named 'willingness', ranged from 6 to 42 and the scale was found to be highly reliable (6 items;  $\alpha = .932$ ).

In the alcohol section, participants were grouped by the variable 'have you ever had a whole drink and not just a sip?' into either drinkers or non-drinkers. This variable was named 'drinker status.' Age at first drink was named 'first drink'. Intention to drink in the next month was named 'intend drink' and intention to get drunk in the next month was named 'intend drunk'. The number of participants who reported getting drunk in the last week was low (N=30) and so this variable was discarded from the analyses.

Drunkness in last month was used as a measure and named 'drunkness'. The number of drinks were then converted into units for the usual amount consumed and units for the most amount consumed in the last month using the average units for each type of drink given on the NHS choices website (NHS Choices, 2011). This resulted in two variables named 'usual units' and 'most units'. The numbers of harms that occurred were summed to comprise a variable named 'harms' where a higher score indicated a higher number of harms had been experienced.

The ten items on the (AISS-I) were summed to calculate a variable named 'impulsivity' where a low score indicated a lower level of impulsivity. In the implicit attitudes section the total score that participants got on the alcohol and negative task was taken away from the score that participants got on the alcohol and positive task. A positive score indicated that participants categorised more words on the alcohol and positive task and indicated stronger positive implicit association with alcohol. A negative score showed participants made more correct categorisations on the alcohol and negative task and indicated stronger negative implicit association with alcohol. This created the new variable 'IAT score'.

In summary, the variables presented in the results section of this chapter are; *drinker status* (whether the respondent has ever had an alcoholic drink); *DPF* (drinker prototype favourability); *DPS* (drinker prototype similarity); *NDF* (non-drinker prototype favourability); *NDS* (non-drinker prototype similarity); *willingness* (total willingness score); *first drink* (age at which respondent reported first having a drink); *intend drink* (intention to have an alcoholic drink in the next month); *intend drunk* (intention to get drunk in the next month); *drunkenness* (the number times reported being drunk in the last month); *usual units* (the calculated number of units in the drinks reported as usually consumed when drinking); *most units* (the calculated number of units in the drinks reported as consumed on the heaviest drinking occasion in the last month); *harms* (number reported); *impulsivity* (from the AISS-I) and *IAT score* (calculated from the paper and pen version used).

## **4.3 Results**

The results are presented in the following order. First, descriptive statistics for the sample are presented. Then, the results pertaining to each of the aims of the study are set out from aim one through to aim four.

### **4.3.1 Descriptive statistics**

The mean age of the 182 respondents in the sample was 14.81 years. To explore age differences the sample was split into two groups; those aged 16 and 17 and those aged 11-15. This was based in part on the literature suggesting that 16-17 year olds view drinking as a normal activity (Newburn & Shiner, 2001), and because national data is collected on 11-15 year olds,

who are advised to avoid alcohol altogether (Donaldson, 2009). The older age group (N= 87) consisted of 34 males and 54 females and the younger age group (N= 91) consisted of 51 males and 40 females. A Chi square test revealed that there was a significant association between age and gender ( $\chi^2(1) = 5.13, p = .024$ ). There was a higher proportion of females in the older group (60.9%) and a higher proportion of males (56%) in the younger group. All of the participants reported that English was their first language.

Drinker status was reported by 167 participants; there were 108 (64.7%) drinkers and 59 (35.3%) non-drinkers. The proportion of drinkers increased with age from 11.8% of 11 year olds, 50% of 14 year olds and 96% of 17 year olds. Of those aged 11-15, 34.2% reported ever having an alcoholic drink. This is lower than the figure reported in the most recent annual Smoking, Drinking and Drug Use Survey, which was 43% (Fuller, 2013). In the 16-17 age group 94.9% were classed as drinkers. The most recent ESPAD survey reported that 90% of 15-16 year olds report having ever had a drink (Hibell, et al., 2012) but data is not collected about 17 year olds. These findings suggest that the proportions ever having a drink in the current sample are slightly lower in the younger age range but similar in the older age range. The mean age of first drink across the sample was 13.09. The age of first drink is not collected in the SDD or ESPAD surveys, but other surveys indicate that this sample is similar in age at first drink to other surveys of young people (Bremner, Burnett, Nunney, Ravat, & Mistral, 2011).

Table 1 shows the mean and standard deviation of scores and ratings of the measures; drinker status, DPF, DPS, NDF, NDS, willingness, first drink, intend drink, intend drunk, drunkenness, usual units, most units, harms, impulsivity and IAT score. The table shows these variables for the whole sample, by age and by gender.

#### **4.3.2 Aim 1) to describe the relationship between prototypes, willingness and alcohol consumption in the target population.**

In order to explore the relationship between prototypes, willingness and alcohol consumption Pearson's correlations were calculated. Table 4.2 shows that there were strong significant correlations between the PWM variables. DPF and DPS were positively correlated with each other ( $r(162) = .724, p < .001$ ) and with willingness (DPF;  $r(160) = .542, p < .001$ . DPS;  $r(160) = .604,$

$p < .001$ ). DPF was negatively correlated with NPF ( $r(152) = -.242, p = .002$ ) and NPS ( $r(152) = -.356, p < .001$ ). DPS was also negatively correlated with NPF ( $r(152) = -.298, p < .001$ ) and with NPS ( $r(152) = -.545, p < .001$ ). NPF and DPS were positively correlated with each other ( $r(159) = .64, p < .001$ ). NPF and NPS were both negatively correlated with willingness (NPF;  $r(158) = -.467, p < .001$ , NPS;  $r(158) = -.621, p < .001$ ). These findings show that prototypes and willingness are strongly related to each other. The direction of the correlations suggests that favourable and more similar drinker images are associated with higher willingness to drink. They also show that unfavourable and less similar drinker images are associated with lower willingness to drink. Fishers  $r$  showed that for drinker prototypes there was no significant difference between the correlations of favourability and similarity with willingness ( $z = .82, p = .41$ ). However, for non-drinker prototypes, the correlation between favourability and willingness was approaching the cut off level to be significantly different to the correlation between similarity and willingness ( $z = 1.95, p = .051$ ). Thus, for non-drinkers it is possible that similarity to the non-drinker prototype is more important for reducing willingness than favourability.



**Table 4.1** Descriptive statistics of the questionnaire measures for the whole sample and broken down by gender and age for comparison

| Variable                            | Whole sample  | Gender        |               | Age           |               |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|
|                                     |               | Male          | Female        | 11-15         | 16-17         |
| Drinker status (% drinker)          | 65%           | 54%           | 74%           | 38%           | 95%           |
| Drinker prototype favourability     | 49.09 (25.85) | 47.64 (24.83) | 50.35 (26.02) | 37.85 (26.33) | 61.15 (18.23) |
| Drinker prototype similarity        | 3.4 (1.95)    | 3.04 (1.8)    | 3.72 (2.02)   | 2.58 (1.75)   | 4.31 (1.77)   |
| Non-drinker prototype favourability | 68.99 (20.65) | 67.97 (22.74) | 70.23 (3.93)  | 74.05 (22.45) | 64.29 (3.57)  |
| Non-drinker prototype similarity    | 4.44 (1.97)   | 4.49 (1.95)   | 4.39 (1.96)   | 5.05 (1.88)   | 3.78 (1.87)   |
| Willingness                         | 24.49 (11.59) | 23.79 (11.15) | 25.26 (12.07) | 19.66 (10.8)  | 29.79 (10.07) |
| First drink (average age)           | 13.09 (1.62)  | 13.38 (1.46)  | 12.91 (1.71)  | 12.49 (1.5)   | 13.19 (8.73)  |
| Intend to drink                     | 3.93 (2.5)    | 3.35 (2.45)   | 4.44 (2.45)   | 2.57 (1.97)   | 5.47 (2.1)    |
| Intend to get drunk                 | 3.08 (2.5)    | 2.52 (2.7)    | 3.59 (2.47)   | 1.72 (1.48)   | 4.63 (2.2)    |
| Drunkenness                         | 3.2 (2.06)    | 2.45 (1.79)   | 3.73 (2.1)    | 1.65 (.7)     | 3.61(2.11)    |
| Usual units                         | 11.73 (8.64)  | 10.82 (10.1)  | 12.55 (7.53)  | 8.02 (7.32)   | 13.19 (8.73)  |
| Most units                          | 12.41 (9.81)  | 7.06 (7.75)   | 14.43 (9.79)  | 12.83 (12.11) | 12.49 (8.10)  |
| Harms                               | 2.19 (2.17)   | 1.98 (2.2)    | 2.3 (2.09)    | 1 (1.52)      | 2.71 (2.22)   |
| Impulsivity                         | 25.73 (4.29)  | 26.13 (4.24)  | 25.24 (4.28)  | 25.12 (4.44)  | 26.38 (4.06)  |
| IAT score                           | -1.99 (6.95)  | -2.04(6.39)   | -1.96 (7.55)  | -2.53 (6.34)  | -1.34 (7.61)  |

Mean and (SD) unless stated. Note: For all variables a higher number indicates a higher score e.g. high favourability, similarity, willingness etc.

Pearson's correlations were also used to explore the relationship between prototypes, willingness and alcohol consumption measures (also seen in table 4.2). Due to the number of correlations they are reported only in table 4.2 and not in full here. There were significant positive correlations between drinker prototypes and both intention measures and there were also significant negative correlations between non-drinker prototypes and both intention measures (all  $p < .001$ ). Drunkenness was significantly positively correlated with DPF but not NDF. Drunkenness was significantly negatively positively correlated with DPS and significantly negatively correlated with NPS (both  $p < .05$ ). Only drinker prototype measures were significantly correlated with usual units, non-drinker prototypes were not significantly correlated with usual units. Willingness had stronger significant positive correlations with drunkenness, usual units and most units than any of the prototype measures. First drink was not significantly correlated with any of the other measures. Willingness and intend drink ( $r(164) = .725, p < .001$ ) and intend drunk ( $r(164) = .684, p < .001$ ) were strongly positively correlated, however Fishers  $r$  test revealed that there was no significant difference between the correlations ( $z = .74, p = .46$ ).

These findings show that prototypes and willingness are strongly related to alcohol consumption measures in this sample. The direction of the correlations shows that more favourable and more similar drinker images were associated with higher drunkenness and amount of alcohol consumed. On the other hand unfavourable non-drinker images were not associated with alcohol consumption. Lower non-drinker similarity was associated with higher levels of drunkenness and most units consumed on one occasion in the last month but not with the amount of alcohol consumed on a usual drinking occasion. The strong relationship between willingness and both measures of intentions is as expected and suggests that those who are intending to drink are also more willing to drink as well.

**Table 4.2** *Pearson's correlations between questionnaire measures*

|                                       | DPF     | DPS     | NDF     | NDS     | W      | FD    | IDRI   | IDRU   | D      | UU     | MU     | H    | IMP  |
|---------------------------------------|---------|---------|---------|---------|--------|-------|--------|--------|--------|--------|--------|------|------|
| Drinker prototype favourability (DPF) |         |         |         |         |        |       |        |        |        |        |        |      |      |
| Drinker prototype similarity (DPS)    | .724**  |         |         |         |        |       |        |        |        |        |        |      |      |
| Non-drinker favourability(NDF)        | -.242** | -.298** |         |         |        |       |        |        |        |        |        |      |      |
| Non-drinker similarity (NDS)          | -.356** | -.545** | .640**  |         |        |       |        |        |        |        |        |      |      |
| Willingness (W)                       | .542**  | .604**  | -.467** | -.621** |        |       |        |        |        |        |        |      |      |
| First drink (FD)                      | .083    | .1      | -.131   | -.07    | .009   |       |        |        |        |        |        |      |      |
| Intend to drink (IDRI)                | .482**  | .598**  | -.389** | -.518** | .725** | .067  |        |        |        |        |        |      |      |
| Intend to get drunk (IDRU)            | .515**  | .569**  | -.381** | -.553** | .684** | .098  | .836** |        |        |        |        |      |      |
| Drunkenness (D)                       | .236*   | .325**  | -.175   | -.358** | .406** | -.043 | .394** | .624** |        |        |        |      |      |
| Usual units (UU)                      | .269**  | .355**  | -.192   | -.148   | .327** | -.03  | .316** | .346** | .303** |        |        |      |      |
| Most units (MU)                       | .317**  | .271**  | -.103   | -.268*  | .352** | .065  | .362** | .513** | .394** | .741** |        |      |      |
| Harms (H)                             | .384**  | .504**  | -.291** | -.580** | .414** | -.024 | .425** | .621** | .513** | .503** | .562** |      |      |
| Impulsivity (IMP)                     | .255**  | .323**  | -.351** | -.374** | .470** | -.021 | .346** | .294** | .080   | .151   | .165   | .136 |      |
| IAT Score (IAT)                       | .079    | .176*   | -.077   | -.131   | .189*  | -.13  | .210** | .127   | -.057  | .190   | .105   | .128 | -.09 |

Note \*\*  $p < .001$  \*  $p < .05$

The correlations in table 4.2 showed that there were strong relationships between the individual variables, in particular between prototype favourability, similarity and willingness. Multiple linear regression using the enter method was used to test if these prototype variables predicted willingness. Cases were excluded listwise in this regression model. Analysis of standard residuals showed that the data contained no outliers (Std. Residual Min = -2.77, Std. Residual Max = 2.45). Given that, prototype favourability and similarity were highly correlated with each other for both drinker prototypes ( $r = .724$ ) and non-drinker prototypes ( $r = .64$ ) this suggested that multicollinearity may be a concern; although many statistical text books suggest that a correlation of .8 and above would indicate that this was an issue (Dancey & Reidy, 2011; Field, 2009). However when tested multicollinearity was not a concern for any of the predictor variables as tolerance  $> 0.2$  and VIF  $< 10$  (Drinker prototype favourability, Tolerance = .471, VIF = 2.12; Drinker prototype similarity, Tolerance = .378, VIF = 2.65; Non-drinker prototype favourability, Tolerance = .586, VIF = 1.71; Non-drinker prototype similarity, Tolerance = .451, VIF = 2.22). Data also met the assumption of independent errors (Durbin Watson = 1.96). The histogram and normal P-Plot were both acceptable and scatterplots of standardised residuals showed data met assumptions of homogeneity of variance and linearity. Data also met the assumptions of non-zero variances. Prototype variables were regressed on willingness and the results are reported as set out in Field (2009). The resulting model predicted 54.4% of the variance in willingness ( $R^2 = 54.4$ ,  $F(4, 153) = 44.41$ ,  $p < .001$ ). Table 4.3 shows the beta values, standardised coefficients and significance value for each predictor in the model. This table shows the relative importance of each of the predictors in the model as indicated by the standardized beta values, which are directly comparable as they are measured in standard deviations. This shows that NPS has the most importance in the model; increasing NPS by one standard deviation would lead to a decrease in willingness of -.33 standard deviations if all the other variables were held constant. Increasing DPF and DPS should increase willingness, whereas like NPS, increasing NPF should also decrease willingness.

**Table 4.3** Results of multiple linear regression model of prototype favourability and similarity predicting willingness showing b-values (B), standard error (SE B), standardised beta ( $\beta$ ) and significance of each of the prototype variables

|                       | <i>B</i> | <i>SE B</i> | $\beta$ | <i>p</i>   |
|-----------------------|----------|-------------|---------|------------|
| Constant              | 28.96    | 3.12        |         | $p < .001$ |
| Drinker Prototype     |          |             |         |            |
| Favourability         | .2       | .04         | .25     | $p = .003$ |
| Drinker Prototype     |          |             |         |            |
| Similarity            | 1.26     | .52         | .22     | $p = .018$ |
| Non-Drinker Prototype |          |             |         |            |
| Favourability         | -.08     | .04         | -.15    | $p = .042$ |
| Non-Drinker Prototype |          |             |         |            |
| Similarity            | -1.91    | .48         | -.33    | $p < .001$ |

There was some evidence from the comparison of the correlations reported in table 4.2 that suggested that prototype favourability and prototype similarity might not be distinct constructs. Similarity might be the primary correlate of willingness and could be more important than favourability for predicting willingness. A further regression analysis was performed with willingness as the outcome variable and drinker and non-drinker prototype similarity as the predictors. The data met assumptions for regression as detailed in the previous analysis. The results of the regression are reported in table 4.4. The resulting model predicted 49.2% of the variance in willingness ( $R^2 = 49.7$ ,  $F(2, 153) = 75.011$ ,  $p < .001$ ). The  $R^2$  change when drinker and non-drinker familiarity are then added to the model in a hierarchical regression showed that only 4.6% of additional variance in willingness is accounted for by including them in the model. Both drinker and non-drinker similarity contributed significantly to the model as expected, the effect of removing favourability is to increase the significance level of drinker prototype similarity and the amount of change predicted by each variable. Non-drinker similarity has the most importance within this model; increasing this by one standard deviation would lead to a decrease in willingness of -.41 standard deviations. Increasing drinker similarity by one standard deviation would lead to an increase in willingness of .39 standard deviations. The results of this further regression analyses suggest that if an intervention can change

prototype similarity alone (i.e. without targeting favourability) then this may lead to a change in willingness to drink. This should be explored further in order to determine whether favourability and similarity are indeed distinct constructs as suggested within the PWM, or whether they should be considered as separate predictors.

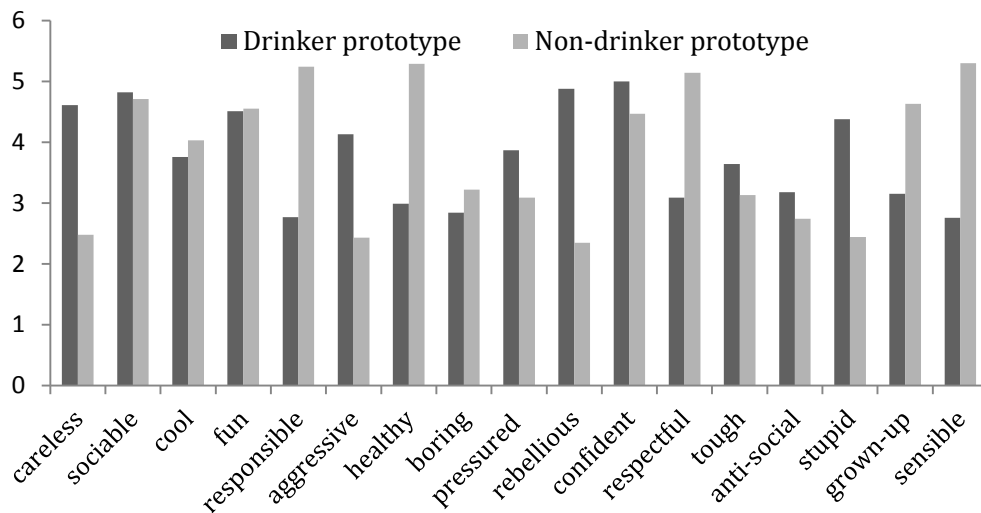
**Table 4.4** Results of multiple linear regression model of drinker and non-drinker prototype similarity predicting willingness showing b-values (B), standard error (SE B), standardised beta ( $\beta$ ) and significance of each of the prototype variables

|                      | B     | SE B | $\beta$ | p          |
|----------------------|-------|------|---------|------------|
| Constant             | 27.4  | 2.84 |         | $p < .001$ |
| Drinker Prototype    |       |      |         |            |
| Similarity           | 2.27  | .4   | .39     | $p < .001$ |
| Non- Drinker         |       |      |         |            |
| Prototype Similarity | -2.42 | .4   | -.41    | $p < .001$ |

Following the finding that willingness was strongly related to the three alcohol variables of drunkenness, usual units and most units (table 4.2), three simple linear regression analyses were carried out. The purpose of these additional analyses was to show how much change in the alcohol measures could be expected from a change in willingness if this was altered by the intervention. The results showed that willingness significantly predicted drunkenness  $\beta = .406$ ,  $t(79) = 3.947$ ,  $p < .001$  and explained 16.5% of the variance ( $R^2 = .165$ ,  $F(1,79) = 15.578$ ,  $p < .001$ ). Secondly, willingness significantly predicted usual units  $\beta = .327$ ,  $t(89) = 3.406$ ,  $p < .001$  explaining 11% of the variance ( $R^2 = .107$ ,  $F(1,97) = 11.597$ ,  $p = .001$ ). Thirdly, willingness also significantly predicted most units  $\beta = .352$ ,  $t(89) = 3.552$ ,  $p = .001$  and explained 12.4% of the variance in the most units ( $R^2 = .124$ ,  $F(1,89) = 12.618$ ,  $p = .001$ ). These analyses show that willingness makes a significant contribution to the prediction of drunkenness, usual units and most units. If an intervention was able to impact and change the correlates of willingness and therefore change willingness itself, then it is possible that there would be a reduction in unplanned drinking.

### 4.3.3 Aim 2) to explore how drinker and non-drinker prototypes are rated using descriptive characteristics derived from the target population

Non-drinkers were rated as more significantly more favourable overall ( $M = 69.38$ ) than drinkers ( $M = 48.93$ ) ( $t(153) = -6.71, p < .001$ ). The participants rated themselves as more significantly more similar to non-drinkers ( $M = 4.44$ ) than drinkers ( $M = 3.4$ ) ( $t(153) = -3.56, p < .001$ ). Figure 4.1 compares how participants rated drinkers and non-drinkers were rated on the 18 characteristics using the mean score for each. Drinker prototypes were rated highest on the characteristics careless, sociable, fun, rebellious and confident. Non-drinker prototypes were rated highest on responsible, healthy and sensible.



**Figure 4.1** Comparison of mean ratings of drinker and non-drinker prototypes on the 18 characteristics derived from the focus group study

Exploratory factor analysis was used to determine whether the prototype characteristic items could be combined into sets of characteristics, beginning with the prototype descriptions for the typical drinker of the same age.

Principal component analysis (PCA) was conducted on the 18 items with an orthogonal rotation (varimax). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis,  $KMO = .892$  which means that factor analysis should produce distinct and reliable factors (Field, 2009) and individual items were above the acceptable limit of .5. Bartlett's test of sphericity  $\chi^2(153) = 1546.8, p < .001$ , indicated that the correlations between items were sufficiently large for PCA. An initial analysis was run to obtain

eigenvalues for each component. Three components explaining 61.5% of the variance in the data were retained following an examination of the eigenvalues and the scree plot. The items that cluster on the three components are shown in table 4.5 and described below. The characteristic 'pressured' did not have factor loadings high enough on any of the factors to be included. Additionally, Field (2009) advises that reliability analysis should be conducted and reported on separate sub scales that are derived from PCA so these figures are included in table 4.4 and reported below.

Component one consisted of *responsible, sensible, respectful, grown-up, healthy* and *calm*. These characteristics are linked in the sense that they signify being responsible and are associated with maturity and so the factor was named 'responsibility'. The subsequent responsibility scale was found to be highly reliable (6 items:  $\alpha = .918$ ). Component two consisted of *aggressive, careless, rebellious, tough, anti-social* and *stupid*. These characteristics are linked in the sense of being negative or disruptive and so the factor was named 'rebelliousness'. This scale was found to be highly reliable (6 items:  $\alpha = .802$ ). Component three consisted of *sociable, fun, boring* (reversed) *confident* and *cool*. These characteristics are linked in the sense of having positive associations in a social sense and so the factor was named 'sociability'. This scale was found to be reliable (5 items:  $\alpha = .733$ ). The items on the factors were summed to create new variables named 'drinker responsibility', 'drinker rebelliousness' and 'drinker sociability'.



**Table 4.5** Summary of exploratory factor analysis results for the typical *drinker* characteristics (loadings of less than .1 have been suppressed)

| Item                   | Rotated Factor Loadings |                |              |
|------------------------|-------------------------|----------------|--------------|
|                        | responsibility          | rebelliousness | sociability  |
| responsible            | <b>.854</b>             | -.210          | .152         |
| sensible               | <b>.817</b>             | -.254          |              |
| respectful             | <b>.810</b>             | -.297          | .127         |
| Grown-up               | <b>.790</b>             |                | .329         |
| healthy                | <b>.768</b>             | -.107          | .273         |
| Calm                   | <b>.738</b>             | -.241          |              |
| Aggressive             | -.252                   | <b>.794</b>    | -.147        |
| Careless               | -.419                   | <b>.714</b>    |              |
| Rebellious             | -.339                   | <b>.671</b>    |              |
| tough                  | .270                    | <b>.594</b>    | .249         |
| Anti-social            |                         | <b>.582</b>    |              |
| stupid                 | -.507                   | <b>.565</b>    | -.247        |
| Pressured <sup>a</sup> | -.169                   | .277           | -.150        |
| Sociable               | .297                    |                | <b>.752</b>  |
| fun                    | .374                    |                | <b>.707</b>  |
| boring                 |                         | .352           | <b>-.653</b> |
| Confident              |                         |                | <b>.615</b>  |
| Cool                   | .545                    |                | <b>.573</b>  |
| Eigenvalues            | 7.083                   | 2.2            | 1.77         |
| % of Variance          | 39.35                   | 12.232         | 9.921        |
| $\alpha$               | .918                    | .802           | .733         |

<sup>a</sup> Note: pressured was not included in the reliability analyses due to low factor loadings

The same process was then undertaken on the prototype descriptions for the typical non-drinker of the same age. Principal component analysis (PCA) was conducted on the 18 items with an orthogonal rotation (varimax). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .875 which means that factor analysis should produce distinct and reliable factors (Field, 2009). All individual items were above the acceptable limit of .5. Bartlett's test of sphericity  $\chi^2(153) = 1220.98, p < .001$ , indicated that the correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component. Three components explaining 56.87% of the variance in the data were retained following an examination of the eigenvalues and the scree plot. The items that cluster on the three components are shown in table 4.6 and described below. As before,

the characteristic 'pressured' did not have any eigenvalues high enough on any of the factors to be included. Items on the scale loaded onto similar components as for typical drinkers. However, the non-drinker sociability component for non-drinkers explained more variance (12.99%) than the disruptiveness component (9.368%).

**Table 4.6** Summary of exploratory factor analysis results for the typical **non-drinker** characteristics (loadings of less than .1 have been suppressed)

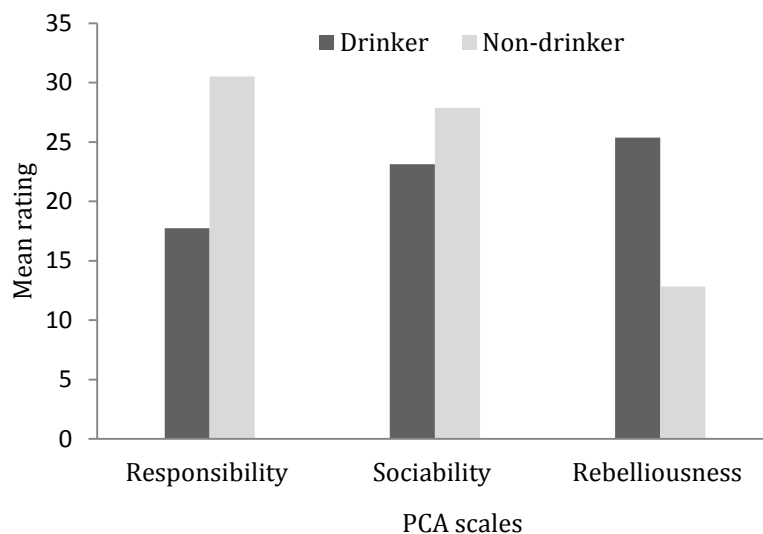
| Item          | Rotated Factor Loadings |              |                |
|---------------|-------------------------|--------------|----------------|
|               | responsibility          | sociability  | rebelliousness |
| sensible      | <b>.819</b>             | .153         | -.240          |
| responsible   | <b>.815</b>             |              | -.230          |
| healthy       | <b>.767</b>             | .147         | -.175          |
| respectful    | <b>.756</b>             | .225         | -.122          |
| Grown-up      | <b>.695</b>             | .217         |                |
| calm          | <b>.624</b>             | .269         | -.188          |
| fun           | .238                    | .787         |                |
| sociable      | .320                    | <b>.700</b>  |                |
| cool          | .364                    | <b>.682</b>  |                |
| boring        |                         | <b>-.675</b> | .229           |
| Anti-social   |                         | <b>-.589</b> | .483           |
| confident     | .216                    | <b>.555</b>  | .316           |
| pressured     |                         | -.376        | .334           |
| Aggressive    | -.342                   |              | <b>.758</b>    |
| rebellious    | -.429                   |              | <b>.655</b>    |
| careless      | -.227                   |              | <b>.648</b>    |
| stupid        | -.407                   | -.278        | <b>.630</b>    |
| tough         | .307                    | .239         | <b>.452</b>    |
| Eigenvalues   | 6.21                    | 2.33         | 1.69           |
| % of Variance | 34.518                  | 12.99        | 9.37           |
| $\alpha$      | .877                    | .794         | .722           |

*Note: sociability appears in the second column in this table whereas it appears in the third column in the drinker factor analysis table*

Component one consisted of *sensible, responsible, healthy, respectful, grown-up,* and *calm*. These characteristics are again linked in the sense that they signify being responsible and associated with maturity and so the factor was named 'responsibility'. The scale was found to be highly reliable (6 items:  $\alpha = .877$ ). Component two consisted of *fun, sociable, cool, boring* (reversed), *anti-social* (reversed) and *confident*. These characteristics are again linked in the sense

of having positive associations in a social sense and so the factor was named 'sociability'. This scale was found to be reliable (6 items:  $\alpha = .794$ ). Component three consisted of *aggressive, rebellious, careless, stupid* and *tough*. These characteristics are linked in the sense of being negative or disruptive and so the factor was named 'rebelliousness'. The scale was found to be reliable (5 items,  $\alpha = .722$ ). The items on the factors were summed to create new variables, non-'drinker responsibility', 'non- drinker rebelliousness' and 'non- drinker sociability'.

To illustrate how drinker and non-drinker prototypes were rated by the participants on the scales extracted in the PCA, figure 4.2 compares the mean ratings. This figure highlights that responsibility related characteristics were rated higher for non-drinker prototypes and rebelliousness characteristics for drinker prototypes. This suggests that drinker and non-drinker prototypes are rated according to different sets of characteristics by young people.



**Figure 4.2** Mean ratings on characteristic scales for drinker and non-drinker prototypes compared on three scales extracted from Principal Component Analysis

To explore the relationship between the extracted scales and willingness, Pearson's correlations were calculated (see table 4.7). Willingness was significantly positively correlated with drinker prototype responsibility ( $r(158) = .406, p < .001$ ) and drinker prototype sociability ( $r(159) = .448, p < .001$ ). Willingness was also significantly negatively correlated with drinker

prototype rebelliousness ( $r(157) = -.249, p = .002$ ), and non-drinker prototype responsibility ( $r(158) = -.205, p = .009$ ) and sociability ( $r(155) = -.387, p < .001$ ). These findings show that young people who rated drinker prototypes highly on responsibility and sociability, which are more pro-social or positive traits reported higher levels of willingness to drink. Young people who rated non-drinkers higher in these traits, reported lower levels of willingness to drink. Rebelliousness was only related to willingness for drinker prototypes, such that rating drinkers as less rebellious was associated with higher levels of willingness.

**Table 4.7** *Correlations between prototype characteristic scales extracted in the principal component analysis with willingness*

|   | Drinker     |        |            | Non-drinker |         |            |
|---|-------------|--------|------------|-------------|---------|------------|
|   | Responsible | Social | Rebellious | Responsible | Social  | Rebellious |
| W | .406**      | .448** | -.249**    | -.205*      | -.387** | .153       |

Note \*\*  $p < .001$  \*  $p < .05$  W = willingness

#### **4.3.4 Aim 3) to explore if there are differences in prototypes, willingness and intentions by age, personality and gender.**

##### *Age*

The participants were split into two age groups as described in the descriptive statistics section. Group 1 comprised participants aged 11-15 ( $N=94$ , mean age 13.12) and group 2 comprised participants aged 16-17 ( $N= 88$ , mean age 16.61). The two groups of participants were compared on all of the main variables of interest using t-tests. The means and standard deviations appeared in table 4.1. The t-test results and effect sizes for significant results are shown in table 4.8.

Table 4.8 shows that there were significant differences between the older and younger participants on all of the variables of interest other than IAT score. There were larger effect sizes for the drinker prototype variables, willingness, times drunk last month and drinking harms.

**Table 4.8** *T-tests to compare 11-15 and 16-17 year old participants and male and female participants on questionnaire variables*

| Variable                            | Age                |             | Gender             |             |
|-------------------------------------|--------------------|-------------|--------------------|-------------|
|                                     | <i>t</i> statistic | Effect size | <i>t</i> statistic | Effect size |
| Drinker prototype favourability     | -6.4**             | .47         | -.67               |             |
| Drinker prototype similarity        | -6.29**            | .44         | -2.24*             | .36         |
| Non-drinker prototype favourability | 3.04*              | .23         | -.67               |             |
| Non-drinker prototype favourability | 4.29**             | .32         | .34                |             |
| Willingness                         | -6.31**            | .44         | -.81               |             |
| Intend drink                        | -9.18**            | .58         | -2.82*             | .44         |
| Intend drunk                        | -9.91**            | .65         | -2.99*             | .47         |
| Drunkenness                         | -6.27**            | .59         | -2.79*             | .66         |
| Usual units                         | -2.77*             | .3          | -.97               |             |
| Most units                          | -3.38*             | .34         | .14                |             |
| Harms                               | -4.64**            | .45         | -.78               |             |
| Impulsivity                         | -1.99*             | .15         | 1.39               |             |
| IAT Score                           | -1.09              |             | -.07               |             |

Note \*\*  $p < .001$ , \*  $p < .05$

These differences were that older participants rate drinker prototypes as significantly more favourable and more similar to themselves than younger participants. The opposite case is observed with non-drinker prototypes where younger participants rate them as significantly more favourable and similar to themselves than the older participants. Older participants are significantly more willing and report more frequent drunkenness and larger quantities of alcohol consumed. Importantly this analysis looked at intentions to drink and intentions to get drunk. Older participants reported significantly higher intention to drink alcohol in the next month and to get drunk in the next month than younger participants and these results showed large effect sizes.

To examine the age differences further, the strength of the correlations between key variables by age group was explored using Fisher's  $r$ . There was a significant difference between the correlations for participants aged 11-15 and participants aged 16-17 for drinker prototype favourability and number of times drunk in the last month ( $z = 2.34, p = .019$ ), between drinker prototype favourability and most units consumed on a single occasion in the last month ( $z = 2.13, p = .033$ ) and drinker prototype favourability and harms ( $z = 2.46,$

$p=.014$ ). For each of them the positive correlations were stronger for participants age 11-15 than for 16-17 year olds. This suggests that the relationship between these variables was stronger in participants aged 11-15. Drinker prototype favourability therefore was more strongly correlated with drunkenness, most units and harms for participants aged 11-15 compared to those aged 16-17. There were also significant differences between correlations for participants aged 11-15 and participants aged 16-17 between willingness and intentions to drink in the next month ( $z = -2.49, p = .012$ ) and willingness and intentions to get drunk in the next month ( $z = -3, p = .003$ ). These positive correlations were stronger for participants aged 16-17 than for participants aged 11-15. This suggests that the relationship between these variables is stronger in participants aged 16-17. Willingness was more strongly correlated with intentions to drink and intentions to get drunk in participants aged 16-17 compared to participants aged 11-15.

### ***Impulsivity***

In order to explore the relationship between impulsivity and the prototype and alcohol measures in the questionnaire Pearson's correlations were calculated (see table 4.2). The correlations between impulsivity and all the other main variables of interest can be seen in table 4.2. Impulsivity was significantly moderately correlated with the prototype variables and with willingness but not with any of the alcohol measures. Impulsivity was positively correlated with DPF ( $r(162) = .255, p = .001$ ) and DPS ( $r(162) = .323, p < .001$ ). It was significantly negatively correlated with NPF ( $r(159) = -.351, p < .001$ ) and NPS ( $r(159) = -.374, p < .001$ ). Impulsivity was significantly positively correlated with willingness ( $r(168) = .470, p < .001$ ). To explore this further a moderation analysis was carried out to look at the effect of impulsivity on the relationship between prototypes and willingness. Four moderation analyses were carried out and showed that impulsivity did not moderate the relationship between any of the prototype variables and willingness (Interaction term  $p > .05$  for all four prototype variables). These findings show that there is a relationship between impulsivity and prototypes but impulsivity was not a significant moderating variable. Impulsivity is most strongly related to willingness; those who score more highly on the impulsivity measure rate themselves as more willing to drink alcohol. Impulsivity is also more strongly related to prototype similarity than with

favourability. Higher impulsivity scores are associated with higher ratings of drinker prototype similarity and lower ratings of non-drinker prototype similarity.

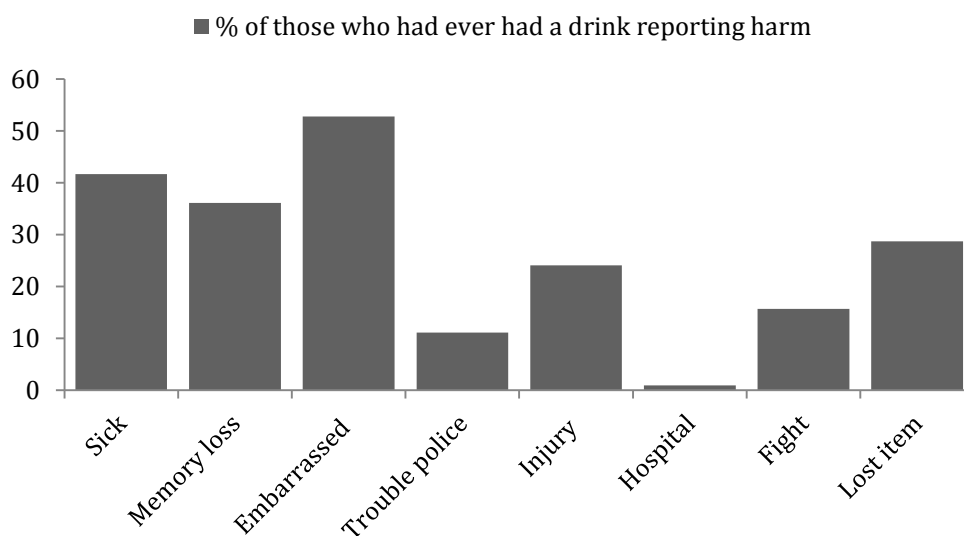
### ***Gender***

Male and female participants were compared on the questionnaire variables using t-tests. The mean and standard deviation for each of the variables is shown in table 4.1 and the t-test and effect size for significant results are shown in table 4.7. Female participants rated drinker prototypes as significantly more similar to themselves as male participants. Females also rated their intentions to drink and intentions to get drunk and drunkenness significantly higher than males. There were medium to large effect sizes. There were no other significant differences between male and female participants on the other variables.

### **4.3.5 Aim 4) To explore the relationship between PWM constructs and other potential intervention measures; harms and implicit attitudes.**

#### ***Harms***

In addition to quantity and frequency of alcohol consumption this study included a measure of alcohol related harms. Figure 4.3 illustrates the percentage of participants who reported ever having an alcoholic drink who had experienced each of the harms in the scale. Table 4.2 also illustrates the correlations between harm score and the other main variables.



**Figure 4.3** Percentage of participants who had ever had a drink who had experienced each of the harms on the scale

The percentages shown in Figure 4.3 indicate that of the participants who had drunk alcohol the most frequent reported harms were embarrassment, being sick or memory loss. While experiencing embarrassment might not seem as serious as being injured or getting into trouble with the police this could indicate any number of outcomes ranging in seriousness. Being physically sick and losing memory may also potentially have severe consequences for young people. The harm scale was significantly correlated with all of the main measures in the questionnaire other than age at first drink. Harms were most strongly significantly positively correlated with intend drunk ( $r(104) = .621, p < .001$ ), drunkenness ( $r(77) = .513, p < .001$ ) and most strongly negatively correlated with NPS ( $r(99) = -.580, p < .001$ ). To summarise, those who reported higher intentions to drink and to get drunk and higher levels of willingness reported experiencing a higher number of harms. More favourable and more similar ratings of drinker prototypes and less favourable and less similar ratings of non-drinker prototypes were associated with higher numbers of harms. A higher number of harms were also reported by those who reported higher levels of drunkenness and alcohol consumption.

### ***Implicit attitudes***

The mean IAT score for the whole sample and each age group individually was negative. This shows that participants in this sample had negative implicit alcohol attitudes on average. The correlations with the other main variables of interest are shown in table 4.2. IAT score was weakly significantly correlated with DPS ( $r(154) = .176, p = .028$ ), willingness ( $r(158) = .189, p = .016$ ) and intend drink ( $r(157) = .210, p = .008$ ). Younger participants had more negative alcohol attitudes than the older participants but the difference was non-significant (see table 4.7). The sample was split into a low and high consumption group based on the median of usual units ( $Mdn=10.2$ ). There was no difference in the low and high consumers on IAT score ( $t(92) = -1.847, p = .068$ ). These findings suggest that those who rate drinker prototypes more highly, report higher levels of willingness to drink and higher levels of intentions to drink have higher IAT scores. There was no relationship between IAT score and any of the alcohol consumption measures and no differences by age and level of consumption.



## 4.5 Discussion

The main findings are summarised below in the order presented in the results section with reference to the four aims of the study. Following this the implications of all of the questionnaire findings for the development of the intervention are discussed. The discussion section ends with a consideration of the limitations of this study.

### **Aim 1) to describe the relationship between prototypes, willingness and alcohol consumption in the target population.**

The finding of strong correlational relationships between drinker and non-drinker prototypes and willingness supported the basic assumption in the social reaction pathway in the PWM of a relationship between these variables. The correlations suggested that those who had a more favourable image of drinkers were more willing to drink whereas those with a more favourable image of non-drinkers were less willing to drink. Additionally those who rated drinker prototypes as less similar to themselves and those who rated non-drinker prototypes as more similar to themselves were less willing to drink. Regression analysis showed that a large amount of the variance in willingness was explained by the prototype variables. This finding supports the main assumption of the PWM that drinker prototype perceptions are able to predict willingness to drink. One hypothesis that emerges from the findings is that prototype similarity might be more important than prototype favourability, in keeping with previous research (Rivis, et al., 2006). Thus, the suggestion might be that an intervention could target similarity alone. However this hypothesis cannot be addressed from the results of the current study. The question of whether favourability and / or similarity should be targeted in an intervention could be addressed in further experimental research, possibly using a factorial design suggested by Collins in the Multiphase Optimization Strategy (MOST) model (Collins, Murphy, Nair, & Strecher, 2005).

The findings of strong correlations between prototypes, willingness and many of the alcohol measures supported the assumption that the PWM is related to this risk behaviour in the target population. Specifically those with higher ratings of drinker prototype favourability and similarity reported higher levels of drunkenness and alcohol consumption. However this was not the

case for non-drinker prototype favourability and similarity. Only non-drinker similarity was related to two of the alcohol measures; specifically those who rated non-drinkers as more similar to themselves reported lower levels of drunkenness and fewer drinks consumed on the occasion they drank the most in the last month. This suggests that drinker prototypes are more strongly related to alcohol consumption than non-drinker prototypes and again that similarity might be more important than favourability.

Willingness was better able to predict the frequency of drunkenness than the quantity of alcohol (either usual units or most units). The weaker relationship with quantity measures may reflect the nature of measuring self-reported alcohol use. For example, it has been demonstrated that for young adolescents, self-reports of the quantity of alcohol use may be less reliable than self-reported measures of prevalence (Koning, Harakeh, Engels, & Vollebergh, 2010). Thus the quantity of alcohol consumed may be inaccurately reported.

The use of a scale such as the Alcohol Use Disorders Identification Test (AUDIT) was considered but decided against because the AUDIT scale has not been validated for use in an adolescent age group, and the authors of the AUDIT scale have raised a concern about the potential for measurement error with the AUDIT in younger age groups (Babor & Caetano, 2006).

Furthermore, in this thesis the aim was to measure alcohol consumption rather than alcohol disorders (i.e. categories of hazardous, harmful and dependent drinking) for which the AUDIT has been validated for use with adults only. Therefore, in the questionnaire measures of drinking by young people were based on questions and scales for drinker status (drinker vs. non-drinker) and quantity / frequency of consumption that have been used successfully in national and large sample surveys in the U.K. with this age group (Fuller, 2013; Hibell, et al., 2012).

The strength of the relationship with drunkenness is promising in terms of targeting this construct via altering prototypes because of the negative impact of drunkenness on young people shown in the introduction (Kuntsche, et al., 2013). Nonetheless the relationship that has been demonstrated does suggest that changing willingness may have an impact on alcohol consumption. Together these findings support previous research on the PWM (Gibbons &

Gerrard, 1995) and extend its application to a sample wider in age than used in previous UK research (Rivis, et al., 2006). They also strongly support the application of the PWM to an intervention to reduce alcohol misuse aimed at young people in the UK.

**Aim 2) to explore how drinker and non-drinker prototypes are rated using descriptive characteristics derived from the target population**

It was interesting to note that non-drinkers were rated as more favourable and more similar to the self than drinkers overall. The principal components analysis (PCA) revealed patterns in the characteristic ratings for both drinker and non-drinker prototypes. Characteristics related to sociability, responsibility and rebelliousness were shown to comprise three distinct scales for both drinker and non-drinkers and they were mainly made up of the same individual descriptors. These findings showed that drinker and non-drinker prototypes were rated differently on each of the subscales; drinkers were rated highly on the 'rebelliousness' scale whereas non-drinkers were rated more highly on the 'responsibility' scale, which consisted of pro-social characteristics such as sensible and calm. This finding suggests that drinker and non-drinker prototypes are rated according to different sets of characteristics by young people. Rather than either one being negative or positive they are complex. It may be important to focus on specific types of characteristics such as these in order to target prototypes in an intervention. The strongest correlations for both drinker and non-drinker prototypes were seen in the scale relating to sociability characteristics. This suggests that a particular focus on these types of characteristics may be important in changing willingness to drink alcohol. The responsibility scale was moderately correlated with willingness for drinker prototypes and weakly correlated with willingness for non-drinker prototypes. This suggests that these types of characteristics for example sensible, respectful and healthy are also important for drinker prototypes. Rebelliousness related characteristics such as aggressive, tough and careless were weakly negatively correlated with willingness for drinker prototypes but not for non-drinker prototypes. This shows that higher ratings of rebelliousness were associated with lower willingness to drink. The factor analysis resulted in similar dimensions to those identified by Zimmermann and Sieverding (2011b), who identified 'sociability/ hedonism' and 'responsibility' within their study of young adults.

However, in contrast, the current study identified the additional distinct dimension of rebelliousness, which may reflect the age of the participants and the nature of the adjectives used. Together, these findings suggest that it is important to consider different types of descriptive characteristics for different populations, particularly in terms of how they might be used in an intervention.

Existing evidence is mixed as to whether prototypes represent goal states for adolescents. Gerrard et al (2002) argue that drinking is not motivated by the acquisition of specific characteristics whereas Ravis et al (2006) suggest that young people are motivated to undertake risky behaviours by the possibility of gaining the characteristics of prototypes. The findings discussed here suggest that some types of characteristics, specifically those relating to sociability may be important in relation to risky alcohol consumption. This supports existing work with young adults (Spijkerman, Larsen, Gibbons, & Engels, 2010; Van Lettow, et al., 2012b) and extends the exploration of prototype dimensions to a sample of young people in the UK. An intervention targeting prototypes should take these findings into consideration and ensure that the drinker images within the programme do not inadvertently enhance the sociability or responsibility traits of these images as this may increase willingness to drink. It is also important to note that rebelliousness characteristics were negatively correlated with willingness and so enhancing these negative or anti-social characteristics might have a role to play within the intervention. However it is important to exercise caution that some of the traits here might be seen as 'cool' by some young people. Similar findings were shown in a study of young people's marijuana prototypes where social attractiveness was an important characteristic particularly for males (Comello & Slater, 2010). Taken together these findings show how important it is to undertake specific analyses of prototype descriptions for different populations and behavioural domains.

**Aim 3) to explore if there are differences in prototypes, willingness and intentions by age, personality and gender.**

Age differences were found on all the questionnaire measures other than IAT score. Older participants aged 16-17 rated drinker prototypes as significantly more favourable and more similar to themselves than younger participants aged 11-15. Non-drinker prototypes were rated as significantly more

favourable and more similar by 11-15 year olds than by 16-17 year olds. The differences in willingness and intentions illustrate that older participants had significantly higher levels of willingness and intentions to drink and get drunk. The large effect sizes seen for intentions suggest that this was an important difference; older participants were possibly therefore making more plans to drink. Although there are usually weak relationships between intentions and behaviour (Sheeran, 2002), the older participants also reported significantly higher drunkenness, usual units and most units consumed. Intentions to get drunk and reported drunkenness had a particularly strong correlation of .624. These findings suggest that young people aged 16-17 in this sample both intend to drink and to get drunk and they do actually drink and get drunk more than the younger adolescents. It is possible then according to the assumptions of the PWM that they would be less likely to be drinking as a reaction to their social situation. The suggestion of a shift from reactive to reasoned decision making with age and experience is supported in previous literature (Pomery, et al., 2009; Ravis & Sheeran, 2003a). These findings suggest that an intervention based in the social reaction pathway may be less effective in reducing alcohol misuse in young people aged 16-17. However prototype targeting could be incorporated as one in a number of approaches within an intervention for older teenagers that also targeted their attitudes and intentions. Younger participants however reported lower levels of intentions to drink and therefore may be less likely to be making plans in advance. According to the PWM, unplanned drinking is a result of the contemplation of prototypes, which influence willingness to drink and subsequent alcohol consumption (Gerrard, et al., 2008). It is this unplanned drinking that often leads to harms for young people because they do not anticipate the consequences (Gibbons, et al., 2003). Therefore an intervention that both targets prototypes and addresses the unplanned nature of risky drinking might be an appropriate focus for young people aged 11-15.

Impulsivity as measured by the AISS-I was significantly related to prototype perceptions and willingness. The findings showed that the more impulsive people rated drinkers more positively and non-drinkers less positively, and they were more willing to drink. Impulsivity was not associated with alcohol consumption measures or harms in this sample. This suggests that the higher PWM construct ratings are not translating into behaviour. Although

impulsivity was significantly correlated with all of the PWM variables, it did not moderate the relationship between prototypes and willingness or between willingness and alcohol consumption. It seems possible that impulsivity is associated with the prototypes and willingness due to the long established finding that impulsivity is associated with seeking novel or risky situations in adolescents (Arnett, 1996; Hampson, et al., 2008). However the lack of relationship with alcohol measures may just reflect that those who were high in impulsivity perceived drinkers and drinking situations as enticing but this had not necessarily translated into their actual behaviour. On the other hand it is possible that using the AISS\_I alone was not sensitive enough to demonstrate the expected moderating relationship between PWM constructs and alcohol consumption. This subscale was used to reduce participant burden and because it had been used in previous research (Comeau, et al., 2001). However, further research to examine these findings may benefit from using the full Arnett Sensation Seeking Scale or another measure commonly used in adolescent samples such as the Dickman Impulsivity Inventory (Dickman, 1990) or the Substance Use Risk Profile Scale (Krank et al., 2011; Woicik, Stewart, Pihl, & Conrod, 2009). Although impulsivity did have a relationship with prototypes and willingness there was a lack of relationship with alcohol consumption in this sample. As mentioned in the introduction to this chapter, previous research supports a link between sensation seeking and alcohol consumption (Arnett, 1996; Watten & Watten, 2010) and so it is likely that there would be a difference in intervention effectiveness depending on levels of impulsivity. Furthermore, as also mentioned in the introduction, targeting interventions by personality type has also been shown to be effective (Conrod, et al., 2011; Conrod, et al., 2006). Thus it would be advisable that a measure of this personality trait should be incorporated into any prototype targeting intervention to examine this relationship further.

Female participants scored significantly higher than male participants on drinker prototype similarity, intentions to drink and intentions to get drunk. Although this finding suggests that females may drink more than males, it is important to consider these results in light of the imbalance of males and females within each age group. However, other evidence does suggest that teenage girls drink more than their male counterparts (Currie, 2012; Hibell, et

al., 2012), so it would be desirable to collect a wider sample of participants in order to explore this further. However females and males did not differ significantly on the other PWM, alcohol measures, impulsivity or IAT score. This suggests other age group differences may not be attributable to gender alone. The limitations section below considers this issue in more detail, also in relation to the age group differences.

**Aim 4) to explore the relationship between PWM constructs and other potential intervention measures; harms and implicit attitudes.**

Harms were strongly positively associated with prototypes, willingness and alcohol measures. Higher levels of harm were reported by young people who rated drinker prototypes more favourable and more similar but non-drinker prototypes less favourable and less similar. More harm was reported by those with higher levels of willingness and intentions to drink as well as higher levels of drunkenness and consumption. These findings suggest a measure of harms could be included as a relevant outcome measures in an intervention based on the PWM, in line with the focus of other recent intervention programmes (McKay, et al., 2012; Midford, et al., 2012). Some of the most frequently reported harms were perhaps the least serious for long term health but nonetheless represent unpleasant short term outcomes for young people. Additionally reducing harms from drinking potentially reduces some of the negative social impacts of alcohol misuse. For example reducing fights and accidents could potentially impact upon police and hospitals. Harms may also possibly serve as a proxy measure of frequency and extent of consumption in young people although more work is needed to understand this relationship better. The inclusion of a measure of harms in the current intervention is therefore justified and perhaps could offer some further insight into this area.

The results for the measure of implicit attitudes towards alcohol showed that on average participants had negative implicit alcohol attitudes. This is in keeping with some other studies showing that adolescents tend to be implicitly negative about alcohol (Noel & Thomson, 2012; Pieters, et al., 2010). A number of suggestions have been made to explain these findings. For example, van Hemel- Ruiten, de Jong and Wiers (2011) propose that age is an important factor in finding negative implicit attitudes and this is because of the underlying social disapproval that younger drinkers may experience. They may also have bad physical experiences when drinking. As drinking

becomes established and drinkers get older they begin to associate more pleasant experiences such as having a good time socially and society becomes more accepting of their drinking. This is then reflected in increased positive implicit associations (van Hemel-Ruiter, et al., 2011). It would be useful to repeat this study with older participants who have more experience of drinking, for example students to see if this is the case with young people in the UK. It would also be desirable to follow up same participants in three or four years to assess any changes to implicit attitudes, although this is not possible with this particular sample.

There was only a weak positive significant relationship between IAT score and three of the other main variables; drinker prototype similarity, willingness and intention to drink alcohol in the next month. Although the relationships were weak, they were between variables of interest in terms of the exploration of this measure. Those who rated themselves as more similar to the drinker prototype had higher IAT scores, thus were more implicitly positive about alcohol. Similarity to the prototype was shown to be important in terms of the relationship between prototypes and alcohol consumption and so its relationship with implicit attitudes possibly reflects this. Those who were more willing to drink also had higher IAT scores: this is tentative evidence of the suggested relationship proposed in the introduction. This suggests that willingness may be able to capture something of the spontaneous nature of unplanned drinking proposed in in the model. If so then this goes against the critique that willingness is really a deliberative measure. Similarly the relationship with intention to drink supports other findings that implicit measures may be indicative of young people's propensity towards risky drinking (Pieters, et al., 2010; Thush & Wiers, 2007). However no relationship was found with alcohol consumption or any of the other measures.

There are limitations with using a paper and pen format IAT, which must be acknowledged. As stated in the measures section, this option was used for pragmatic reasons within the constraints of the online questionnaire. Previous research with young people had used a paper and pen version of the IAT for similar reasons, also asking children to complete a column based exercise (Jones, et al., 2012)



However, the paper and pen format IAT may be an inappropriate measure of automatic processes because it is unable to measure the fast reaction times of a computer based IAT. As highlighted by Lemm, et al (2008), all the words to be categorised are shown at the same time in a paper and pen version IAT. The presence of all the other alcohol and non-alcohol words might influence participants' responses to each individual item. Participants might deliberate for the whole 30 seconds about a number of the options rather than reacting quickly and automatically using single key responses on a computer when one stimuli item is shown at a time (Lemm & Nosek, 2008). In this sense, it is possible that the paper and pen measure might lie more towards the deliberative end of the information processing continuum than the spontaneous end (Vargas, 2004; Vargas, et al., 2007). This is an important and salient criticism when considering the assumptions in the PWM that underlie the rationale for using an implicit measure in the current study.

In this study, the IAT score was calculated using the difference between the number of items completed in the two pairing tasks as in previous research using this method of asking participants to categorise words under different column headings (Mast, 2004). Although this measure gives a good indication of the direction of the implicit preference, it does not account for individual participant speed. It would be preferable to utilise a more sensitive scoring method such as the square root of the difference (Lemm & Nosek, 2008). It would also be advisable to explore differences in participants' accuracy in categorising the alcohol and non-alcohol words as this was not considered in the current analysis. In addition, there have been questions raised about the ability of the paper and pen format IAT to be sensitive to social desirability bias (Vargas, et al., 2007).

Although researchers who have explored the use of this measure recognise the practicality of using paper and pen IATs when it is not possible to deliver a computer version, they do recommend that a computer format is preferable (Lemm & Nosek, 2008; Vargas, et al., 2007). The results of the current study concur with this recommendation, and future research should be conducted to explore the relationship between implicit measures and PWM constructs and alcohol in a more robust way.

Additionally, participants had to read a long list of instructions before completing this part of the questionnaire and this may have led to boredom or misunderstanding of the task. It is also possible that the use of an online questionnaire was a factor in the recruitment issues faced in this study that are detailed below. Schools were required to deliver the questionnaire online which meant they needed to arrange this to be done in a room with computers. It might have been easier to administer it in the classroom on paper and then follow up a subsample with a computer IAT. This alternative option might have been able to increase the overall response rate as well as allowing a more robust investigation of the relationship between PWM variables, alcohol and implicit attitudes.

There are some further limitations to the current study, chiefly the opportunistic nature of recruitment. As stated in the descriptive statistics section, the two age groups that were created were unequal in terms of gender with more females in the older age group. This means that any gender differences in the sample could be due to this imbalance. Equally, any age differences could be due to there being more girls in the older age group, because of the suggestion in recent surveys that teenage girls may drink more than boys (Hibell, et al., 2012). It would also have been beneficial to make further comparisons within the 11-15 age group, for example by creating three age groups; 11-13, 14-15 and 16-17 year olds, but the sample size within those groups and gender imbalance meant that any differences found would only be tentative. The issue was probably a result of the serious challenges faced in the recruitment of young people into the study. Although a number of schools were initially interested in taking part in the study, they were unable to commit to the time required in managing the process to obtain parental consent. Other schools said that they were unwilling to be associated with a research study on the topic of alcohol, despite assurances of anonymity being made. Therefore it was necessary to attempt a number of alternative strategies in order to attempt to achieve an acceptable sample size. Two psychology A-level classes were recruited into the study and they consisted of mainly females, thus contributing to the gender imbalance. Other participants were recruited using advertisements to parents at the University, on social media and by word of mouth. It is important to treat these findings with caution and it would be beneficial to repeat the survey with a more balanced

sample. The study was cross sectional in design however no claims for causality are made.

Another important potential criticism of the questionnaire was that the measure of favourability and similarity were on different response scales (favourability 0-100; similarity 1-7). This was based on previous work in the target age group (Rivis, et al., 2006) but could be criticised for not being consistent, meaning they are difficult to compare. For example another UK study has measured both favourability and similarity from 1-10 (Atwell, et al., 2011).

#### **4.5.1 Implications for the intervention**

The results discussed show that the intervention should aim to target perceptions of drinker and non-drinker prototypes. Specifically, the intervention should aim to enhance the perception of non-drinker images in relation to sociability characteristics, while being cautious of the way that drinker images are presented. The findings also suggest that young people aged 11-15 may be a better target for an intervention that targets reactive or unplanned drinking using the PWM as a framework. An intervention to reduce alcohol misuse in young people aged 16-17 could incorporate PWM features but would need to take into account the higher level of drinking intentions and alcohol consumption at the same time. Although there was a relationship between impulsivity and the PWM variables, the lack of a moderating relationship and the lack of relationship with alcohol measures was not in line with expectations based on previous literature. Although the intervention designed as a result of these findings will not specifically target this personality trait, it is important to consider in future research how intervention messages might be moderated by impulsivity.

Finally, in addition to the inclusion of quantity and frequency of drinking alcohol as outcome measures to assess the effectiveness of the intervention, these findings suggest that including a harm scale would also be justified. Although the pen and paper measure of implicit attitudes used in this questionnaire may be limited the results highlight that further work in this area should be conducted. Implicit alcohol attitudes could be used as an outcome measure pre and post the intervention as a potential means of accessing the non-conscious processing assumed to be driving the social

reaction pathway in the PWM, but a more robust and time sensitive measure would need to be tested first.

Qualitative findings from the focus group study ensured that the prototype measures used in this study were age and culturally relevant. The combination of these first two studies has provided strong evidence to contribute to the PWM literature and to the development of an intervention based on this model.

#### **4.6 Conclusion**

In conclusion, this study has provided some further evidence to support the application of the PWM to an intervention aimed at adolescents in the UK. It has extended previous work in the current project by quantifying the relationship between PWM variables and alcohol consumption. This study has also contributed to the body of evidence for the PWM in its application to the drinking behaviour of young people aged 11-17 in the UK. An intervention based on the PWM targeting this population should aim to change drinker and non-drinker prototype perception, taking into account the groups of characteristics identified in this study. Behaviour change techniques should be directed at changing these prototypes and addressing the potential harms associated with young people's unplanned drinking.

The next stage of the project, reported in chapter five, drew together the findings of this questionnaire and the focus group study with existing literature. The behaviour change techniques and mode of delivery for a PWM intervention were specified resulting in a draft intervention plan. Expert feedback on the planned intervention was sought using a Delphi study to identify strengths and improvements.

# 5

## **Chapter Five: Designing the intervention and reviewing the development process in a Delphi study**

## **5.1 Introduction**

The results of the questionnaire study reported in chapter four confirmed that targeting the social reaction pathway in the Prototype Willingness Model (PWM) would be an appropriate focus for an intervention to reduce alcohol misuse in young people in the UK. Chapter four also concluded that in addition to quantity and frequency of drinking, it might be appropriate to include measures of short term harms following drinking occasions. The results from the focus group and the questionnaire studies indicated that a PWM intervention focused in the social reaction pathway would be appropriately targeted towards younger adolescents aged 11-15 who were less likely to be intending or planning to drink compared to older teenagers.

The work completed thus far has established that teenagers in the UK have clear alcohol prototypes and that these prototypes are related to both willingness to drink and alcohol consumption. The intervention requires behaviour change techniques (BCTs) that clearly reflect the components within the social reaction pathway of the PWM. This chapter details how the specific BCTs that reflect the model were identified and applied to an online intervention in step four of the framework outlined in chapter two. This process drew on the findings of chapters three and four, as well as the existing literature and is presented in a series of structured questions. A logic model was produced as a method of clearly presenting the process of behaviour change expected within the intervention. A Delphi study was used to obtain feedback from a group of experts on this development process to complete step five of the framework. The Delphi study results are discussed in light of their implications for the development of the current intervention.

## **5.2 Part One: Specifying behaviour change techniques and designing the intervention**

Step four in the proposed framework for intervention development aimed to define behaviour change techniques (BCTs) and an appropriate mode of delivery within which to incorporate those techniques. This part of the chapter details the process used to specify BCTs based on the PWM drawing on existing literature and the studies reported in previous chapters.

In chapter two a number of intervention design frameworks were described and their utility for the development of a theory driven intervention programme was discussed. The identification of specific behaviour change techniques (BCTs) and the grouping of these into behaviour specific taxonomies is contributing to the drive for greater transparency and improved reporting standards in the field (Abraham & Michie, 2008; Michie, et al., 2008). Taxonomies developed so far include techniques for increasing physical activity and healthy eating (Michie, et al., 2011b), smoking cessation (Michie, et al., 2011c) and excessive alcohol consumption (Michie, et al., 2012b). However the most recent version of the general taxonomy of BCTs does not classify techniques specifically according to underlying theory (Michie, et al., 2013a) although a previous version linked BCTs to hypothesised change processes (Abraham, 2012a) for use in written health communication. At present there are no universally agreed techniques based on the Prototype Willingness Model, and there are no taxonomies of effective techniques for targeting adolescent health risk behaviours. It is also important to note that the taxonomy work is at an early stage and likely to expand and develop in the future.

As stated, the current project is theory driven in order to specifically determine what BCTs relate to the social reaction pathway in the PWM and whether they can be applied to the reduction of alcohol misuse in young people. The review of intervention development literature resulted in a series of steps to guide the project. It was evident that step four required a clear and transparent method for completing the process of defining the BCTs that should be used within the intervention. Table 2.2 highlights the need to define a process for selecting and applying BCTs. Thus the process was conceptualised by the formation of six guiding questions based on the existing literature. The six questions were designed to show distinct steps and how they were completed and were as follows: 1) What are the assumed change processes within the model? 2) What are the components of existing interventions based on the model? 3) Do the components of published PWM interventions map onto existing BCTs? 4) Do existing components map onto assumed change processes within the model? 5) Can existing BCTs be incorporated into the current intervention as is, adapted or are or new BCTs

required? 6) How should the BCT be delivered within the intervention? These questions are addressed below.

### **5.2.1 What are the assumed change processes within the model?**

The Intervention Mapping (IM) approach described in chapter two proposed that intervention developers should use a matrix to map hypothesised change processes to BCTs (Bartholomew, et al., 1998). IM recommends using insights from multiple theories to select multiple BCTs for an intervention whereas the current project is focused solely on the PWM. Logic models are another tool used by intervention designers to conceptualise change processes and outcomes (Kellogg Foundation, 2004). The use of logic models was described in the review of intervention development guidance in chapter two. There are numerous ways in which logic models can be designed (Conrad, Randolph, Kirby, & Bebout, 1999; Taylor-Powell & Henert, 2008), but a common feature is that they break down an intervention to inputs, processes and outcomes. This approach was adopted by the current project as a means of specifying the BCTs (inputs), underlying expected change processes and outcomes expected in a PWM focused intervention. Logic models may also be constructed at different levels of specificity; large multicomponent programmes may require more than one logic model for example (Taylor-Powell & Henert, 2008). As a starting point, a general logic model for an intervention based on the whole PWM was produced (see table 5.1). This model shows the processes and outcomes expected within in each pathway in the whole model. Dual process models like the PWM, which take into account non reflective decision making, are increasingly influential in explaining and predicting health behaviours (Strack & Deutsch, 2004; Thaler & Sunstein, 2009; Vlaev & Dolan, 2009). An important aspect of the PWM is its distinction between planned and spontaneous or unplanned behaviour (Gerrard, et al., 2008). The general logic model is split into the planned and the unplanned pathways. Findings from the focus group study support this distinction suggesting that some social environments are conducive to unplanned drinking (Davies, et al., 2012). The intentional pathway of the PWM, which is similar to the Theory of Planned Behaviour (TPB) (Ajzen, 1991), has been a focus in a large number of previous interventions (Hardeman, et al., 2002). The hypothesised process of behaviour change in this pathway is via a change in attitudes and a subsequent change in intentions. As stated, the current project focuses solely



on how the constructs in the spontaneous pathway can be applied to young people and alcohol consumption. The logic model shows that within this pathway the assumed process of change is via prototypes and willingness. Thus, an intervention should aim to target alcohol prototypes to reduce young people’s willingness to drink and episodes of spontaneous drinking. The model also shows that a reduction in spontaneous drinking should lead to lower alcohol consumption and potentially less alcohol related harm. In order to determine appropriate BCTs to achieve this intended change process it was important to return both to the literature and to consider the implications of the findings of the previous two studies.

**Table 5.1** *A general logic model for the Prototype Willingness Model specifying processes and expected immediate, short term and long term impacts within both pathways*

| Processes                                | Outcomes:   |   |  |
|--|---|---|--|
|  | Immediate Impacts                                 | Short term behavioural                                  | Long term behavioural                    |
| Spontaneous path:<br>Changing prototypes | A change in willingness due to changed prototypes | Fewer episodes of ‘spontaneous’ or ‘unplanned’ drinking | Reduction in harmful or ‘binge’ drinking |
| Intentional path:<br>Changing attitudes  | A change in intentions due to change in attitudes | Fewer episodes of ‘intentional’ or ‘planned’ drinking   | Reduction in harmful or ‘binge’ drinking |

### 5.2.2 What are the components of existing interventions based on the model?

A recent review of theories and their application to behaviour change interventions pointed out that although a clear implication of the PWM is to change prototype perceptions, few programmes have targeted these constructs directly (Webb, Sniehotta, & Michie, 2010b). As discussed in chapter one, the existing interventions based on the PWM have shown some evidence of the potential of providing a positive or negative prototype image

to change prototype perception, willingness and subsequent behaviour (Blanton, et al., 2001; Ouellette, et al., 2005).

In order to identify and compare the components of the existing PWM based interventions, descriptions were extracted from the method sections of seven published papers. Where the exact procedure was missing, unclear or insufficient detail was provided, the authors were contacted for further information (no replies have been received to date). This exercise represents the available studies at the time of the development of the current project, however it is possible that others were not identified or have been published subsequently. The seven interventions are described in table 5.2. It should be noted that although the interventions cover a variety of behaviours including alcohol, none of those identified are UK studies and only two are aimed at young people under the age of 18. Some of the components within the interventions are based on other theories or include techniques not linked to the PWM, for example, Todd and Mullan (2011) incorporated the mere measurement effect. This effect describes how completing questionnaires about intentions can subsequently change behaviour (Godin et al., 2010). In this study the prototype manipulation was unsuccessful in reducing binge drinking but the mere measurement effect was found to be effective (Todd & Mullan, 2011). There were few common features linking all seven of the studies, however three of them use a news report presenting information about prototypes purporting to have come from other people of the same age. This method appears to fit with the assumption in the model that changing widely held prototypes will reduce willingness to engage in risk behaviours. There also appears to be an information giving component within most of the interventions. In addition, the method of showing Ultra Violet (UV) photographs has been used in an intervention to increase skin care in highway workers (Stock, et al., 2009). However, this study was not included in the exercise because it appears PWM components were measured rather than targeted.

**Table 5.2** *PWM intervention descriptions extracted from published papers*

| Authors            | Behaviour         | Country   | Age                            | Description   | Effectiveness  |
|--------------------|-------------------|-----------|--------------------------------|---|--|
| Andrews et al 2011 | Smoking           | USA       | 5 <sup>th</sup> grade<br>10-11 | Multi component programme over eight sessions contains components where negative images of smokers are created, norm misperceptions are corrected, information given about health risks and consequences of smoking, the addictiveness of smoking is highlighted and a game where smokers presented as dull and boring. | Short term reduction in intentions and willingness to smoke            |
| Lane et al 2011    | Alcohol           | USA       | 19.5                           | Fictional newspaper article reporting a survey describing typical college student as drinking regularly. Then described as a mixture of favourable and unfavourable traits. Then asked to either write about how similar/ different they were to the type of person (identification or distancing).                     | Distancing decreased willingness for those dissimilar to drinkers      |
| Todd & Mullan 2011 | Alcohol (binging) | Australia | 19 (females only)              | A made up newspaper article reporting the results of a survey of other same aged students that presented the binge drinker image negatively. Also incorporated mere measurement effect  | Mere measurement reduced consumption – prototype targeting ineffective |

| Authors              | Behaviour                       | Country            | Age                   | Description  | Effectiveness  |
|----------------------|---------------------------------|--------------------|-----------------------|--|--|
| Ouellette et al 2005 | Exercise                        | USA                | 20                    | Participants told to think about either other people or self in the future 10-20 years from now (prototype or possible self). Encouraged to contemplate this image by thinking about it before writing and answering eight questions about it.                                 | Participants high in social comparison in prototype condition increased exercise |
| Gibbons et al 2005   | Tanning booth use               | USA                | First year at college | Own skin damage shown using UV photographs, oral presentation about skin damage and importance of protection, three brochures with information and instruction on protection methods   | Decreased prototypes, willingness and tanning booth use                          |
| Brody et al 2004     | Alcohol use and sexual activity | USA                | 11                    | Strong African American Families Programme: Multi component programme containing component where young people learn about similarities and differences between themselves and others of the same age who use alcohol   | Whole intervention was effective in increasing protective factors                |
| Blanton et al 2001   | Condom use                      | Netherlands<br>USA | 21                    | A made up news-paper article about sexual activity with either positive descriptions of the typical person who used condoms as more responsible and less selfish or negative descriptions of the typical person who does not use condoms as less responsible and more selfish. | Reduced willingness to have sex without condoms                                  |

### **5.2.3 Do the components of published PWM interventions map onto existing BCTs?**

The extracted descriptions of the seven interventions were then compared with descriptions of existing BCTs. They were compared to the techniques in the 40 item behaviour change technique taxonomy (Abraham, 2012a). This is a taxonomy of generic behaviour change techniques for use in written health communications and was applied due to having a greater number techniques than the first taxonomy (Abraham & Michie, 2008) (and because when this exercise was originally undertaken the 93 item taxonomy (Michie, et al., 2013a) was as yet unpublished). If the techniques described did not fit with any of the specified descriptions then they were noted separately. Table 5.3 shows the intervention studies and the techniques they were identified as related to from the taxonomy. The SAAF (Brody, et al., 2004) and Click City (Andrews, et al., 2011) are multi-component programmes incorporating number of techniques. It was not possible to define the exact part of the SAAF that related to prototypes whereas the paper on Click City detailed all eight of the sessions involved. The table shows that the most commonly used techniques involve providing information about other people's behaviour, their approval of the behaviour and providing a positive image of those who engage or do not engage in the target behaviour. This also includes providing an unfavourable image of people who engage in risk behaviour. A variety of other techniques are used including prompting people to think about risks, their future self-image and giving instructions on how to perform a particular behaviour. There appear to be no overarching techniques that link each of the studies and therefore it is difficult to conclude that there is a specific existing BCT or set of effective techniques to use to target the social reaction pathway in the PWM. A limitation of this exercise is that it used a taxonomy of techniques for use in written health communication. This was used due to being an expanded generic taxonomy compare to the original 26 item version (Abraham & Michie, 2008). Another limitation is that the intervention descriptions were brief and so there may be other BCTs that were present in the studies but not identified. Equally the coding was only conducted by the author and this may have resulted in some inferences being made. Nonetheless this exercise was valuable in providing an overview of existing PWM interventions in order to inform the current project.

**Table 5.3** Behaviour change techniques identified in PWM literature. Numbers refer to techniques in 40 item taxonomy (Abraham, 2012)

| Technique  | Andrews et al<br>2011 | Lane et al<br>2011 | Todd &<br>Mullan 2011 | Ouellette et al<br>2005 | Gibbons et al<br>2005 | Brody et al<br>2004 | Blanton et al<br>2001 |
|--|-----------------------|--------------------|-----------------------|-------------------------|-----------------------|---------------------|-----------------------|
| 1) Provide information about behaviour - health link           | ✓                     |                    |                       |                         | ✓                     |                     |                       |
| 2) Describe likely material consequences of behaviour          | ✓                     |                    |                       |                         | ✓                     |                     |                       |
| 4) Prompt recipients to assess their own risks                 |                       |                    |                       | ✓                       | ✓                     |                     |                       |
| 9) Provide information about others' behaviour                 |                       | ✓                  | ✓                     |                         |                       |                     |                       |
| 10) Provide info about others' approval of the behaviour       | ✓                     | ✓                  | ✓                     |                         |                       |                     | ✓                     |
| 12) Provide positive / negative identity for actors/abstainers | ✓                     | ✓                  | ✓                     |                         |                       | ✓                   | ✓                     |
| 16) Provide instruction on how to perform a behaviour          |                       |                    |                       |                         | ✓                     |                     |                       |
| <i>Other: Mere measurement</i>                                 |                       |                    | ✓                     |                         |                       |                     |                       |
| <i>Other: Prompt to think about future self-image</i>          |                       |                    |                       | ✓                       | ✓                     |                     |                       |

#### **5.2.4 Do existing components map onto assumed change processes within the model?**

In order to determine if the existing BCTs related to the change process with the PWM, the identified techniques were compared with the logic model in table 5.1. Techniques 1 and 2 in the taxonomy are concerned with giving information about the risks or consequences of a particular behaviour and are therefore perhaps aimed at changing attitudes towards the behaviour. Prompting recipients to think about their own risks could also be seen as giving information about the health – behaviour link to them as individuals. Providing information about others' behaviour appears to be related to descriptive norms in the model. It is possible that this helps to correct misperceptions about others' behaviour, which is a focus of the social norms approach to reducing alcohol misuse (Bewick, Trusler, Mulhern, Barkham, & Hill, 2008). However this cannot be concluded from the intervention descriptions provided. Techniques about other people's approval may also be related to norms; however some of the fictional newspaper reports used in the existing studies incorporated this as part of describing prototypes. Providing positive or negative identities for actors or abstainers is the technique most clearly linked to the assumed change process within the social reaction pathway. This technique involves manipulation of the existing prototype images that are assumed to impact upon willingness. Instructing a recipient how to perform a particular behaviour is not clearly linked to the assumed change processes within the pathway but again it could be postulated that a technique such as this could override reactive behaviour. Use of the mere measurement effect is linked to the assumed change process in the intentional pathway as it is hypothesised that thinking about the behaviour can change attitudes towards it. Finally the contemplation of future self-image has been linked to current images of prototypes but does not fit within the assumed change process within the PWM.

#### **5.2.5 Can existing BCTs be incorporated into the current intervention, adapted or are or new BCTs required?**

The exercise described above found that existing PWM interventions attempt to change prototypes using a number of methods that fit within the description of an existing BCT described in a generic taxonomy of behaviour change techniques. The findings reported in chapters three and four

suggested that changing prototypes may also be effective in reducing alcohol misuse in young people in the UK. Consequently the existing technique of providing a positive or negative group identify was incorporated into the current project.

Findings from the first two studies reported in this thesis indicated that older teenagers aged 16-17 intended to drink and get drunk and made plans to do so whereas younger teenagers reported more unplanned drinking and less intentions to drink. As discussed in chapter one making young people aware of spontaneous decision making processes might be a suitable way of targeting the automatic system within the PWM. The model highlights the importance of social situations for young people's health risk behaviours and it is assumed that unplanned drinking situations may lead to more harm because young people are unable to anticipate the consequences (Gibbons, et al., 2003). Existing interventions based on the PWM were not found to have specific techniques that addressed this important assumption within the model. Findings from the focus group study suggested that young people were themselves aware of the distinction between planned and unplanned behaviour. This quote illustrates a participant highlighting how current alcohol education might not address this.

*"We never really talk about peer pressure that's like on the spot, cos that's more on the spot peer pressure isn't it -like to drink or not but we generally talk about stuff in school where you can come back to the situation and decide what to do" (Aisha, Group 2, 16-17)*

This participant and other young people in the focus groups often mentioned peer pressure as a reason for drinking. Peer influence or pressure has also been widely explored in the literature (Marsden et al., 2005; Teunissen, et al., 2012). Thus it is appropriate that a PWM intervention should consider the role of peer pressure in relation to prototypes and to reactive behaviour. The important feature of the influence of peer pressure is to recognise that this might happen spontaneously and in response to social or environmental cues.

There were therefore two main objectives in the current intervention; the first was to target alcohol prototypes and the second was to teach people to recognise and deal with spontaneous peer influences on behaviour. These two objectives take into account the assumptions within the social reaction



pathway of the PWM. The techniques listed in the 40 item taxonomy offered a useful starting point in thinking about how to address these two intervention objectives in light of previous PWM studies. Most of them did target prototypes in some way but did not address how reactive behaviour might be overridden to result in less harm. Therefore the current intervention needed to incorporate a technique that enabled young people to deal with 'on the spot' pressure. In the 40 item taxonomy, technique 33 'provide instruction on resisting social pressure' was the closest to a description of dealing with peer pressure. Techniques 37 (teach to use environmental prompts and cues) and 30 (prompt specific planning/goal setting) were descriptions of ways in which it may be possible to teach participants to recognise spontaneous influences on behaviour and override them.

Table 5.4 demonstrates how the objectives of the intervention relate to behaviour change techniques identified in existing literature and the generic taxonomy. In relation to the guiding question (Can existing BCTs be incorporated into the current intervention, adapted or are or new BCTs required?) it appears that an intervention to target the social reaction pathway in the PWM can apply existing BCTs. However, some of the BCTs should be re-defined to specifically ensure they address the assumptions in the pathway. For example, changing prototypes does relate to the BCT of 'providing a positive or negative group identity', but does not clearly imply the need to focus on characteristics. Table 5.4 links existing BCTs with the objectives and targets of the planned intervention. The final column shows the specific BCT applied in the current project.

**Table 5.4** Objectives and linked behaviour change techniques identified as relevant for PWM intervention

| Objective   | Existing BCTs identified as linked to objectives | Target in the PWM   | Social reaction pathway BCT  |
|---|--|---|--|
| Change prototypes                                 | Provide a positive or negative group identity    | Drinker prototypes negative non-drinker prototypes positive | 1) Present a positive non-drinker and or negative drinker prototype and enhance similarity to non-drinker  |
| Change prototypes                                 | Provide information about others' behaviour      | Corrects norm misperception that everyone drinks            | 2) Adapt and present information on other people's drinking to reduce perception of drinker prototype as the norm to enhance similarity to non-drinker |
| Reduce spontaneous social influences on behaviour | Prompt barrier identification                    | Awareness of social influence on drinking                   | 3) Teach awareness of social/ environmental cues to behaviour (that reactive or unplanned is more risky)   |
| Reduce spontaneous social influences on behaviour | Provide instruction on resisting social pressure | Show how others resist: present them in a positive light    | 4) Provide examples of how other young people resist social pressure in social situations  |

### **5.2.6 How should the specified BCTs be delivered within the intervention?**

Having specified the types of BCTs to be used in the intervention a further key decision at this stage is the means by which the proposed intervention will be delivered to young people. As described, three of the interventions presented information to recipients in the form of news reports purporting to contain information about how other people described a prototype. The fake survey results format used by Blanton et al (2001) was adapted by Todd and Mullan (2011) for use with female undergraduates in order to try to reduce binge drinking but was unsuccessful in this population. This could be explained by the finding that with experience, there is a shift from willingness based decision making to intention based decision making (Pomery, et al., 2009) and that university undergraduates may well be frequent drinkers. Adapting this approach may therefore be suitable for a younger population for whom drinking alcohol may be non-intentional and influenced by peer processes (Bremner, et al., 2011; Litt & Stock, 2011).

Some of the key considerations highlighted in the first chapter were about the duration and the resources needed to deliver an intervention, particularly in schools where time may be short. Therefore this project needed to take into account a mode of delivery that would be easily implemented and required the minimum amount of teachers' time. The internet is a popular and increasingly used medium for intervention delivery (Portnoy, Scott-Sheldon, Johnson, & Carey, 2008). Evidence suggests that theory based internet interventions incorporating a number of behaviour change techniques can be effective (Webb, et al., 2010a). Mobile phone application interventions also show promise in reaching young people (Reid et al., 2011) but in the alcohol field there are far more applications that appear to facilitate alcohol use than those that attempt to reduce alcohol related harm (Cohn, Hunter-Reel, Hagman, & Mitchell, 2011). The prevalence of internet use and growing smartphone and tablet use means that an online method of delivery has the potential to be able to reach large numbers of young people (Abraham & Block, 2012). Moreover, using a web based mode of delivery ensures that intervention fidelity can be maintained compared to a classroom based or instructor delivered programme (Teesson, Newton, & Barrett, 2012). A review found that including feedback and communication opportunities were

effective ways of including interactivity and helping young people to practice refusal skills in interventions aimed at young people (Cuijpers, 2002). Using a game is another way in which interventions may be potentially attractive to young people. This is sometimes referred to as 'gameification' and has been applied to interventions targeting sexual health in young people in the UK (Arnab et al., 2013). Thus an interactive digital intervention may be a useful method of reaching young people for the current project and has been selected as the mode of delivery for the intervention. The current project adapted the newspaper report approach described above and incorporates the specified behaviour change techniques into an intervention in the form of an interactive quiz to be delivered using a website.

Young people aged 16-18 were consulted in the process of deciding on an appropriate format for this intervention during A-Level Psychology classes that the researcher attended and presented at within schools who had been associated with the project. Young people's feedback indicated that they preferred to engage with online rather than written materials and that they wanted something where they had to interact with a website rather than read information. The A-Level students thought that quizzes were a good way to remember information as they had to think about the answers for themselves rather than as a class group. Questions and answers are used as part of the PR:EPARe sexual health intervention which has shown promise in helping young people to avoid sexual coercion (Arnab, et al., 2013). For these reasons a quiz format was selected as an appropriate mode of delivering the intervention because it will require engagement with the intervention content rather than the information simply being presented as material to be read and has been used in other interventions targeting young people.

The quiz was made up of ten questions each specifically linked to the processes outlined table 5.4 with the objective of changing alcohol prototypes and reducing reactive drinking influenced by social pressure. For each question there were three possible choices provided and correct answer was presented in the form of a video clip of a young person in the target age group explaining the answer. A draft of the questions and the linked BCT appears in the intervention logic model in table 5.5 (see Appendix C for the full list of questions and multiple choice answers).

Table 5.5 is an expanded logic model to demonstrate the inputs, processes and intended outcomes for the intervention. In the first five quiz questions the focus is to alter prototype perceptions. In the second five quiz questions the focus is on the spontaneous nature of drinking and specifically how to cope with social pressure to drink. The inputs in the logic model are the specific BCTs delivered within the quiz questions that target the processes with the PWM. The outcomes for the intervention are the changes in PWM constructs that are assumed to occur (based on the studies reported in this thesis and the existing literature) as a result of targeting the specific processes with each BCT. It is important to note that the logic model presents the intended outcomes of the intervention; whether these changes do actually occur must be tested.

The process of development to this point was based on the framework proposed in chapter two of this thesis. The intervention was designed drawing on the literature, incorporating PWM relevant BCTs, and insights from the focus groups and questionnaire. The next steps of the framework sought feedback from three stakeholder groups to improve the final specification of the intervention. The second half of this chapter reports the first of three 'feedback studies'. Intervention developers and experts in preventing adolescent alcohol misuse are relevant stakeholders in this project due to the relatively under-researched theoretical basis and the use of a new development framework. Their feedback on the development process and the application of the PWM to an intervention in the form of a quiz using the BCTs specified in table 5.5 was sought using a modified Delphi study.

**Table 5.5** *Logic model to specify BCTs, processes and outcomes for PWM intervention in the social reaction pathway*

| Input: BCT   | Process in PWM   | Outcome   |
|--|--|---|
| 1) Adapt and present information on other people's drinking to reduce perception of drinker prototype as the norm to enhance similarity to non-drinker | Images are often based on misperceptions. Similarity to prototype drinker is strongly related to willingness and drinking  | Drinker prototype decrease similarity as not the norm Corrects norm misperception   |
| 2) Present a positive non-drinker and or negative drinker prototype and enhance similarity to non-drinker  | Target prototype favourability and similarity. Enhance positive features of non-drinker. Present negative image of drinker | Drinkers and drinking are less favourable and less similar to self.<br>Non-drinkers and non-drinking more favourable and more similar to self |
| 3) Teach awareness of social/ environmental cues to behaviour (that reactive or unplanned is more risky)   | Spontaneous influences on behaviour may occur when young people do not plan to drink                                       | Young people are aware of reactive nature of their behaviour  |
| 4) Provide examples of how other young people resist social pressure in social situations  | Reduce unplanned behaviour and decrease willingness to drink.  | Young people are able to recognise and deal with social pressure themselves   |

## **5.3 Part Two: Delphi study to inform intervention development**

### **5.3.1 Introduction**

A Delphi study seeks a consensus of expert opinion through a series of structured questionnaire rounds. Delphi questionnaires usually incorporate both quantitative and qualitative measures (van Teijlingen, Pitchforth, Bishop, & Russell, 2006). Experts are selected for their knowledge and experience in the field of study and are consulted using a structured format. An advantage of using a Delphi approach is that it can be carried out without the panel of experts having to meet, saving time and expense (Powell, 2003). It also means that the panel can take part at a time suiting them within a set period potentially increasing the rate of participation (van Teijlingen, et al., 2006). Moreover, members will not know the identity of the other participants to ensure that they feel free to give their opinion without being concerned that a more experienced participant or someone using a different approach will criticise them. The outcomes of a Delphi study should therefore be more robust than less formal feedback or decision making processes (Watson, 2004). This type of approach is suitable for the investigation of issues where there is a lack of agreement in the literature. This makes it an appropriate method to gain feedback on the development of a digital intervention based on the PWM. A traditional Delphi study may involve three or more rounds in the following format: 1) Open ended questions to identify what needs to be addressed; 2) Panel members are given feedback about round one and are asked to rate or rank agreement with statements; 3) Panel members shown the ratings of the group as a whole and may change their own ratings; 4) Round three repeated if necessary until a consensus or acceptable level of agreement has been achieved (Powell, 2003). Some Delphi studies begin with a more structured first round where a problem is pre-identified or opinions are expressed by the researcher first (Jones & Hunter, 1995) before the experts are selected.

The Delphi method has been employed to address a range of issues in health care research (Jones & Hunter, 1995; Powell, 2003). In health behaviour change research a three stage Delphi was employed to identify factors that might influence transition between the stages of change in the Transtheoretical model (TTM) (De Vet, Brug, De Nooijer, Dijkstra, & De Vries,

2005). The authors suggest that this approach enabled a greater number of factors to be identified than a systematic literature search because of they were able to access unpublished findings. Specific to internet intervention research, a Delphi study has been used to identify a list of factors of importance in the development of health websites (Schneider, van Osch, & de Vries, 2012). This study incorporated expert feedback and potential end user feedback to produce a list for intervention developers to consider. In another study, aspects that influence the dissemination and exposure of internet delivered interventions were explored (Crutzen et al., 2008). This three round Delphi study achieved a consensus of the importance of word of mouth recommendations for internet intervention use. They also found that experts agreed about the importance of several features of the intervention such as how attractive it was and whether it had been designed with the input of young people. They were not able to attain a consensus however with regards to how internet interventions should be disseminated, for example whether this was best achieved via a controlled setting in schools, within social programmes or through commercial partners (Crutzen, et al., 2008). This illustrates how a Delphi study may only be suitable at certain stages of the development process and how additional research may still be required. Indeed the authors went on to investigate dissemination strategies using a systematic review (Crutzen et al., 2011).

The Delphi method has also been used in some of the on-going work to identify and categorise behaviour change techniques (Michie et al., 2012a). A panel of 14 experts were used to categorise whether collated definitions from the literature were accurate and to determine whether techniques were unique and did not overlap with other definitions. Participants were also asked to judge whether they thought that practitioners would be able to agree in identifying the individual techniques. This project used a modified Delphi approach in two ways. Firstly, the authors pre-determined the techniques to be rated by their participants rather than the traditional open first round. Secondly, the nature of the questions about the techniques changed between rounds. Modified Delphi approaches are commonplace in the literature despite there being some criticism that this modification may undermine the credibility of the method (Keeney, Hasson, & McKenna, 2006). Another example of a modified Delphi study aimed to establish a set of guidelines to be



used in research into driving under the influence of drugs (Walsh, Verstraete, Huestis, & Morland, 2008). The authors developed questionnaires in advance of the first round as in the modified Delphi studies described above. It is widely recognised however that a wide range of approaches can be valid as long as they use a transparent controlled process and define consensus from the outset (Hasson & Keeney, 2011; Hasson, Keeney, & McKenna, 2000; Powell, 2003). The modified approach is clearly warranted when some literature exists, when there are very specific objectives (such as in the taxonomy study) and when time is limited.

### ***Aims***

The overall purpose of this study was to obtain expert feedback on the development of an intervention to reduce alcohol misuse in young people. Specifically feedback was sought on the application of theory to techniques and the proposed intervention format. The aims of the study therefore were 1; to use expert feedback to identify priority areas to be addressed in the next stage of intervention development, specifically around the theoretical basis and the proposed mode of delivery, and 2; to assess the extent to which experts agreed about these priorities.

### **5.3.2 Method**

#### ***Participants***

An initial list of 37 potential participants consisted of a range of experts selected for their specific experience in the field. Twenty people (54% response rate) agreed to take part and were sent the round one questionnaire. Fifteen of those people (40.5% response rate, 75% of those who had agreed to take part) participated in round one and of those, 11 (29.7% response rate, 68.8% of those who took part in round one) participated in round two. Delphi studies typically achieve a response rate of around 30-40% in the first round (Brouwer et al., 2008; Schneider, et al., 2012) and so this study was in line with other research. Details about the areas of expertise of those who took part compared to those who did not are shown in table 5.6. Participants were not told about the identity or the number of other experts taking part.

### ***Procedure***

On the study start date 20 experts who had agreed to take part were sent an email with instructions for taking part, a summary of the intervention development process, a plan of the intervention and a link to the first questionnaire on the Survey Monkey website. One week before the deadline they were sent a reminder asking them to complete the survey. Two weeks after the first deadline, a second email was sent with a link to the second questionnaire. Completion of the questionnaire implied consent to each round and participants were free to withdraw at any time. The study received full ethical approval from Oxford Brookes University (study reference number 120618) and the approval letter is presented in Appendix A.

**Table 5.6** *Numbers and characteristics of Delphi study participants and non-participants who were invited to take part*

| Characteristic      | Refused to Participate (n=23) | Participant (round 1) (n=15) | Participant (round 2) (n=11) |
|---------------------|-------------------------------|------------------------------|------------------------------|
| Health              | 4                             | 2                            | 1                            |
| Psychology          |                               |                              |                              |
| Work with PWM       | 5                             | 3                            | 3                            |
| Alcohol research    | 5                             | 3                            | 2                            |
| Young people        | 5                             | 4                            | 2                            |
| Intervention design | 4                             | 3                            | 3                            |
| Male                | 15                            | 8                            | 5                            |
| Female              | 7                             | 7                            | 6                            |
| UK                  | 12                            | 7                            | 3                            |
| Europe              | 4                             | 2                            | 2                            |
| USA                 | 6                             | 2                            | 2                            |
| Australia           | 0                             | 4                            | 4                            |

## *Measures*

The structured questionnaires in both rounds were in three sections; 1) theory and technique, 2) format and mode of delivery and 3) overall comments (see Appendix C). The questionnaires were piloted with two experts who had experience in adolescent alcohol misuse and intervention development.

In round one the *theory and technique* section asked about the application of the PWM to behaviour change techniques and the development process. The six statements in this section were developed from recent behaviour change intervention design literature including a theory coding scheme (Michie & Prestwich, 2010) and a generic taxonomy of behaviour change techniques (Abraham, 2012a). Michie and Prestwich's theory coding scheme comprises six key categories of questions for coders to use to evaluate the use of theory in a reported intervention; is theory mentioned, are relevant theoretical constructs targeted, is theory used to select recipients or tailor interventions, are relevant theoretical constructs measured, is theory tested and is theory refined (Michie & Prestwich, 2010). The six statements used in this section of the questionnaire relate specifically to the first three of these questions with additional focus on whether the theory and BCTs have been applied appropriately to the intervention materials and the development process.

The *format and mode of delivery* section had six statements about the use of a quiz style digital intervention in applying the PWM to alcohol and young people. The questions in this section were formulated by thinking about issues around delivering a game as an intervention and whether this would be able to influence the expected change processes. After a process of refinement at the pilot stage the final six statements were chosen.

Participants were asked to rate their agreement to each of the 12 statements on a scale from 1 (lowest level of agreement) to 7 (highest level of agreement). Each rating statement in the first two sections was followed with a comment box and participants were encouraged to provide reasons for their answers or further comments about the statement. The statements are listed in full in table 6. In the *overall comments* section the participants were asked in open questions to identify main strengths and weaknesses of the proposed intervention, comment on the target age range and outcome measures.

In round two each section began with a statement to summarise the main positive or supportive comments made by group members in round one. This was followed with six pieces of feedback that summarised the areas where consensus had not been achieved or where critical feedback had been received. Participants were asked to rank each piece of feedback from 1 (most important) to 6 (least important).

### ***Analysis***

Powell (2003b) suggests that a weakness of some Delphi studies is a lack of transparency about how consensus is defined. For the purpose of the current study consensus was defined in line with previous research using the median and the interquartile deviation (IQD) (Brouwer, et al., 2008; Schneider, et al., 2012). The median score indicates the average level of agreement from 1 (lowest level of agreement) to 7 (highest level of agreement). The IQD is calculated as the difference between the 75<sup>th</sup> quartile (Q3) and the 25<sup>th</sup> quartile (Q1) divided by 2. An IQD of  $\leq 1$  is considered as a good indicator of consensus in a Delphi study using a 7 point scale (Brouwer, et al., 2008; De Vet, et al., 2005; Schneider, et al., 2012).

The answers to open questions were first coded as either 1) positive/supportive, 2) negative/critique, 3) suggestion/further point or 4) neutral/explaining response. In round one, comments from participants that indicated a lack of consensus, critique or suggestion were grouped into themes for inclusion in the second round questionnaire.

### **5.3.3 Results**

#### ***Round one***

Table 5.7 shows the rating statements and the median and IQD for each one. An acceptable consensus was achieved for five out of the six statements in the 'theory and technique' section. Experts did not reach a consensus in response to the statement 'the behaviour change techniques have been applied appropriately in the intervention'. The statement for which consensus was not achieved was about the application of behaviour change techniques.

Each statement was followed by a comment box for participants to add further feedback. Positive or supportive comments were received about the theory, the materials and the behaviour change process and techniques.

*ID16: PWM has been frequently applied to intervene with adolescents and has been generally successful with this population*

*ID14: I feel that an intervention would benefit from a truly two-mode model such as the PWM*

*ID13: I think the intervention follows a very clear progression and is presented in the most sensible order possible.*

*ID10: The change processes are clearly outlined*

*ID6: The use of the MRC model is a positive feature of intervention development*

Negative or critical comments were received about how well the behaviour change techniques targeted reactive decision making, the incorporation of norms and whether it was ethical to use fake survey data:

*ID13: I think that the spontaneous pathway in the PWM is only tapped in a "deliberative" way*

*ID16: I ... have a slight concern about including descriptive norms... this is a more rationally based construct...than prototypes*

*ID10: I have some ethical concerns about the use of fake survey results*

*ID14: People on the pages described merely talk about having been in a situation of social pressure; being told that they "are not the sort of person who gives in to peer pressure" and are "strong minded individuals, confident" and so on is only a vicarious experience*

**Table 5.7** *Rating statements from round one of the Delphi study with median rating and interquartile deviations (IQD)*

| <b>Round one statements</b>   | <i>Mdn</i> | <i>IQD</i> |
|---|------------|------------|
| <b>Theory and technique statements</b>  |            |            |
| 1) This theory is a suitable basis for an intervention with young people aged 11-15             | 5          | 0.5*       |
| 2) The intervention materials reflect the theoretical basis of the intervention                 | 6          | 0.5*       |
| 3) The change processes targeted by this intervention are clear                                 | 6          | 0.5*       |
| 4) The behaviour change techniques applied reflect the change processes specified by the theory | 6          | 0.5*       |
| 5) The behaviour change techniques have been applied appropriately in the intervention          | 5.5        | 1.25       |
| 6) The process of intervention development from theory to proposed planned materials is clear   | 6          | 0*         |
| <b>Format and mode of delivery statements</b>   |            |            |
| 1) The use of a mobile phone application is a suitable mode of delivering the intervention      | 6          | 1*         |
| 2) The use of a game is a good way to engage with young people                                  | 6          | 1*         |
| 3) The use of survey information makes the information credible to young people                 | 5          | 1*         |
| 4) This intervention will create a positive image of young people who do not drink alcohol      | 5          | 1*         |
| 5) This intervention will be effective in targeting peer influences on drinking                 | 5          | .5*        |
| 6) This intervention would be interesting for young people aged 11-15                           | 5          | .5*        |

Note \* = consensus achieved *Mdn* = median *IQD* = Interquartile deviation

There were also a number of suggestions made in the comment boxes. The main suggestions were about using other theories and additional behaviour change techniques.

*ID8: Social influence theory and Competence enhancement approach are the most favoured and effective approaches to alcohol and drug*

*prevention.... I think the intervention would benefit from included some of the underlying factors in these approaches in the model*

*ID13: expand upon the refusal situations presented, in your proposed intervention, the only reasons given for refusal are based around maintaining physical health, which might not be a priority for everyone*

*ID14: ... what about incorporating implementation intentions more explicitly*

Consensus was achieved for five of the six statements in this section. The statement where consensus was not achieved was about the application of behaviour change techniques. Analysis of the comments made under this statement indicated this disagreement might be associated with the perception of how the intervention targeted the reactive pathway in the PWM and how the intervention addressed social pressure. The comments made specifically about this statement and the other critical feedback was combined into a list of six common themes to address in the theory and technique section in round two.

In the 'format and mode of delivery' section consensus was achieved for all statements. It was therefore important to address the comments that were made in this section to identify what should be included in the second round. Positive / supportive comments were received about the game format and its appeal to young people:

*ID3: The interactive nature of the intervention and the use of young people to present information is likely to be engaging*

*ID6: Yes, I think the interactive quiz element will be of interest, and I find in my own research that young people are always ready to discuss their alcohol use (or at least hold an opinion on it)*

Negative or critical comments were received about the use of fake survey information, the credibility of the information and creating a negative image of those who drink:

*ID10: If the false information is too different to information from other sources this may have the opposite effect*

*ID4: Contextual influences are very important in reducing/promoting spontaneous drinking. Taking the quiz at 10 am doesn't necessarily imply immunization at 10 pm when you are in the street actually exposed to those influences.*

*ID6: I would caution presenting too much of a negative image of young drinkers though, as this in itself can be attractive to some .....and a wholly negative image may not resonate with a wider sample of young people*

*ID 15 some more cynical kids might think the data (survey results) were somehow "predetermined"*

*ID11: Perhaps students will 'see through' the message and feel that they are being manipulated, many interventions and adverts that claim to engage youth by being 'street' often fall flat because the target audience sees through the message and feel that they are being manipulated at best and patronised at worst.*

There were also a number of suggestions made in the comment boxes. The main suggestions were that there should be an incentive to complete the quiz and that follow-up prompts or additional materials might be useful:

*ID15: What is the incentive or "hook" for kids to do the game and process (pay attention to) it?*

*ID8: I'm not sure how effective the Quiz on its own will be. I would suggest emailing the students a fact sheet too and potentially incorporating some other activities*

The critical feedback and suggestions were combined with this into a list of six common themes to take forward in the format and mode of delivery section. They would be taken forward to round two.

### ***Overall comments***

The overall comments section in round one consisted of five sections; main strengths, main weaknesses, comments on age range for intervention, comments on harms as an outcome measures and any other comments. The



overall comments have been categorised into strengths and weaknesses in table 5.8.

**Table 5.8** *Strengths and weaknesses of the intervention listed by Delphi participants in round one*

| Strengths  | Weakness  |
|--|---|
| Use of internet and technology that will appeal to young people                  | Credibility (linked to use of fake survey data)   |
| Quiz format  | Length of intervention is too brief               |
| Theory based   | Additional sessions or other tools needed         |
| Empirically supported  | Does not include interaction between young people |
| It will incorporate feedback from young people at the development stage          | Issues with use of fake survey data               |
| Appropriate for the target age group   | Incentive to complete quiz                        |
| Focus on social elements of drinking that are important for the target age group | Does not deal with contextual issues              |

The weaknesses were compared with the critical comments from the previous two sections and a list of six common themes to be taken forward to round two.

Additionally, the round one questionnaire was used to gain feedback on the proposed age range and outcome measures to be used in the intervention. There was a group consensus that the proposed age range of 11-15 was an appropriate target for an alcohol misuse intervention, some suggested that it could be even younger. Group members commented that early adolescence was the best time to implement an intervention, preferably before experimentation occurred. One comment suggested that it was important to target the rational pathway as well, because of the range of ages, with reactive constructs more appropriate to the younger end and deliberative for the older

end. This suggests overall that the age range has been appropriately selected. Testing the intervention with young people in the next stage of this research will explore if the range should be focussed more at the younger end.

*ID15: kids develop some willingness to drink by age 10 or 11; but I think age 11 is a good starting point; before that age they are less socially oriented (and social orientation is central here)*

The planned outcome measures of overall consumption of alcohol, heavy consumption and harms received support by from Delphi participants. Specific support for including harm reduction as an outcome measure was expressed by the group. Harms were seen as more realistic and more reflective of adult societal norms than abstinence:

*ID6: I would strongly recommend including reduction of harms in your outcomes, although an alcohol free youth is preferable, I personally think this is both unrealistic, and perhaps not even desirable. Furthermore, national alcohol policy does not support abstention in adults, and i think that young people will be aware of this through their observation of adult alcohol culture.*

One comment suggested that the intervention could not address harms because it did not address protective drinking strategies. Other comments suggested the following outcomes may also be important to consider:

- Ask how many times a soft drink was chosen instead
- What strategies do people use to avoid drinking to excess?
- What healthy activities do people do?
- How many know at least three people who drink too much?
- What other risky behaviours do they engage in?
- Frequency of drunkenness

There were a small number of comments made in the 'other comments' section. The comments were all of a positive nature and expressed group members' interest in or support for the proposed intervention. One comment suggested that prompts be sent to participants via their phones in the evenings or at weekends to try to intervene in context.

*ID13: I really liked the way the intervention and design was presented, and I think it's exciting to see an intervention designed for an age range not usually represented in regard to this topic*

*ID4: One way to deal with the limitation would be to post prompts to answer the quiz OR some auto-generated message with the quiz results (such as: do you remember...?) in evening/night hours at least in those week days when group drinking is most likely to occur*

*ID16: Good intervention, good luck*

### **Round two**

It is important that the second round of a Delphi study expands and clarifies the information from the first round, progressively building feedback between rounds (Walsh, et al., 2008). Thus, the information identified in round one was used to generate six statements for each of the three main sections (see table 5.9).

In the theory and technique section there was a lack of consensus for statement five in round one, comments relating to the application of behaviour change techniques were a priority to address in round two. Due to a lower median rating than the other statements, comments relating to the theoretical basis were also important to address. The other critical feedback and suggestions were combined with this into a list of six common themes in the theory and technique section. Comments were sought at the end of the section rather than for each statement so as to reduce participant burden in this round. Two comments were about the use of additional theory. One was strongly in favour of a multi-theory approach and the other suggested that using multiple theories would require more complex evaluation. However, the statement relating to the use of other theories was ranked as the least important to address. Consensus was achieved on two of the six statements in this section. These statements were ranked in the top three and were about addressing social pressure in the intervention and incorporating implementation intentions. This suggests that for the theory and technique section the study has successfully identified priorities to address and a consensus was achieved. Consensus was not achieved for the other statements. In summary, the group consensus in the theory and technique

section is that the theoretical basis of the intervention is appropriate. The consensus suggests that priorities for further work are to use more techniques to help young people deal with social pressure perhaps by specifically using implementation intentions.

The two questions with the lowest level of agreement in the format and mode of delivery section were about creating a positive image of non-drinkers and peer influences. There were also a number of concerns about using survey information. These areas were therefore important to cover in round two. Taking into account the rating questions and the comments a list of six priority statements was drawn up to try to reflect what most represented the group consensus about this area of the intervention. A small number of additional comments were made; two concerned the importance of the statement about using fake survey data. This indicates that although this statement was ranked as fourth most important, it might be important to consider the implications of this in the next version of the intervention as a group consensus has not been reached. The other comments offered explanations for the respondents' choices and one suggested that adherence and attrition were important issues. Consensus was achieved for four of the six statements in this section including the three highest priority statements. In summary, the group consensus in the format and mode of delivery section is that using a game delivered on a mobile phone or other technology would be an appropriate and engaging intervention method. The consensus suggests that further work should 1) address the inclusion of follow-up prompts and additional materials, 2) incentivise young people to complete the quiz and 3) ensure the messages in the quiz answers are believable. Although not rated as highly as the other statements, there was a common theme of feedback related to the ethical use of fake survey data, which indicated this area should also be addressed.

**Table 5.9** Results of ranking exercises in round two of Delphi study for theory and technique statements showing number of participants at each rank, median rank and IQD

| Statements<br><b>Theory and technique</b>               | Rank |   |   |   |   |   | <i>Mdn</i> | <i>IQD</i> |
|---|------|---|---|---|---|---|------------|------------|
|   | 1    | 2 | 3 | 4 | 5 | 6 |            |            |
| Further work is needed on addressing social pressure    | 0    | 6 | 2 | 2 | 0 | 1 | 2          | 1*         |
| Incorporate implementation intentions                   | 2    | 2 | 3 | 2 | 2 | 0 | 3          | 1*         |
| Expand on reasons for alcohol refusal                   | 3    | 0 | 3 | 2 | 1 | 2 | 3          | 2          |
| Does not sufficiently target reactive pathway           | 4    | 0 | 0 | 3 | 1 | 3 | 4          | 2.5        |
| Make the distinction norms & prototypes clearer         | 1    | 2 | 2 | 0 | 5 | 1 | 5          | 1.5        |
| Consider using insights from other theories             | 1    | 1 | 1 | 2 | 2 | 4 | 5          | 1.5        |
| <b>Format and mode of delivery</b>                      | Rank |   |   |   |   |   | <i>Mdn</i> | <i>IQD</i> |
|   | 1    | 2 | 3 | 4 | 5 | 6 |            |            |
| Include of follow up prompts or fact sheets             | 5    | 3 | 2 | 0 | 0 | 1 | 2          | 1*         |
| Needs to be more incentive for young people to complete | 2    | 3 | 2 | 2 | 2 | 0 | 3          | 1*         |
| Believability of messages in the survey                 | 1    | 1 | 6 | 1 | 2 | 0 | 3          | 0.5*       |
| Issues with using fake survey data to be considered     | 1    | 0 | 1 | 5 | 2 | 2 | 4          | 0.5*       |
| Concerns about context of intervention / behaviour      | 2    | 1 | 0 | 2 | 2 | 4 | 5          | 2          |
| Caution about negative image of drinkers                | 0    | 3 | 0 | 1 | 3 | 4 | 5          | 2          |
| <b>Overall comments</b>                                 | Rank |   |   |   |   |   | <i>Mdn</i> | <i>IQD</i> |
|   | 1    | 2 | 3 | 4 | 5 | 6 |            |            |
| The intervention is too brief, needs booster session    | 1    | 4 | 5 | 0 | 1 | 0 | 3          | 0.5*       |
| Credibility: May not be taken seriously                 | 3    | 2 | 1 | 4 | 1 | 0 | 3          | 1.5        |
| Need interaction between young people                   | 2    | 2 | 2 | 1 | 5 | 1 | 3          | 1.5        |
| Does not address contextual issues in consumption       | 3    | 1 | 0 | 3 | 2 | 2 | 4          | 2          |
| It will be difficult to recruit in target age           | 2    | 0 | 2 | 3 | 2 | 2 | 4          | 1*         |
| There is a crowded market for mobile phone apps         | 0    | 2 | 1 | 0 | 2 | 6 | 6          | 1.5        |

Note \* = consensus achieved *Mdn* = median *IQD* = Interquartile deviation

To take into account group member feedback in the overall comments section a list of six priority statements was drawn up. Some of the feedback in this section was similar to that given in other sections but was included to assess its importance compared to other issues. Where a consensus had been reached in round one, some areas that had been marked as priority to address were not included at this stage. Table 5.9 shows the results of the ranking exercise for this section.

Two participants added their own views under the overall comments section. One highlighted their view that boosters or prompts were needed, perhaps using text messages. The other highlighted their view that the context of the intervention was important in terms of its likely impact. Consensus was achieved for one statement in this section, which was that the intervention was too brief and may need a booster or additional session. Credibility and the need to include interaction between young people were rated highly but did not achieve consensus. The statement ranked the least important was about using an app to deliver the intervention. Consensus was achieved for the fifth most important statement about recruiting in the target age group.

In summary, the consensus in the overall comments section suggests that the intervention is too brief and so needs something additional like a booster session. In addition credibility was ranked of high importance and a number of comments indicated this should be addressed.

The combined findings showed that experts thought that the areas for improvement of the intervention were to 1; use further techniques to address social pressure, 2; use follow-up or additional materials, 3; consider what incentive there is for the completion of the quiz, 4; consider the ethical implications of using fake survey data, 5; ensure the messages in the quiz answers are believable, 6; intervention might be too brief and 7; ensure the intervention is credible. Comments from participants indicated that believability, credibility and ethical issues were linked and so these have been addressed together. Follow-up materials and length were also combined resulting in four main priorities areas named as 1; social pressure BCTs, 2; intensity and length, 3; incentive and 4; believability of intervention messages.

### ***Experience of taking part***

Additionally, Delphi group members were asked to answer some questions about their experience of taking part in the study at the end of round two. Six of the 11 participants who took part in round two said that they had taken part in a Delphi study before. None of the round two participants had conducted a Delphi study themselves. Participants were also asked about their experience of taking part. The comments were positive on the whole and show that most group members felt that there was some value in undertaking such a study. The comments below may be useful in making recommendations for future Delphi studies of intervention design:

*ID15: I like it; good (efficient) way to get ideas from people without major time commitment*

*ID8: Very good way to get accurate responses*

*ID14: excellent way to get feedback from experts in the research field*

*ID9: It's a good way to gain feedback on an intervention.*

*ID13: It's interesting to get a chance to review feedback from others before offering advice for suggestions.*

*ID7: I think it is an extremely useful way of tapping into the 'very grey' evidence we have about the best way to influence behaviour on health issues for positive outcomes*

*ID4: It is a very quick and effective method to gather opinions and highlight problematic areas. However, it often yields very "soft" information that is not very helpful in the implementation stage*

*ID10: I consider it useful as part of a broader process.*

### 5.3.4 Discussion

The purpose of this study was to get expert feedback on the development of a theory based intervention to reduce alcohol misuse in young people aged 11-15. The aims were 1; to use expert feedback to identify priority areas to be addressed in the next stage of intervention development, specifically around the theoretical basis and the proposed mode of delivery, and 2; to assess the extent to which experts agreed about these priorities. The results generated a number of priorities and these have been grouped into the following areas: 1) the need for additional techniques to address social pressure (such as using implementation intentions), 2) that the intervention may be too brief and needs follow up materials, 3) a need for an incentive for young people to complete the intervention and 4) believability, credibility and issues with using fake survey data. Consensus was achieved for items 1-3 and for ensuring that the messages in the intervention were believable. The statement about the credibility of intervention messages was rated as important in the ranking scales as well as receiving a high number of comments but consensus was not achieved for this item. Another area that received a number of comments was about using fake survey data and this also did not achieve consensus. Comments from participants indicated that believability, credibility and ethical issues were linked and so these have been grouped together. The four priority areas are discussed below and will be addressed with young people in the next phase of the project, a 'think aloud' study where young people will be interviewed as they complete the quiz and asked to give their opinions.

The first piece of feedback from the Delphi group showed that additional BCTs to deal with social pressure should be considered. Techniques to address social pressure include giving instruction on how to deal with it (which is what the intervention currently aims to do), provide negotiation skills training and to provide assertiveness training (Abraham, 2012a). Implementation intentions are plans that link situations to specific actions or behaviours to help them become automatic (Gollwitzer, 1999). They have been used successfully in a number of interventions, for example in a teenage pregnancy intervention young women were encouraged to make plans to take their contraceptive pills at specific times (Martin, Slade, Sheeran, Wright, & Dibble, 2011b). They have also been applied successfully in interventions to reduce



alcohol consumption in university students (Arden & Armitage, 2012). In this sense it is possible that making a plan for what to do when in a situation of social pressure may override any automatic socially cued response leading to alcohol consumption. This technique therefore may be appropriate to apply to an intervention based on the social reaction pathway of the PWM and be an appropriate additional BCT to use to deal with social pressure.

Delphi group members thought that the intervention was too brief on its own and suggestions were made to include a fact sheet, classroom activities, or that it should be used as part of a package of products. A review of internet interventions suggests that using a number of theory based techniques will be most effective (Webb, et al., 2010a) but it is important to ensure that any follow up material stays true to the purpose of the intervention. Text messaging could be one method of follow up and has been shown to be an effective method of helping adults to give up smoking (Free et al., 2011). Research with adolescents aged 15-20 suggests they enjoyed receiving and sharing them in a sexual health promotion study (Perry et al., 2012). Additionally text messages have the potential to intervene at the time of the behaviour and so potentially to interrupt reactive behaviours.

Delphi group members highlighted the importance of ensuring there was an incentive for young people to complete the quiz. Another Delphi study on internet interventions for this age group also indicates that they need to be rewarding in some way (Crutzen, et al., 2008), this could be a reward for a high score or for completing the quiz. It is important to address this priority with young people themselves to explore what might incentivise them.

The question of believability of intervention messages was raised in terms of creating a negative image of those who drink alcohol. If drinking alcohol is normative behaviour for older teenagers (Coleman & Cater, 2005a) and adults, then portrayal of only negative characteristics may be ineffective and lack credibility. The question of different types of drinkers (negative excessive drinkers, moderate responsible drinkers for example) has recently been explored in relation to young adults and drinker prototypes in the Netherlands (Van Lettow, et al., 2012b). This suggests that it may be important to consider different kinds of prototypes and their characteristics. Although the use of fake survey data as a way of manipulating prototypes has

been used previously (Blanton, et al., 2001; Todd & Mullan, 2011) some participants were divided on its use in the current study, citing ethical reasons for their opposition. The source of the information in the quiz and any supporting materials must be seen as coming from a credible source. The fake survey data purports to be from other young people of the same age and so this may be seen as credible if it is believed. This issue requires further investigation in the next stages of this project.

Although care was taken in selecting the list of potential group members, the voluntary nature of participation means that the group was not representative of all experts in the field. Nonetheless the geographical spread of contributors and specific expertise can be seen as a strength of the study. The nature of the rating statements in the first questionnaire might suggest that they were at risk of acquiescence bias. However this is unlikely given that the Delphi group comprised experts, because evidence suggests this type of bias is more likely when respondents have limited cognitive capacities or lack experience on the topic in question (Frey, 2009; MacKenzie & Podsakoff, 2012). Unfortunately, four participants were lost between round one and round two of the study and they were all from the UK. This may reflect that the study coincided with busy teaching time for academic participants and that the time to complete each round was only three weeks. As it was a modified Delphi the initial priority areas for feedback were defined by the researcher rather than the participants indicating a possible risk of bias. However, the length and the variety of open answers provided by participants suggested that a wide range of feedback was obtained. Some researchers have criticised the Delphi method because of the many variants it can take (Powell, 2003). However, clearly stating the method used and how consensus is to be defined increases the study validity (Keeney, et al., 2006). Additionally this study showed that it may be important to look beyond quantitative consensus where open comments also indicate strength of feeling about certain areas. Finally, it is important to note that evidence of consensus does not mean that the right set of priorities has been identified (Keeney, Hasson, & McKenna, 2001). In the current project however the priorities from the Delphi study will be combined with feedback from other important stakeholder groups specifically teachers, parents and carers, and young people themselves to inform intervention development. Moreover in this paper the priorities identified in the Delphi study have been discussed in

light of the literature and were supported by relevant research suggesting that it was a suitable method of identifying priorities for intervention development.

This study represented a systematic approach to gaining feedback on the development of an intervention using a novel application of the Delphi technique. The priority areas were all well supported by the literature suggesting that this method offers a good way to tap into expert knowledge and gain a wide range of feedback and that a good consensus can be achieved for this feedback. This was a valuable way to inform the current project as there was a lack of agreement in the literature about how to develop an intervention specifically linked to the PWM. It also provided a means of bringing together international experts to contribute their opinions. Additionally, the experts who took part thought this was a good way to get feedback on the development process. This approach to intervention development may be useful to use when undertaking projects using less well researched theories, new techniques or applying existing approaches in new target populations.

## **5.4 Conclusion**

This chapter reported how steps four and five in the proposed intervention development framework were achieved. The first part of the chapter reported the process by which the specific BCTs were selected and then applied to an intervention using the findings of the first two studies from this thesis and existing literature. In step five, this process was reported to experts in intervention design, health psychology, young people and alcohol research, and it received positive support. The expert participants made some suggestions as to how the components of the intervention could be improved and their suggestions were supported in the literature. This study represented a novel approach to gaining feedback on the process and demonstrated that useful priorities for the next stage of development could be generated with a good level of consensus. The findings from this study will be combined with the findings of the studies reported in chapters six and seven. Chapter eight will then detail how the findings each of the three feedback studies were incorporated into the final specification of the intervention.

# 6

## **Chapter Six: Parents' and teachers' views about an intervention to reduce alcohol misuse in young people**

## **6.1 Introduction**

The findings reported in chapters three and four together with existing literature in the field were used to produce a draft version of an intervention to reduce alcohol misuse in young people based on the Prototype Willingness Model (PWM). The process of development was reported in chapter five detailing the specification of behaviour change techniques and their application into an online quiz mode of delivery. Engaging with potential users of an intervention at the design stage is an important aspect of a number of the existing intervention design frameworks discussed in chapter two. This project aimed to incorporate feedback from three important stakeholder groups; experts in the intervention development field, teachers and parents, and young people themselves. This chapter reports on step six of the intervention development framework proposed in chapter two, which obtained feedback from the second group, the teachers and parents or carers of young people aged 11-15. This chapter uses the term parents for brevity but includes carers and guardians of young people as well as parents in the use of this term. Parents can influence young people's drinking through their own behaviour and the rules they set about alcohol. Teachers and schools have an important influence over the delivery of alcohol education. As such the viewpoints of both of these groups may be important in terms of the acceptability and practicality of the proposed intervention. The survey findings reported here revealed four priority areas to be addressed at the next stage of intervention development.

### **6.1.1 Parents**

The relationship between parents' own drinking and adolescent alcohol consumption is well-established. Parental modelling of drinking behaviour is associated with both early initiation of drinking and high levels of alcohol consumption in young people (Ryan, Jorm, & Lubman, 2010). Having rules about alcohol and the frequency of communication about alcohol in the home are also important parental influences on young people's drinking (Koning, van den Eijnden, Verdurmen, Engels, & Vollebergh, 2012; van den Eijnden, van de Mheen, Vet, & Vermulst, 2011). Valentine, Jayne, Gould and Keenan (2010) found that parents thought that they were the best source of information about alcohol for young people. However children may get different or mixed

messages about alcohol from home and from school. For example one study found that children tended to learn about the social effects of drinking and about drunkenness at home but about health effects and facts about drinking at school (Eadie et al., 2010). Another study showed that parents transmitted the idea that alcohol was something to reward good behaviour to their children (Valentine, et al., 2010).

Evidence from the most recent Smoking, Drinking and Drug Use Survey (SDD) suggests that parents can influence their child's drinking through their attitudes as well as their behaviour (Fuller, 2013). For example young people who thought that parents would disapprove of them drinking were less likely to drink themselves compared to those that thought their parents would not mind. The survey also found that young people who lived in households where no one drank alcohol were less likely to have tried it themselves (Fuller, 2013).

Parental monitoring has been demonstrated to be another important influence on young people's drinking (Moore, Rothwell, & Segrott, 2010). In a large longitudinal study of young people in Belfast, researchers were able to identify patterns in monitoring that influenced young people's drinking (Higgins, McCann, McLaughlin, McCartan, & Perra, 2013). A higher level of parental control over a child's free time was associated with less frequent drinking during adolescence. The study also found that younger adolescent children who talked to their parents about what activities they took part in during their free time drank less (Higgins, et al., 2013). It is probable that monitoring and rule setting are part of a combination of parenting practices that contribute to reduced alcohol consumption (Moore, et al., 2010).

However, young people who drink alcohol will often do this without their parents' knowledge (Morleo, Cook, Elliott, & Philips-Howard, 2013). If parents are not aware that their child is drinking then they may leave it too late or miss an opportunity to raise the subject prior to the child's first drink (Morleo, et al., 2013; Rothwell & Segrott, 2011). Moreover drinking practices will vary between families and some parents may never talk to their children about this subject. Other evidence found that parents became resigned to their children's drinking once they found out about it and stopped trying to enforce any previous rules (Huh, Tristan, Wade, & Stice, 2006). Further studies show

that some parents think that supplying teenagers with small amounts of alcohol is a good way to manage their consumption (Kypri, Dean, & Stojanovski, 2007), however this may lead to increased heavy episodic drinking (Livingston, Testa, Hoffman, & Windle, 2010). School based alcohol education is essential to address some of the inconsistencies between the information provided and behaviour experienced in the home. Valentine et al (2010) suggest that alcohol education in schools should also target parents as well as young people.

As shown in chapter one, there is evidence for the effectiveness of family based prevention programmes (Foxcroft & Tsertsvadze, 2011a). The main drawback of these types of programmes is that they are high intensity and require sustained participation by parents (Gilligan, Kypri, & Lubman, 2012). Online or face to face brief interventions involving parents may well be more practical to implement. One specific programme has also demonstrated that targeting parents was able to reduce adolescent drunkenness. In this intervention parents were given alcohol related information by post and at school meetings. (Fletcher, Bonell, Sorhaindo, & Strange, 2009). However, there is little research on the acceptability of interventions that are aimed at solely at young people to parents, or on the acceptability of general alcohol education to parents. Given the importance of parental influence and the potential for mixed messages this seems like an important omission in the current literature.

One study that looked at parents' views about an intervention was conducted by researchers developing a physical activity parenting programme. Parents' views were sought to determine what might affect recruitment into the programme and to get feedback on course content and structure (Jago et al., 2012). The authors were able to gain valuable insights into potential barriers to taking part such as childcare issues, which they may not have taken into account had they not conducted this study. Additionally, seeking views on programme content meant they were able to address the issues most important to parents, which may improve retention rates.

The Kids, Adults, Together (KAT) programme trialled a school based preventive intervention to reduce alcohol misuse that involved parents and children (Rothwell & Segrott, 2011). Parents attended a fun evening event at

school, which was the culmination of class work that the children had completed. The programme recruited a large number of parents and feedback from both parents and children was positive. It is important to note that some parents did not attend and the authors suggest that this may be due to time commitments or due to concerns about their own drinking behaviour (Rothwell & Segrott, 2011).

These findings suggest that ideally school based prevention should try to involve parents as much as possible but it is important to acknowledge that it is unlikely that all parents will take part in any programme even if the time commitment is minimal. Nonetheless taking parents' views about the proposed intervention into account might be one way to enhance their engagement on the topic. Their views may also reveal what they consider to be important in terms of what young people learn about alcohol in general, which could inform programme implementation.

### **6.1.2 Teachers**

Less evidence has been identified that looks specifically at the views of teachers about alcohol interventions aimed at young people. The school environment has been shown to have a clear impact on young people's health risk behaviours (Ozer, Urquhart, Brindis, Park, & Irwin, 2012; Perra, Fletcher, Bonell, Higgins, & McCrystal, 2012). Schools influence risk behaviour through the type of school environment and the quality of teacher-student relationships (Fletcher, Bonell, & Hargreaves, 2008). However there is little evidence to suggest whether teachers specifically have any influence on young people's drinking behaviour. One study, which looked at multiple risk behaviours, concluded that having a personal connection to a teacher was an especially important protective factor when a young person had a poor relationship with parents (Brooks, Magnusson, Spencer, & Morgan, 2012). Regardless of their individual influence, teachers play an important role in delivering alcohol education to young people as part of Personal, Social and Health Education (PSHE) or in the science curriculum.

Schools are also vital gatekeepers in the negotiation of access to young people to trial a new intervention programme such as is being developed in the current project. However it is often challenging to gain access to schools within which to conduct this type of research (Testa & Coleman, 2006; Tyler &



Davies, 2013). The cooperation of teachers and schools is vital for a successful trial of an intervention. This matter is not only important in terms of school participation and recruitment of young people; intervention fidelity is essential in a trial to determine effectiveness. If the content of a programme is not acceptable to the teachers responsible for delivering it then they may be tempted to add or leave things out. If they do not support the intervention messages then this could severely undermine the programme. One study in the United States examined teacher delivery of a school based prevention programme called 'keepin' it REAL'. The teachers reported adapting the programme in some way in 68% of lessons, however when observed by researchers adaptations were present 97% of the time (Miller-Day et al., 2013). Some of the changes were made for time reasons as they were not able to implement all the required tasks. In other cases teachers reported being uncomfortable with the content of the programme or even disagreeing with it. It is somewhat surprising then that there are only a few published studies looking at the acceptability of intervention programmes with teachers. The Kids, Adults, Together (KAT) Programme (Rothwell & Segrott, 2011) also included interviews with teachers to find out about their views. However there is relatively little attention given to the findings from these interviews compared with those with parents and children.

It appears that it may be uncommon then to get feedback from teachers on the actual content and delivery of an intervention at the development stage. One identified study conducted focus groups to determine what teachers thought about a new method of delivering sex education (Haignere, Culhane, Balsley, & Legos, 1996). This study identified barriers, such as lack of time, which prevented teachers from implementing the new methods. Although also not specific to alcohol a survey of US teachers views about adolescent health issues in general found that they were aware of their important influence on young people's well-being (Cohall et al., 2007). This study also showed that teachers wanted additional training in how to teach health related topics and help young people with specific issues. In one UK study (Fletcher, Bonell, & Sorhaindo, 2010) interviews were conducted with ten teachers to explore their views about implementing drug education. A common theme was that while teachers thought that drug education was important, there was insufficient time spent on this topic because it was not measured in terms of

exam results or success in league tables. Furthermore, it is possible schools may be concerned with their reputation if they are seen to be focussing on alcohol and drug education. If alcohol is seen as a controversial topic this could then limit teacher confidence in discussing the issue (Oulton, Day, Dillon, & Grace, 2004).

There appears to be little research into what teachers think about alcohol education in general or about the content of specific interventions prior to their implementation. The inclusion of feedback from teachers therefore represents an important addition to the development of the current intervention. This will determine if the programme is something they find acceptable in terms of content and mode of delivery, which may help to overcome the issues of time and confidence identified in the literature. The inclusion of this step might be important in influencing both their engagement in a trial and subsequent take up of the intervention.

### ***Aims***

The purpose of this study was to determine the acceptability of the intervention and to seek feedback from teachers and parents to feed into the development process. Specifically the study aimed to; 1) determine the acceptability of the mode of delivery and the content of the planned intervention to parents and teachers and 2) to generate a list of priority areas to consider for improvement of the intervention.

## **6.2 Method**

An online questionnaire was selected as the most appropriate means of collecting data for this study in order to reach a broad constituency of participants in a short timescale.

### **6.2.1 Participants and procedure**

Participants in this study were 48 secondary school teachers and 54 parents or carers of children aged 11-15. There were 17 male and 31 female teachers and 12 male and 42 female parents. Participants were recruited on an opportunistic nature via online advertisements and were offered an incentive of entering a prize draw for £25 vouchers. The first page of the online questionnaire comprised the participant information sheet and consent was

implied by completion of the questionnaire. Email addresses entered into the prize draw were stored separately from the responses to ensure anonymity. On the final page of the questionnaire participants were advised to visit [www.drinkaware.co.uk/talking-to-under-18s](http://www.drinkaware.co.uk/talking-to-under-18s) if they wanted any further sources of information. The questionnaires were piloted with two parents and two teachers prior to data collection taking place. Changes were made to remove some errors and clarify the meaning of one of the questions. Data was collected from December 2012- February 2013 and questionnaires took approximately 15 minutes to complete. The study received full ethical approval from Oxford Brookes University (study reference number 120617) and the approval letter is presented in Appendix A.

### **6.2.2 Measures**

The first page of the questionnaire gave a brief description of the planned intervention including information on the theory, format, types of questions, and mode of delivery. Section A comprised of nine statements about the intervention to which participants were required to indicate their level of agreement from 1 (strongly disagree) to 7 (strongly agree). Three of the nine items were worded negatively to try to account for acquiescence bias. For example the second statement was 'I would not feel confident talking about the alcohol quiz with my child/ my students'. The nine statements are listed in full in box 6.1.

**Box 6.1** *Statements from section A of the teacher and parent questionnaire:*

*Views about the intervention*

1. I would be happy if my child's school used this alcohol quiz with my child/ if my school wanted me to use this alcohol quiz
2. I would not feel confident talking about the alcohol quiz with my child/ the children I teach
3. The alcohol quiz would be suitable for parents to use at home with their child
4. The alcohol quiz would be suitable for children aged 11-15
5. Alcohol education should include ways of dealing with social pressure
6. The survey findings described non -drinkers in a positive way. My child/ the children I teach would not believe these findings.
7. A quiz is a good method to use in alcohol education
8. Young people generally have a positive image of other people of the same age who drink alcohol
9. Online or mobile phone games are not a suitable method to use in alcohol education

Section B comprised of nine statements about the content of alcohol education in schools to which they again were required to indicate their level of agreement from 1 (strongly disagree) to 7 (strongly agree). As before, two of the questions were negatively worded to try to account for acquiescence bias so for example the second statement was "I do not think it is important that children learn about alcohol in school". The nine statements are listed in full in box 6.2.

**Box 6.2** *Statements from section B of the teacher and parent questionnaire:*

*Views about alcohol education*

1. My child receives an appropriate amount of education / information in school about alcohol/ my school provides students with an appropriate amount of education/ information about alcohol
2. I do not think it is important that children learn in school about alcohol.
3. Social pressure is often a reason that young people start drinking
4. Parents are a better source of information about alcohol than schools
5. The internet is a good source of information about alcohol for my child/ my students
6. Children / my students should learn about alcohol from their own experiences
7. Schools should not need to ask parental permission before teaching children about alcohol
8. I feel confident in answering questions from my child / from my students about alcohol.
9. If my child's school agreed to take part in a test or trial of an intervention like the alcohol quiz then I would be happy for my child to take part/ I think that my school would be likely to agree to take part in a test or trial of an intervention like the alcohol quiz

Following the rating scales, questions covered the age that young people should learn about alcohol, the kinds of alcohol related topics that should be covered at school and at home and general comments about alcohol and young people. In section C some demographic information about the participants was collected. A full copy of both questionnaires can found in Appendix D.

### **6.2.3 Analysis**

Numerical data was entered into SPSS and the negatively worded questions were reverse scored. The data did not meet parametric assumptions therefore it was analysed using Mann Whitney tests to compare the teachers' and parents' responses. Responses to open questions were analysed guided

by the principles of thematic analysis (Braun & Clarke, 2006) and grouped into themes using an inductive approach. First, the comments were coded to identify common topics; secondly they were sorted into common categories; thirdly these categories were sorted into themes and checked across the comments; finally the themes were named and supporting evidence was identified. The themes identified provide a context for the quantitative data rather than a separate set of findings that stand alone.

## **6.3 Results**

The results are presented in two sections; firstly the numerical data from the rating scales and secondly the results of the analysis from the coded open questions are presented.

### **6.3.1 Rating scales and numerical questions**

The median, interquartile range and Mann Whitney test results for the rating scales in sections A and B of the questionnaire are shown in table 6.1.

#### ***Section A: Views about the intervention***

The median level of agreement to each statement on views about the intervention is shown in table 6.1. Teachers and parents responded similarly to the statements and Mann Whitney confirmed that there were no significant differences between the two groups ( $p > .05$  for all statements). The highest level of agreement was to the statement about including ways of dealing with social pressure. The lowest level of agreement was to the statement that young people generally have a positive image of people the same age as them who drink alcohol.

**Table 6.1** Median and interquartile range (IQR) for responses on the rating scales in sections A and B of the questionnaire comparing the responses of teachers and parents

| Section A         | Teachers   |            | Parents    |            | Mann Whitney |          |
|-------------------|------------|------------|------------|------------|--------------|----------|
|                   | <i>Mdn</i> | <i>IQR</i> | <i>Mdn</i> | <i>IQR</i> | <i>U</i>     | <i>p</i> |
| Use at school     | 6          | 1          | 6          | 1          | 1284         | .931     |
| Confident quiz    | 7          | 1          | 7          | 1          | 1273.5       | .849     |
| Parents at home   | 6          | 2          | 6          | 2          | 1277         | .894     |
| For 11-15s        | 6          | 2          | 6          | 2          | 1275         | .884     |
| Social pressure   | 7          | 0          | 7          | 0          | 1263         | .758     |
| Believe positive  | 6          | 3          | 6          | 3          | 1204         | .527     |
| Quiz method       | 6          | 2          | 6          | 1.5        | 1282         | .921     |
| Positive drinkers | 4          | 3          | 4          | 2          | 1231.5       | .658     |
| Online method     | 6          | 2          | 6          | 2          | 1211         | .801     |
| Section B         | <i>Mdn</i> | <i>IQR</i> | <i>Mdn</i> | <i>IQR</i> | <i>U</i>     | <i>p</i> |
| Alcohol education | 5          | 3          | 4          | 1          | 877          | .006*    |
| Important         | 7          | 1          | 7          | 1          | 1279.5       | .896     |
| Pressure reason   | 6          | 1.5        | 6          | 1          | 1254.5       | .766     |
| Parents better    | 3          | 1          | 4          | 2          | 1037.5       | .075     |
| Internet good     | 4          | 2          | 4          | 3          | 889.5        | .005*    |
| Experiences       | 3          | 2          | 2          | 2          | 944          | .016     |
| Permission        | 2          | 2          | 2          | 3          | 1106         | .185     |
| Confident         | 6          | 2          | 7          | 1          | 851.5        | .003*    |
| School trial      | 5          | 2          | 7          | 1          | 484.5        | .000*    |

Note \* = significant difference  $p < .05$ , *Mdn* = median, *IQR* = interquartile range

### ***Section B: Views about alcohol education and young people***

The median level of agreement to each statement on views about alcohol education and young people is shown in table 6.1. There were lower levels of agreement to the statements in this section compared to the statements in section A. The highest levels of agreement were to the statements about the importance of learning about alcohol in school, social pressure as a reason for drinking and confidence in answering questions about alcohol from young

people. There were low levels of agreement to the statements about parents as a better source of information than schools, learning about alcohol from experiences and needing permission to teach young people about alcohol. Mann Whitney tests showed that there were some significant differences in the responses of teachers and parents to statements in this section. Teachers rated their level of agreement with the statement that there was an appropriate amount of alcohol education in schools ( $Mdn = 5, IQR = 3$ ) significantly higher than parents ( $Mdn = 4, IQR = 1, U = 877, p = .006$ ). Teachers also rated their level of agreement significantly higher ( $Mdn = 4, IQR = 2$ ) than parents ( $Mdn = 4, IQR = 3$ ) on the statement that the internet was an appropriate source of information ( $U = 889.5, p = .005$ ). Parents rated the statement that young people should learn about alcohol from their own experiences as significantly lower ( $Mdn = 2, IQR = 2$ ) than teachers ( $Mdn = 3, IQR = 2, U = 944, p = .016$ ). Parents rated themselves significantly higher on the statement on confidence in talking to children about alcohol ( $Mdn = 7, IQR = 1$ ) than teachers ( $Mdn = 6, IQR = 2, U = 854.5, p = .003$ ). It is also interesting to note that parents also responded with significantly higher levels of agreement ( $Mdn = 7, IQR = 1$ ) to the final statement that they were more likely to agree to their child taking part in a trial than teachers were to think that their school would take part in a trial ( $Mdn = 5, IQR = 2, U = 484.5, p < .001$ ).

Across the whole sample 29.4% said that young people should learn about alcohol between the ages of eight and 11 and 66.7% said that young people should learn about alcohol between the ages of 12 and 14. Only one participant said it should be over the age of 15 and three said that it should be under age seven.

Participants were also asked to tick a selection of six choices to indicate what they thought young people should learn about alcohol at school and at home (see table 6.2). There were a number of similarities between teachers' and parents' responses to the questions. A high percentage of both groups reported that they thought that long term effects of drinking alcohol and social issues caused by alcohol should be covered in schools. A similar percentage of each group thought that responsible drinking and reasons why people drink alcohol should be taught at home. The category about positive effects of drinking received the lowest percentage of participants reporting that it should be covered in either context



**Table 6.2** Percentages of teachers, parents and total sample selecting alcohol topics that they thought should be covered at home and at school

| Topic                                   | % Teachers |      | %Parents |      | %Total |      |
|---|------------|------|----------|------|--------|------|
|   | School     | Home | School   | Home | School | Home |
| Long term effects such as liver disease | 100        | 64.6 | 94.4     | 81.5 | 97.1   | 73.5 |
| Short term effects such as hangovers    | 89.6       | 68.8 | 81.5     | 87   | 85.3   | 78.4 |
| Responsible drinking                    | 95.8       | 89.6 | 88.9     | 90.7 | 92.2   | 90.2 |
| Social issues such as violence or crime | 95.8       | 72.9 | 94.4     | 87   | 95.1   | 80.4 |
| Positive effects of drinking            | 70.8       | 68.8 | 57.4     | 63   | 63.7   | 65.7 |
| Reasons why people drink alcohol        | 83.3       | 83.3 | 85.2     | 79.6 | 84.3   | 81.4 |

### 6.3.2 Analysis of responses to open questions

Participants were able to write additional comments to support their answers to a number of the questions within the survey. There was a short space for participants to add their thoughts about topics that they thought were important to include in alcohol education after this question. At the end of the survey there was space for participants to write about their views on the topic of alcohol and young people. Although these comment boxes were optional, there were a substantial number of comments made by participants.

Following the section about the content of alcohol education reported in table 6.2 the participants were asked to add details about other topics that they thought should be covered in alcohol education both at school and at home. A small number of comments were made under this section. Three participants said they thought that the impact on sexual behaviour should be covered and four mentioned alcoholism/ addiction as topics that should be covered in school. Two parents mentioned drink driving and two of the teachers mentioned peer pressure. There was evidence of a lack of agreement in terms

of what parents thought about talking about the reasons for drinking. One parent talked about honesty:

*It is important to be honest about how much fun is had drinking alcohol, otherwise they try it, have a good time, and think you were scaremongering (Mother aged 46)*

However another parent's view demonstrated that they thought quite differently:

*Certainly not 'positive' effects as it promotes drinking as a way of changing mood (Mother aged 53)*

Participants also added details in the comment boxes about what they thought should be learnt about alcohol at home. There was no evidence of agreement or any similar answers:

*Parents should teach their children as much as they can about alcohol and its effects (Male teacher aged 43)*

*Parents are not necessarily experts or knowledgeable OR indeed responsible drinkers themselves and students may already be seeing examples of drinking patters that are destructive and harmful: not a great place to get a rounded and safe education (Female teacher aged 38)*

*Mental health issues and problems from dis-inhibition (Mother aged 43)*

### ***Views about alcohol and young people***

Teachers' and parents' responses to the main open questions were coded and analysed using thematic analysis as described above. Three themes were identified in the data; 'need for balance'; 'home and school influence' and 'suggestions for intervention/education'.

#### ***Need for balance***

Some teachers and parents suggested that young people needed to know about the positive and negative aspects of drinking alcohol acknowledging that many adults drink and talking about their reasons for doing so.

*Most students will have seen adults drink and it's important not to scare them or make them feel upset that adults they know they are drinking"*  
*(Female teacher aged 23)*

*If you tell them alcohol is all bad then they won't believe what you're saying (Mother aged 43)*

*Long term health issues will mean nothing to a teenager and will be outweighed by the seen positive effects of fun and social standing*  
*(Father aged 46)*

### ***Home and school influences***

Participants' talked about the different ways in which the home and school environment might influence young people's drinking. Parents thought that alcohol education in school was important but had a number of suggestions about what they thought that schools needed to do more of or do differently:

*This is not being done enough in schools and colleges (Mother aged 38)*

*I believe more education is needed about alcohol and the genetic predispositions to addictions generally (Mother aged 45)*

Another parent's comment highlighted their own need for support in helping their child make choices about drinking alcohol:

*Parents need all the support they can get in making children aware of alcohol and its limitations (Mother aged 41 three children)*

Teachers suggested that schools offered a better environment for learning about alcohol than home.

*Parents should take responsibility but this cannot be guaranteed so schools must take responsibility" (female teacher age 39)*

Participants also pointed out the many other influences on drinking such as older peers, images in the media and religion.

### ***Suggestions for intervention/ education***

There were many suggestions about what should be included in the intervention or about how to approach alcohol education with young people

more generally. Some participants had ideas about what should be taught to children at different ages or how this should be approached. Other suggestions highlighted the need to talk about alcohol in the context of other risky behaviours and to take social pressure into account:

*One poor choice raises the risks of further problems (Mother aged 49)*

*Social pressure and normalisation of heavy drinking is a major threat for teenagers' safety and well-being (Mother aged 47)*

There were also comments indicating that the participants thought that there was some value in the use of outside speakers coming into schools to talk about their experiences with alcohol:

*I believe that children in their teens engage a lot with listening to first hand experiences (speakers from the AA) and are captivated by real life experiences (Female teacher aged 31)*

*[the intervention] could run alongside face to face stories and reflections from people for whom alcohol has impacted their life in a positive or negative way (Mother aged 47)*

Although there were a number of suggestions made they were all quite different highlighting that parents and teachers have different ideas about what the best approach might be.

### ***Current provision***

Teachers were also asked to give details about what alcohol education was provided at their school. In total this question was answered by 43 of the participants, 28 of whom stated that this was covered in PSHE or a similar type of lesson. Seven participants mentioned that outside agencies such as the police visited school to talk about alcohol. One participant mentioned using a quiz that focussed on the effects of alcohol and was followed up with video clips and news reports. Five of the participants were not aware of what their school covered about alcohol and four participants said it was only covered very briefly as a one off lesson or if the teacher wanted to.

### ***Talking about alcohol***

Parents were also asked if they had spoken to their children about alcohol and 52 of them said yes and two said no. The average age that parents reported having talked to their child about alcohol was at 10 years old. One parent said they spoke to their child;

*As soon as they could understand so that it wasn't something they needed to do behind my back. I like the continental attitude of giving children wine with water with dinner (Mother aged 52).*

## **6.4 Discussion**

This study aimed to determine the acceptability of the intervention and to seek feedback from teachers and parents to feed into the development process. The specific aims of the study were to; 1) determine the acceptability of the mode of delivery and the content of the planned intervention to parents and teachers and 2) to generate a list of priority areas to consider for improvement of the intervention.

The results of this questionnaire study found that parents and teachers responded positively to statements about the proposed intervention. There were also no differences between the ratings of teachers and parents in this section of the questionnaire. They were most supportive of the statements about the inclusion of methods of dealing with social pressure, that they would feel confident in talking about the content with young people and that they would be happy if it was used in schools. They were less supportive of the statements that young people generally have a positive image of drinkers and also that young people would believe the positive descriptions of young people who do not drink.

Social pressure is often cited as a reason why young people drink (Fuller, 2011) and so perhaps it is unsurprising that the teachers and parents agreed with the statement on this topic. It is positive to find that participants would feel confident in talking about the quiz content with young people and that they would be happy if it was used in schools. Participants might not have agreed so strongly with the statements about the images of drinkers because they do not think that these are important influences on young people's drinking. It may be important to explore this area further with teachers and

parents given the findings of the strong relationship between prototypes and drinking found in chapter four. There is no existing evidence to show what parents and teachers think or know about prototypes to the knowledge of this author. As demonstrated in the introduction to this chapter both parents and schools have an important influence on young people's drinking (Perra, et al., 2012; Ryan, et al., 2010). Helping them to find out about a wide range of influences on young people's alcohol consumption, including the influence of prototypes could be an important factor to consider.

Although presented separately, the second part of the questionnaire, which asked about young people and alcohol education in general, was also designed to elicit responses that could feed into the development of the intervention. It was interesting to note that there were lower levels of agreement overall to statements in this section and that there were differences between teachers and parents responses to some of the statements. Parents thought that the amount of alcohol education in schools was less appropriate than teachers did. This could reflect that parents are unaware of what their children are learning about alcohol in school. On the other hand, given that PSHE is a non-statutory subject this could reflect a real concern and other findings suggest that young people report that they do not learn about alcohol at school (Valentine, et al., 2010). Fletcher et al (2010) highlighted the lack of incentive for schools to provide drugs education and that the pressure to achieve targets might mean resources are directed elsewhere.

Teachers also rated the internet as a better source of information for young people than parents did. It is possible that this reflects the different uses of the internet at home and at school. Both teachers and parents had low levels of agreement to the statement that young people should learn about alcohol from their own experiences, but parents rated this significantly lower. The response to this question suggests they both agree that something other than experiencing alcohol is needed to help young people learn about alcohol. It was interesting to note that parents rated themselves as more confident in talking to their children about alcohol than teachers were in talking to students. Evidence shows that when given training teachers can effectively deliver complex interventions (O'Leary-Barrett, Mackie, Castellanos-Ryan, Al-Khudhairy, & Conrod, 2010). Confidence may be rated more highly when comprehensive training is given so it was unfortunate that the questionnaire

did not ask teachers about their training on this topic as this would be an interesting avenue to explore. Although the statements are not directly comparable parents' ratings of agreement to the likelihood of taking part in a trial were much higher than teachers ratings of their school's likelihood of taking part. One of the teachers went on to explain this in the comments section saying "*as an individual I would take part, but time pressure often puts teachers off*" (Female teacher age 53). This is a really important point to consider in planning the intervention trial protocol. Previous researchers have highlighted the challenges of negotiating to conduct research in schools, due to the time pressure and high workloads of staff (Alibali & Nathan, 2010; Testa & Coleman, 2006).

Asking participants what they thought should be included in alcohol education both at school and at home revealed many similarities. A high percentage of both groups said that long term effects of drinking and social issues caused by drinking should be taught in schools. A similar percentage of both parents and teachers thought that responsible drinking and reasons why people drink alcohol should be taught at home. Fewer parents than teachers thought that short term effects such as hangovers and positive effects of drinking should be taught in schools. These findings agree with existing evidence highlighting that young people and parents thought schools were primarily for learning facts about alcohol; however this means young people are receiving mixed messages (Eadie, et al., 2010). Opposing comments in this section further support this potential issue. One parent stated they thought it was important to be honest about the fun had when drinking whereas another mother was against teaching young people about the positive effects of drinking. These different approaches may result in young people being introduced to alcohol in the home in different ways. One parent mentioned giving their child wine and water with dinner. Many parents let their children have a sip of a drink from a young age, which is one way that they model their drinking behaviour to children (Donovan & Molina, 2008). Parents often think of this as a continental, safer style of drinking but some evidence shows that teenagers who are allowed to drink at home report higher levels of binge drinking than those who are not (Livingston, et al., 2010). Buying alcohol for young people to drink outside of the home may also lead to higher levels of risky drinking (Gilligan, Kypri, Johnson, Lynagh, & Love, 2012). The evidence of differences

in parental views about the content of alcohol education highlights that there is a need for consistent messages about alcohol to be delivered in schools and so perhaps school is the best place to deliver the planned intervention. However, the inclusion of a parent intervention was shown to have an impact on alcohol consumption when combined with an intervention targeted at young people in the 'Prevention of Alcohol use in Students (PAS) study (Koning, van den Eijnden, Verdurmen, Engels, & Vollebergh, 2013). In this study, parents of a class of children were required to attend a short presentation and to generate alcohol related rules together, which they agreed to implement at home. Combining this parent focused intervention with the intervention delivered in the classroom was more effective in reducing heavy drinking at weekends and the amount consumed than just focusing on young people or parents alone (Koning, et al., 2013). Although the current study has not been designed to include a parent intervention it may be helpful to include details of the content of the intervention to be distributed to parents by schools. Although there is no guarantee that this would be read by parents, the importance of parental influence cannot be ignored. The evidence of such a variety of views about what young people should learn about alcohol suggest that it would be beneficial to have an accessible resource of evidence based information to provide them with. Moreover, parents may not be aware that their rules or behaviour could have an impact on their child's drinking.

This study also included open questions to elicit participants' views about alcohol and young people in general. These comments provide a context for the responses to the rating scale questions and highlight some of the different views held by participants. An overriding theme was the '*need for balance*'. This theme can be encapsulated in the notion of wanting to be honest with young people about alcohol while also trying to prevent them from harm that it can cause. The comments revealed that this might be a somewhat paradoxical situation, which ultimately poses a great challenge for the current project and other prevention or education programmes. There were two other identified themes; '*home and school influence*' and '*suggestions for intervention/education*'.

Teachers' comments highlighted the importance of different parental influences on young people's drinking. Parents' comments highlighted that they thought schools should be doing more to cover the topic of alcohol. One



comment suggested that parents need support in helping young people learn about alcohol, highlighting a possible need for a resource for parents. For example, evidence suggests that having rules about alcohol is one important way in which parents can influence young people's drinking (Koning, van den Eijnden, Engels, Verdurmen, & Vollebergh, 2011) and perhaps parents might be interested to find out how they can set effective rules.

There was a suggestion that outside speakers were a good way to engage young people on the topic of alcohol. This is not something that the current intervention would incorporate because it does not fit with the theoretical basis and because of limited evidence of its effectiveness. It may be important to highlight this to schools and teachers when contacting them to take part in a trial of the current intervention if their preferences are for outside speakers. If they are given information about the theoretical basis of the intervention and the reasons for the content that is included then this might help them to appreciate why it may not have some of the things that they expect.

In reference to the first aim of this study, overall it appears that there was support for the content and mode of delivery for the planned intervention from teachers and parents in this study. An intervention based on the PWM in the format of an online quiz could therefore be acceptable to these important stakeholders.

In reference to the second aim of this study a summary of the findings and their implications for the proposed intervention are shown in table 6.3. There were seven main findings that either did not support the content of the planned intervention or where there was disagreement to statements or between what participants said.

The seven main findings can be categorised into four main intervention implications. Firstly that images used within the intervention must be credible to young people (and to the facilitators of the intervention). Secondly, that it would be beneficial to provide information and training about the theoretical basis of the intervention to teachers who are delivering it and to parents. Thirdly, information about the content that is included in the intervention is also important so that teachers and parents are able to find out about what topics the intervention covers. Finally, more generally it is important that teachers and parents are able to access information about

effective and ineffective strategies and approaches to reducing alcohol misuse in young people. These four areas identified as important to address in improving the intervention were named 1) *image credibility* 2) *theoretical information* 3) *content information* and 4) *communication about the evidence base*

**Table 6.3** *Implications of the findings of the teachers and parents questionnaires for the intervention*

| Study findings  | Intervention implications  |
|---|--|
| 1. Overall support for content and mode of delivery: but lower agreement to question about believability of non-drinker images compared to other questions  | 1. Non-drinker images need to be credible to facilitators as well as young people. Facilitators need to be aware of source of intervention content.  |
| 2. Lower agreement to question about young people having positive image of drinkers compared to other questions   | 2. Facilitators need to be aware of the theoretical basis of the programme.  |
| 3. High agreement that it is important to learn about alcohol in school and low agreement to question about the amount of alcohol education in schools  | 3. Finding not specific to intervention development, but shows importance of better monitoring of existing levels of alcohol education and of developing new tools for use in schools.   |
| 4. Lower percentage of teachers and parents thought that young people should learn about the positive effects of drinking compared to other topics about drinking. High percentage of teachers and parents thought that young people should learn about long and short term effects of drinking | 4. The intervention itself does not cover health effects so it is possible that teachers and parents might see this as a weakness. It does not specifically address positive effects. Important to communicate with teachers and parents about why content is included/excluded. |

| Study findings   | Intervention implications   |
|--|---|
| 5. Lack of agreement in parents comments about teaching about reasons for drinking and topics that should be covered | 5. As above: It might be important to ensure teachers and parents understand the reasons why certain topics are included/excluded in the intervention               |
| 6. Need for balanced alcohol messages  | 6. This is related to point 4 and 5 above.  |
| 7. Teachers and parents suggested that the intervention should include face to face stories from outside speakers    | 7. This is related to point 5 above, but also highlights the importance of communicating the evidence about what works/ what does not work to teachers and parents. |

The cross-sectional design, sample size and opportunistic nature of recruitment are features that limit the generalizability of the findings. The questionnaires were deliberately kept as short as possible to reduce participant burden but a number of the issues raised warrant further attention. It would be useful to find out about parents' experiences of their children's drinking and their own drinking habits. It may also be interesting to reveal whether there are discrepancies between what parents and young people think. It would also be really useful to find out what training teachers have had on teaching young people about alcohol. Rather than using a short description and a questionnaire it might be useful to show a demonstration of how the intervention works before asking questions. If this needed to be done face to face it would be likely to hamper recruitment into the study so perhaps a video demonstration could be incorporated into the questionnaire. It is also important to note that the teachers may have also been parents themselves, although this information was not collected, it may influence their responses.

There are few previous studies that aim to elicit feedback from teachers and parents at this stage of the development of an intervention. Although this was a small study it has been able to generate evidence of what these two participant groups think is important both in terms of the specific plan for the

current intervention and alcohol education in general. It has also raised some questions for further exploration with these two groups.

Overall the planned intervention received support from both parents and teachers. The study generated five priorities to be addressed in the next stage of intervention development. The findings also suggest that there are two overall challenges in terms of making the intervention acceptable to these groups. Firstly, that intervention messages should be seen to be striking the balance as identified in the data from both groups. Secondly, that there may be challenges faced in accessing schools to test the planned intervention. Both of these issues warrant further investigation in their own right perhaps using interviews in order to explore them fully.

## **6.5 Conclusion**

This study was conducted as part of step six of the intervention development framework by testing the acceptability of intervention content and delivery with parents and teachers. This study found that teachers and parents were supportive of the planned intervention in terms of both content and format. The study also revealed what parents and teachers think should be included in alcohol education in schools. This information is important for getting the support of parents and teachers in both trialling and delivering the planned intervention. The four priorities identified in this study (image credibility, theoretical information, content information and communication about the evidence base) will be combined with the priorities identified by the experts in chapter five and with the feedback from young people in chapter seven. The implications of all three studies are discussed and integrated in chapter eight.

# 7

## **Chapter Seven: A think aloud study to obtain young people's feedback on the intervention**

## **7.1 Introduction**

This chapter reports the feedback from the final and most important stakeholder group as part of step six in the development process; the young people who are the target of the intervention. Young people's views are particularly important to obtain to answer questions about the acceptability of the planned intervention in terms of content and mode of delivery. The findings of the Delphi study also highlighted that credibility was a key factor to explore with young people. In this chapter, young people's feedback was sought using a think aloud study generating four priority areas to address in improving the intervention. Their feedback is then discussed in the chapter eight in conjunction with the findings of the Delphi study and the teacher and parent survey.

### **7.1.1 Young people's feedback on interventions**

Many intervention developers seek feedback from young people as part of the evaluation of a programme. In a recent example of previous research with young people of a similar age, semi-structured interviews were conducted to explore attitudes and perceptions of an intervention to prevent eating disorders (Gonzalez et al., 2013). The current study seeks to integrate young people's views into the design of the intervention from the outset to ensure the intervention incorporates their input prior to a trial. Other studies that have done this have used a variety of methods. For example, in a study to determine the acceptability of an obesity intervention, researchers conducted focus groups and interviews with young people to inform intervention development (Gittelsohn et al., 2006). Another study conducted talking groups with young people to determine the content of an intervention to help young people manage diabetes and asthma by exploring issues that affected them in their daily lives (Kime, McKenna, & Webster, 2013). In order to determine the acceptability and credibility of the current planned intervention it is important to test the planned content with young people and to take their feedback on board using an appropriate method.

### **7.1.2 Think aloud method**

Focus groups were used in chapter three as a means of exploring the theoretical constructs in the PWM. Although they were beneficial within that

context, for this step it was important to take individual views into account rather than group interaction. Think aloud interviews have been widely used in psychology as a method of cognitive interviewing (French, et al., 2007; van Oort, Schroder, & French, 2011). In a think aloud interview participants are required to talk about what they think as they complete a task or a questionnaire. For example there have been a number of studies that aimed to find out if people had any difficulties in completing theory of planned behaviour questionnaires (Darker & French, 2009; French, et al., 2007). Participants in these studies were presented with a theory of planned behaviour questionnaire and told that the researchers wanted to check that people understand the questions the way they are meant. They were asked to imagine there was no one else in the room with them and speak about what they thought each question meant and what they would answer. They were also asked to speak constantly without planning what they were going to say. The researchers then identified the types of problems that participants had in completing the questions for example when they answered a different question to the one that was being asked (French, et al., 2007). These studies have enabled researchers to uncover some of the structural issues in their questionnaires and the problems in translating theory into measurable constructs. The questionnaire reported in chapter four utilised this type of think aloud interviews at the piloting stage in order to check that the content and meaning were understandable to young people. The pilot study identified a number of ambiguous questions that were re-worded to improve clarity. This was advantageous compared with piloting through questionnaire completion because the participants were able to talk about their interpretation of the questions.

### **7.1.3 Think aloud and intervention development**

The think aloud method is also commonly used in website design and computing system development (Damico & Baildon, 2007; Jaspers, Steen, van den Bos, & Geenen, 2004). In this context it is used to help website designers to understand the ways users interact with specific features of internet pages. This approach has also been adapted by intervention designers who saw the potential of the method in contributing to an understanding of how users interpret theoretical techniques and relate intervention content to their own experiences (Yardley, Morrison, Andreou, Joseph, & Little, 2010). Researchers

within the 'Life Guide' project (Yang et al., 2009), which is open source software for the development and testing of online interventions, have tested a number of their projects using this method (Yardley, et al., 2011; Yardley, et al., 2010). In these studies, participants view the planned intervention either online as it would be delivered or using paper versions of the web pages. In a study to obtain feedback on an intervention to reduce the transmission of flu, participants viewed the web pages on paper and were then asked a series of follow up questions about their beliefs on the topic. The findings revealed additional beliefs about hand washing that the intervention developers were then able to incorporate into the final design of their intervention (Yardley, et al., 2011). This method is also useful for ensuring that the terminology used is understandable to particular samples and therefore offers an appropriate method of gaining feedback from young people.

### ***Aims***

The aim of this study was to determine the acceptability of the planned intervention with young people in order to incorporate their feedback into the final design. Specifically it sought to determine what young people thought about 1) the intervention questions, 2) the overall content and 3) the format of the intervention.

## **7.2 Method**

### **7.2.1 Participants**

In this study there were 16 participants; eight boys and eight girls aged from 11-15 and in years 6-11 at school. The participants attended 12 different schools in the Oxfordshire area and five of the participants went to private schools. Parental consent was obtained for all participants. Participants were recruited through their parents on an opportunistic basis and offered a £10 voucher to thank them for taking part in the study. The study received full ethical approval from Oxford Brookes University (study reference number 120619) and the approval letter is presented in Appendix A.

### **7.2.2 Materials**

A full list of all of the study materials including full quiz questions and answers that were presented to the participants in this study can be seen in Appendix



E. A paper version of the intervention was constructed using a printed PowerPoint slide to represent each page of the website. Sheets were laminated and presented on a document stand so that participants could flip between the pages. The materials were piloted with two participants prior to the start of the study to check if the wording and format made sense. The pilot findings were then compared with the feedback from the Delphi study. One question was changed to better reflect prototype similarity and the wording of some of the other questions was changed. Some of the other questions were altered to clarify meanings and to re-word an ambiguous statement.

### **7.2.3 Think aloud interviews**

In line with previous research, which sought to gain feedback from the potential end users of online interventions (Yardley, et al., 2011; Yardley, et al., 2010), think aloud interviews were selected as an appropriate method for this study. The interview involved a think aloud section where participants read through the intervention and semi-structured follow up questions (see box 7.1). Interviews took place in a quiet room on University premises and were audio recorded in order to be transcribed. Parental consent forms were obtained prior to the interview taking place. At the start of the session the researcher checked that the parent had talked about the study with the participant, answered any questions they had and asked them if they were happy to proceed. The interviewer then read the following instructions to each participant:

*I am going to be interviewing you today to find out what you think about a set of materials I have prepared to be used with young people your age. The materials are on the subject of alcohol, which is an important topic to discuss as many people drink at some point in their lives. The first half of the interview we are doing today is called a think aloud interview. This means I will ask you to look through the materials in order and tell me what you think about them as you read them. If you are not sure about anything in the materials please tell me. It might seem a bit unusual but I will ask you some questions as we go along to find out what you think. When you get to the end of the materials I'll ask you a few more questions to find out your opinion. Before we start I'm going to give you an example so you can see what I mean.*

The interviewer then demonstrated thinking aloud whilst completing a similar task consisting of reading some instructions and then answering a question in a quiz about favourite foods. When participants had viewed the demonstration they were asked if they understood the task and wanted to continue. In the think aloud part of the interview participants worked through each page of the intervention and were prompted to tell the researcher what they thought of each of the questions and answers. In the semi structured part of the interview the participants were asked what they thought about the intervention overall, what they liked and did not like, how it compared to other things that they had seen on the same topic, what they thought about the content of the questions, what they thought their friends would think and to give suggestions as to how it could be improved.

**Box 7.1** *Semi structured interview follow up questions used in think aloud study*

**1) Overall views about the quiz**

What did you think of the quiz?

Was it easy to understand what you have to do?

What would you think if you were given this quiz to play at school? At home?

What improvements could you make?

**2) What did you think about the answers?**

Some of the questions talked about how drinkers and non-drinkers were described – what did you think about the answers?

What do you think about the answers on peer pressure?

There were some questions about making plans – what did you think about them?

**3) Learning about alcohol**

What do you think that other people your age would think about this?

Is a quiz or a game a good way to find out information about alcohol?

Have you seen anything similar? Can you tell me about it?

Are there any other good ways to find out information about alcohol?

**4) Ending questions**

Do you have anything else you would like to add about the materials you have seen, or the topic we have been talking about

## **7.2.4 Analysis**

The majority of the interviews lasted between 25-35 minutes though one lasted 40 minutes and another lasted 50 minutes. They were audio recorded and then fully transcribed by the interviewer within a few days of taking place. Six categories relating to the understanding of each question in the quiz were applied to the data from the think aloud section of the interview (see table 7.1). These codes were based on categories that have been used in other think aloud studies that sought to identify issues with questionnaire scales (French, et al., 2007; van Oort, et al., 2011) and adapted to fit the intervention questions. The transcripts of the entire interview data were analysed using a deductive thematic analysis, guided by the aim of looking for evidence about young people's views on the format and the content of the intervention. This analysis followed the steps set out by Braun and Clarke (2006) and therefore undertook the following phases; 1) familiarization, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes and 6) producing the report. During the familiarization phase the transcripts were read and re-read and ideas for codes were noted. Another initial set of 36 codes were identified and applied across the data set of 16 interviews (both the think aloud and the semi-structured interview discussions). These codes were compared and combined during the search for themes and some were discarded because they did not relate specifically to the intervention. Reflecting the aims of the study the analysis was focused initially around identifying themes that would reveal what young people thought about the content and format of the intervention. An initial thematic map consisting of three main themes and a number of sub-themes was generated. This thematic map was developed through testing with the data and a final map was produced and the themes defined and named (see table 7.2). Interpretation of the themes and their relation to the aims of the study took place during the production of the initial report on the findings.

## **7.3 Results**

### **7.3.1 Analysis of individual responses to each question**

Analysis of each question within the think aloud section of the interview showed that most participants understood the questions and the answers in the quiz. The six codes applied within this part of the interview were specific

to understanding and responding to each of the questions and are presented in table 7.1. They were adapted from coding categories used in other research by Van Oort et al (2011). The first code was used to indicate if there were no problems identified within a particular quiz question. Although the participants were not asked to answer the quiz questions, most of them did. Thus the second code indicated if they got the answer right and the third code indicated if they gave a wrong answer. The fourth code was used to indicate if the participant was surprised by the answer. The fifth code was used if the participant disagreed with either the question or the answer. The final code signified any problems with either the question or the answer.

Table 7.1 shows that the participants understood almost all of the wording of the questions and answers in the quiz. There were only minor exceptions to this where one of the younger boys said that he found the prototype questions hard and another boy said he thought the question about consequences of drinking was confusing because:

*It could be any of them (Archie)*

All of the participants were surprised by the answer that the number of young people aged 11-15 who drink alcohol had decreased. All thought that it had increased other than one who said it had stayed the same.

*Yeah teachers and parents they're always telling you that it's all so much worse than when they were young so that's surprising (Vicky)*

Participants expressed surprise at a number of the other individual questions. There were some differences between questions in terms of how many of the participants gave the correct answer and how many were incorrect. They were not required to give an answer themselves but most of them thought aloud about what they would have guessed it to be. Although there were not too many examples of disagreement or problems identified, those that were are discussed below.

**Table 7.1** *Number of participants coded as responding under each heading relating to responses to intervention quiz questions*

| Question number and summary | No problems identified | Got A right | Got A wrong | Surprised by A | Disagreed with Q or A | Problems with Q or A |
|-----------------------------|------------------------|-------------|-------------|----------------|-----------------------|----------------------|
| 1 number who drink          | 16                     | -           | 16          | 16             | -                     | -                    |
| 2 reason for decrease       | 16                     | 7           | 9           | 3              | -                     | -                    |
| 3 drinker prototype         | 15                     | 7           | 7           | 3              | 3                     | 4                    |
| 4 non-drinker               | 16                     | 14          | 2           | 2              | -                     | 2                    |
| 5 similarity                | 16                     | 16          | -           | 1              | 2                     | 3                    |
| 6 trying - peer pressure    | 16                     | 6           | 10          | 5              | 5                     | 5                    |
| 7 consequences              | 15                     | 7           | 9           | 1              | 2                     | 1                    |
| 8 dealing with pressure     | 16                     | 6           | 10          | 5              | 4                     | 4                    |
| 9 plan example one          | 16                     | 10          | 5           | 2              | 2                     | 1                    |
| 10 plan example two         | 16                     | 9           | 7           | 2              | 1                     | 1                    |

Note: Q = Question A = Answer, Total number of participants = 16, Not all participants gave their own answer to each question.

### ***Prototype questions***

There was some disagreement to the prototype drinker questions for example:

*Didn't think anti-social, the anti-social one is the one that surprised me loads because like, people like expect you to drink if you are going to a party. I think it is only a few, a small amount of people that don't drink at a party and stuff (Natalia)*

Another male participant did not agree with any of the possible answers suggesting:

*Maybe none of the above for this one (Matthew)*

Another participant disagreed with the answer that non-drinkers had been described as sociable, confident and independent

*I don't think people would say that because I think some people do probably still think it is cool to drink (Amelia)*

One participant in particular raised an issue with the prototype questions as he thought that they were stereotyping young people:

*If you stereotype teenagers as like people who stay at home and do things and people who go out and drink and stuff, I am between that so my opinion is very different to either one. There isn't like a typical teenager for me like nowadays, there are like groups of people who are like quite nice and then there are like the more academic people who are quite like confident in their work but not really sociably confident, so they're independent working as well, I don't know it's different types of sociability and like confidence (Sam)*

There was also some disagreement about whether the similarity question captured a truthful answer and some participants said it would depend who you asked.

*I'm not really sure they may not have wanted people, maybe they might have like not wanted people to actually know, because like when you when some people do surveys they don't want to be like honest about*

*themselves like, so it could be quite hard for them to come across or I don't know they might not want to drink (Rachel)*

### **Peer pressure**

There was a larger amount of disagreement with the questions about peer pressure and making plans to avoid this. Firstly, a number of the participants thought that young people tried alcohol for the first time to see what it tasted like or out of curiosity rather than because of peer pressure.

*Most people do want to try it (Lydia)*

*It is probably just to see what it tastes like and not peer pressure (Matthew)*

*Actually I am a bit surprised it was peer pressure because it's always people like normally just ask for a drink like no one ever....I don't know, I don't really agree with this (Natalia )*

However there was an acknowledgement that peer pressure did have an effect in maintaining drinking and possibly other behaviour:

*Everyone has a sort of reputation that you need to keep up by being cool and doing what your friends are doing (Emily)*

*I don't know they're lovely people, it a form of inclusion really, it, although it doesn't seem like it at the time it is peer pressure but it is what people feel now, well in my group, that is their form of inclusion, like, yeah, that's the best way of describing it (Sam)*

### **Making plans**

Although many of the participants thought that making plans in advance seemed like a sensible or clever idea there were also some problems raised in response to these questions.

*People would laugh at you, if they think it is cool to drink then they won't listen (Joe)*

*It depends on what stance you're talking because if you are already confident about saying to your friends like no I don't want to drink*

*alcohol because I don't then that's fine I guess but a lot of people if they are genuinely worried about being peer pressured into something they wouldn't otherwise want to do they are going to want to kind of candy coat it up a bit by saying I've got a sore throat or something, I'm feeling ill or something or I haven't eaten today, but I guess it is good if you feel confident in that then I guess it is a fine way of doing it (Matthew)*

Overall the questions were understood by the participants and many of the answers were surprising. The issues that were raised with regard to prototypes, peer -pressure and making plans were elaborated within the full analysis of the entire transcripts reported below.

### **7.3.2 Thematic analysis**

Table 7.2 shows the three main themes and subthemes identified and defined from the thematic analysis of the whole of the interview transcripts.

Participants' reactions to the interview either during the think aloud part of the interview or in the follow up questions were identified as being informed both by the expectations that they had as to what they would be told about alcohol and their perceptions of drinkers and drinking. Thus the final thematic map from the deductive analysis linked these areas under the main themes of unexpected intervention content, perceptions about drinkers and drinking and overall reactions to the intervention. The themes are reported below and a selection of quotes from participants to justify each theme and sub-theme are provided. Participant names have been replaced with pseudonyms to maintain their anonymity.



**Table 7.2** Main themes and sub themes identified in think aloud analysis

| Theme                                     | Sub themes  |
|---|---|
| 1) Unexpected intervention content        | a) The usual messages<br>b) Responses to making plans<br>c) Missing content |
| 2) Perceptions about drinker and drinking | a) Prototype perceptions<br>b) Drinking as cool<br>c) Peer pressure         |
| 3) Overall reactions to the intervention  | a) Positive reactions<br>b) Negative reactions<br>c) Design/ delivery       |

### 7.3.2.1 Theme 1: Unexpected intervention content

#### *The usual messages*

The participants had varied experiences of receiving information about alcohol mainly in personal, social and health education (PSHE) at school. This informed their expectations of the usual messages they expected that the intervention would contain. Most of them could only remember a few PSHE lessons about alcohol or outside speakers on the topic. The content of any alcohol related PSHE lessons was generally perceived to be unhelpful.

*Well we had someone come in when we were in I think year 6 or something and tell us about drugs and alcohol, they were quite vague and it was, and really not that helpful (Vicky)*

Participants talked about the other PSHE lessons they had received and these seemed to be more memorable as many of them talked about learning about the dangers of smoking or taking drugs. This may be due to the view that PSHE lessons were less important than other lessons:

*I think it is the way the lessons are put across a lot of people see our PSE lessons as a lesson to relax so they don't really pay much attention (Lucas)*

The expectation was therefore that PSHE would either be unhelpful and possibly patronising or ignored. The expectation of PSHE in school was

important in shaping the participants' views about the intervention because they expected it to be similar to what they had experienced before and contain the same kind of information. In particular they expected to be told that they shouldn't drink alcohol and that it was bad for them, for example:

*Like sort of diseases like liver diseases and things that could kill you basically (Alice)*

Other information from schools and parents that they had received was focused exclusively on the negative effects of drinking, which young people felt they already knew to a certain extent.

*They said why it was bad for you and how it would affect your body and stuff like that but it didn't really make you think about it, it was sort of telling you instead of like showing you how you should think for yourself.....Oh no, it's bad, it's bad, we know that (Amelia)*

Because young people were expecting these 'usual messages' they were surprised by the intervention content and many appeared to let down their guard in terms of talking about their own experiences and what they thought about the intervention. They were particularly surprised to find out that the number of young people aged 11-15 who report drinking alcohol has fallen in recent years. All but one of the participants thought it had increased and the other participant thought it had stayed the same. This unexpected content challenged their preconceptions that 'everyone is drinking'. As this was the first question it seemed to set the scene that they weren't going to hear the usual messages about drinking and that this might be something different.

*I think it is surprising because normally then they do things like this they're questions that are trying to make you say that you think it is not very bad and then they try to tell you it's really bad (Vicky)*

*Really (that surprises me) cos well, at least with the media and stuff you see a lot more kind of recent stories, well maybe it is because I am getting older and noticing it more (Matthew)*

The unexpected content in some of the questions also seemed to help the participants to think about the content of the other questions:

*I found well some of them were surprising but like once you read the answers you do realise and once you have thought about what the answers would be (Natalia)*

*I wasn't really expecting that, so that's a good one, good question because it's an unexpected thing (Melissa)*

The inclusion of questions that were surprising or unexpected can therefore be seen as a positive feature as it challenged the participants' ideas about what a typical alcohol education tool or lesson might contain.

### ***Responses to making plans***

Connected to the sub theme about usual messages were the responses to the questions about making plans in advance to avoid peer pressure or drinking to excess. The majority of the participants had not come across this idea before, and so it was another way in which the intervention was something unexpected. Some of the participants were quite positive about this:

*It seemed quite sensible and just quite clever (Joe)*

*Yeah, that's a good thing to do I guess to know how to handle it before (Vicky)*

*Lots of realistic situations lots of good lots of possible answers so it's sort of quite a hard [question] which I think is good to get people thinking (Melissa)*

Specific scenarios in the quiz talked about making a plan to refuse alcohol due to its high calorific content or for health reasons. Participants were interested in the calorie question and generally were not aware that alcohol contained calories.

*Because you think of drinks, not very, they don't fill you up really, you can drink quite a lot but then you can't eat a lot (Joe)*

*Yeah I think that's a lot of calories, I don't think, yeah like if you know the fact then you should bring it up because they might think again if they are having alcohol (Rachel).*

The other question about making plans in advance was about health reasons. The question asked participants if it was true or false that coffee could sober you up and the answer was given by a boy who wanted to stay sober to play sport. This was not as popular as the calorie question but generated some thoughts about what might sober you up instead.

*Yeah I thought other things could make you sober like drinking water and stuff (Natalia)*

*It's not like alcohol once you are finished with it, the side effects are gone like that and stuff so it's good because it's kind of showing that alcohol gets in the way of other things that you would otherwise want to do (Matthew)*

The findings relating to this theme indicate the importance of ensuring that any factual content is interesting to young people as this can lead them to think about the issue in detail. Despite a general interest in the idea of making plans to avoid or consume less alcohol participants were unsure about whether this could really be applied in real life.

*Um if they think it is cool to drink they might laugh at you and they probably won't listen (Joe)*

*I think the idea of making a plan is quite a good idea but I think it's a different matter whether you actually stick to the plan like it is all very well actually making one but if you actually stick to it then it will obviously work but it is quite unlikely that you will actually stick to it in the situation (Lydia)*

*Yeah I didn't really think that many people would stick to them because once you are there then everyone around you is (Natalia)*

Plans were also sometimes equated with excuses.

*That's what I would do if I was making up an excuse like with other stuff even as small as saying to a teacher most children wouldn't say I haven't done my homework (Matthew)*

*I might think of another excuse than well actually I would probably just say I don't want to because I don't want to end up drunk or something (Emily)*

Participants came up with a number of alternatives to making plans that they thought would be useful for refusing alcohol. In the sense that they were coming up with them during the interview, they could also be seen as plans in some way, they just weren't in the format shown in the intervention.

*Maybe if you had like a friend who was like responsible... if you had an older friend then sort of arrange with them saying if I am not there at that time then I'm drunk so come and find me, something like that (Lydia)*

These barriers to making plans reveal a really important consideration in taking this intervention forward. It may be that the content of the plans was inappropriate or the way they were framed. It is possible that past a certain age the participants felt they were unlikely to want make plans to refuse alcohol and the goal should be to reduce the overall amount consumed or make contingencies for when things might go wrong.

### ***Missing content***

Finally, participants talked about what information they thought was missing and made suggestions for improvements to the content. Most of the participants expected that there would be information either telling them not to drink or talking about the negative consequences. Much of this was focussed on the lack of health information and scare stories in the quiz.

*Films... the ones that are quite hard hitting ones that actually show people getting into bad situations and telling their stories and things like that can be quite good because they really would shock people (Vicky)*

*If you showed some like images of not very nice things that could happen to your body if you drank large amounts of alcohol and that it could cause death eventually (Alice)*

It was interesting to note that some of the participants thought that health information was an important omission considering that most of them thought they knew about the risks of drinking but this would not be a factor in

reducing their intake or stopping them drinking. Other suggestions were made for things to be added on or about other ways that young people could learn about alcohol or reduce the risks associated with drinking.

*You could have at the end something where you could say how you personally think about drinking and then it might give you some advice or maybe like a percentage of how many people think the same or something like that (Amelia)*

*I watched this documentary about the rise of ketamine in Canada and these volunteers were handing out flyers that were to do with safety, if you are going to do it these are the health risks kind of like and this is what you do if your friend's having a bad time (Sam)*

*If you had a quiz it could lead onto further sort of designing a poster for a competition, or a word search (Melissa).*

Overall participants expected to receive information that discouraged them from drinking and made suggestions about how to put this information across in a variety of forms. They expected to hear about the health consequences of drinking or to be told shocking stories about what had happened to other people their age that had been drinking. They also expected that whatever messages were received and regardless of legality or consequences that young people would start to drink around age 13 or 14 and then continue into adulthood.

*In year ten definitely yeah people start like going to parties and going out drinking and stuff (Natalia).*

*It's quite easy to refuse now, but if you are like 15 or 16 then it would probably be quite hard (Emily)*

*I suppose when people think when they are learning about alcohol they do think oh, I know it's bad but in the end they always end up drinking or smoking at some point in their lives even though they know it's bad they always do it (Melissa)*

### 7.3.2.2 Theme 2: Perceptions about drinkers and drinking

#### *Prototype perceptions*

The question in the quiz about prototype drinkers described them as anti-social, careless and unhealthy. This prompted young people to talk about what they thought about people of their own age who drank alcohol. This was often either negative or neutral because of it being seen as normal behaviour.

*People don't really like people when they are drunk because they just like mess about and stuff (Archie)*

*People don't seem them as cool it just looks a bit sad (Lydia)*

*Alcohol in moderation.... Is fine, like a little glass of cider or something which is completely fine so I'd describe that as normal (Matthew)*

They did not necessarily agree with the answer to the question until they read the explanation and this led them to reflect on their view of drinkers and talk about people who drank a lot or who were drunk in a more negative way.

*Um, kind of rebellious but in a negative way...that's a bit stupid and sad because you feel the need to get drunk at 13, you know, what are you going to be doing by the time you are 18 (Lydia)*

*They're just like really anti-social and um, they just well can get on your nerves cos they're really just saying random stuff (Simon)*

The evidence from the transcripts suggested that a 'drunk' prototype would be seen as negative but a 'typical' drinker would not necessarily be seen as negative depending on the way it was portrayed. The question about prototype non-drinkers described them as sociable, confident and independent. Participants were more likely to agree with this answer compared to the drinker prototype question and some talked about other positive characteristics of non-drinkers in response.

*Like really cool and strong and you know being able to not drink if lots of people are drinking (Emily)*

*Lots of people drink cos they are unhappy and they're worried about things so being confident and independent would be a reason not to drink cos you don't need to, you're just happy (Vicky)*

*Kind of sensible (Jon)*

*I don't necessarily think they'd use these three words..... they'd use other ones like chilled, relaxed and things like that (Lucas)*

However there was also a perception demonstrated by many of the participants that non-drinkers would be viewed negatively by other people (regardless of what they themselves thought)

*Like loads of people when they have friends who don't drink they call them boring, that's what quite a lot of people say and I know that a lot of people do that (Natalia)*

*At parties you know everyone joins in but then there's some people that just decide not to and then they just get sort of judged in a way sometimes cos they are the odd one out (Alice)*

The difference between how participants talked about their own perceptions of non-drinkers and how they thought other people perceived them indicate that the intervention messages are appropriately targeted in terms of a focus on increasing non-drinker prototype favourability.

### ***Drinking as cool***

The perception of drinking as cool was frequently identified in participants talk about the intervention as they completed the quiz questions. Drinking was seen as cool for a number of reasons. Firstly there was a sense that it was prohibited and therefore this made it cool.

*In the shops they have a special section for all of this tobacco and stuff like that so I think that makes it, oh look, I'm special, I'm going here, I'm like other people so I think that it's more to do with peer pressure and knowledge that other people do the same and you have special areas and things (Melissa)*

*At parties and stuff, everyone is like ooo let's... everyone thinks they do it to be cool to be honest like everyone always says like, loads of girls like*



*pretend to drink when they're not actually, they just put it to their lips and stuff (Natalia)*

Trying alcohol for the first time was an important milestone in the teenage years. Rather than because it was cool, some participants reported trying alcohol out of curiosity at a younger age, because they wanted to find out what it tasted like. However in addition to being curious about drinking alcohol some participants reported trying alcohol and continuing to drink it purely because it was something they had been forbidden to do. This was different from trying alcohol out of curiosity as it was motivated by notion of being seen to be doing something cool or rebellious.

*I think probably because it's actually not allowed to people like older than about 18 so it's kind of like, to be honest if someone's banned something then it makes it all the more cool if you do it (Jon)*

*It's not fitting in in society it is trying to be something that you are not, it's like, I don't know it's just trying to break free from the system at the moment like (Sam)*

It is difficult to imagine how any intervention could challenge this ingrained association of drinking with 'coolness' or being something rebellious. It is important therefore to take this into account and ensure that the intervention messages are credible in light of young people's perceptions.

### ***Peer pressure***

Finally, the experience of social pressure was important to the young people in the study in terms of how they viewed the intervention content. Peer pressure is cited as a reason for drinking in one of the quiz questions based on the focus group findings and the literature. Most of the participants reported incidents of social pressure in relation to alcohol, smoking and other activities. The presence of other people was often acknowledged as a reason for drinking.

*If there's a lot of people around you and they're all doing it and then they're saying to do it then you are more likely to do it than if you were on your own and there was beer in the fridge (Lucas)*

*If everyone else was doing it then you wouldn't want to be the odd one out (Alice)*

Although all of the participants talked about pressure they were less likely to admit having been pressured themselves than to think it was something that happened to other people. This is an important finding in terms of the intervention messages about avoiding peer pressure. Pressure seemed to be a common experience for young people and could be either explicit:

*Oh that's so like stupid and babyish if you don't (Emily)*

*They say don't be a pussy and stuff (Natalia)*

Or it could be implied pressure:

*When other people start drinking and smoking even if they don't actually pressure you, you will be pressurised even though they are not saying anything to you... because you know at some point you will lose out of the group by not doing the same thing (Melissa)*

Many expected to drink to get drunk at parties with friends and in this sense there was a shared sense of the pressure to drink and to provide alcohol in order to please everyone else:

*Everyone has a massive thing about like if you had a party and there wasn't alcohol then everyone would just go home, it would be really awkward (Natalia)*

Experiences of pressure and the interpretation of how this operates were important in influencing the participants' views about the questions in the intervention. In addition to the expectation of pressure, there was also a perceived inevitability to drinking and any intervention aimed at this age group should be aware of this expectation:

*cos I suppose when people think when they're learning about alcohol they do think like, Oh I know it's bad but in the end they always end up drinking or smoking at some point in their lives even though they know it is bad they always do it (Melissa)*

### 7.3.2.3 Theme 3: Overall reactions to the intervention

The third main theme draws together young people's overall reactions to the intervention. Participants talked about many features of the intervention being very positive and it did appear to reflect some of their own experiences. There were also a number of negative points and barriers identified that might limit young people's abilities to enact some of the scenarios in the intervention including whether making plans in advance would be effective or would be seen as an excuse or unrealistic. Additionally a number of suggestions were made for improvements to content and design and participants reflected upon what information they thought was missing from the intervention.

#### *Positive reactions*

There were a number of positive reactions to the format and the content of the intervention. The participants thought that the intervention had a number of advantages in comparison with other lessons about alcohol that they may have in school.

*I think it is quite good because if you like sort of someone comes in or you get a teacher to talk to the students about alcohol no one is actually going to say anything because I mean if they are like with their friends, and with the teachers they are not going to say stuff about how it is ok to drink, and it is quite good cos the multiple choice thing works really well  
(Lydia)*

*I think it is better than being told it, because then you just sort of, well it seems. Oh well I probably knew that, you don't really remember anything  
(Vicky)*

*It's good because it really made you think and like ponder about what you would really think about and how other people would and I think that's better than the ones we had at school (Amelia)*

Participants also liked the quiz format and that they would be able to complete it on their own on a computer.

*If it was just like something wrote down on a sheet of paper or something, that would get a bit boring but the fact that is animated and stuff, yeah (Archie)*

*Um, I think it would be more helpful than having a talk because you actually, it's with like a talk it's just like going on, but once you actually have questions to answer then you, it's your opinion (Rachel)*

Another positive reaction was about the content being memorable because it was unexpected. For this reason the following participant, who also liked the quiz format, felt he would remember what he had found out within the quiz:

*A quiz is quite good because also if you just tell someone a fact then they won't think for themselves but if someone thinks for themselves and then you tell them that they are wrong then you can think that it is something unexpected but also like I said with some of these questions then it surprises me and if something surprises you about a subject like this then it probably makes you think again or think twice about alcohol, it will probably stick in your head a bit longer (Matthew)*

The positive comments therefore provide support for the format of the intervention being an online quiz. In terms of content the nature of the questions being unexpected or surprising this was a factor in the participants' views about the credibility of the intervention messages. Most participants reported that they thought the answers in the quiz were believable and this was helped by the feature of other young people reporting the answers.

*Yeah because they sound like a situation you would think of normally .....if someone can related to something then it makes it a lot more powerful (Matthew)*

*yeah, it is sort of quite good because it gives people different like if you were to drink alcohol if you were quite young then it is giving you another person's sort of opinion about it and then if they sort of change their mind (Alice)*

*Yeah, yeah I believed it, I think I learned more than I knew before (Amelia)*

### ***Negative reactions***

There were a number of negative features of the intervention for the participants. There was some general negative feedback and then there were a number of evident barriers to the idea of making plans to either avoid alcohol or limit consumption. The barriers are discussed in a separate theme. Two of the participants felt that some of the questions were worded in a confusing way or they were possibly trick questions.

*I found them a bit difficult... make it maybe a bit clearer yeah (Simon)*

*One or two of the questions, like you can get mixed up with what you would think, some of them are quite tricky to know which one it would be (Archie)*

Other negative comments were related to what the participants thought that their friends or classmates would think about the quiz.

*I think it would be useful but there might be people who are reluctant to do it because they don't like doing things like this (Lucas)*

*Well some people just don't really think they need to know anything like that (Archie)*

Interestingly only one comment was received that was very negative about the prototype questions, but this still indicates that it is an important consideration.

*I don't know, I, cos like I'm somewhere in between, like if you stereotype teenagers as people who stay at home and do things and people who go out and drink and stuff, I am between that so my opinion is very different to either one (Sam)*

There were some negative reactions to the suggestion that young people might make plans to avoid drinking. Participants identified barriers to enacting plans and they were discussed in the sub theme 'reactions to plans' above. Other barriers were that you might not really think about making them in the first place.

*I think it is good that people make plans but you wouldn't really make plans for that sort of thing if you haven't experienced it (Melissa)*

*I think it is sensible but I personally wouldn't think ahead that much  
(Lucas)*

### ***Design / delivery***

The participants were positive about the quiz format of the intervention and the way that the questions were set out

*I like the fact how the questions lead into one another so then using the previous questions cos that makes people remember before, I think it would help you to go back much earlier question because that makes people remember instead of forgetting question one by the end (Melissa)*

There were some suggestions made to improve the design of the quiz and to make the features look interesting on a website.

*Make it a bit more colourful, like quite bright colours, so like blues and oranges..... solid colours and quite a lot of spaces (Lydia)*

*I would use like colours that wouldn't clash each other, not too in your face, but when you scroll over an answer just simple things like the one you are scrolling over changes colour and maybe a sound when you get an answer right (Lucas)*

Overall participants thought that the intervention would be best delivered in school as it was not something they could see themselves doing otherwise, but they also wanted to complete it on their own so they could think about the answers.

*Well it would probably be good for like schools and stuff but they wouldn't like do it in their free time (Joe)*

*I would probably prefer to do it on my own because then it's like people aren't just saying oh no it's definitely this, cos then I could have my own view and opinion of what it was (Emily)*

## **7.4 Discussion**

The think aloud study reported here aimed to find out what young people thought about 1) the intervention quiz questions, 2) the overall content and 3) the format of the intervention. Six codes to identify specific problems with the

questions were applied to the think aloud section of the interview. There were also three main themes related to these aims identified in a thematic analysis of all of the interview data. These were named unexpected intervention content; perceptions about drinkers and drinking, and overall reactions to the intervention.

Overall the participants were able to understand the wording of questions and answers within the quiz. They did not always get the correct answers but this was not the purpose of the interview. Problems were identified with some of the questions. Firstly, some participants questioned whether prototype descriptions were appropriate for both drinkers and non-drinkers. Secondly, some of them did not agree with the questions about peer pressure being a reason for trying alcohol. Thirdly they were positive about the idea of making plans but unsure about putting them into practice. These issues were elaborated by a full thematic analysis of all the interview data including the think aloud section and the semi-structured follow up questions.

There were a number of aspects of the content of the intervention that participants found unexpected. Firstly, this was because it did not appear to contain the usual messages that they were used to being told about alcohol. The usual messages that participants reported hearing, usually from PSHE lessons contained information about the health risks associated with drinking and some of that was reported to be aimed at discouraging alcohol consumption. Although some of the participants said they had never had any lessons about alcohol at all, others had experience of a number of lessons and activities. There is reportedly wide variability in what young people are taught about alcohol in schools (Macdonald, 2009) although within the most recent SDD survey 59% of 11-15 year olds had received lessons about alcohol in the last year and 71% thought they got enough information on this topic (Fuller, 2013). However the participants also reported that PSHE was something that they did not pay attention to or was even a lesson to relax in. An intervention delivered in schools that is different to what is expected has the potential to capture young people's attention and engage them in learning about the topic. Thus the unexpected content of the planned intervention can be seen as a positive feature. Moreover the very first question regarding the number of young people who drink alcohol had one of the most surprising answers to the participants. As reported above all but one of the participants

thought that this had increased whereas it has actually decreased. Starting the quiz questions with this unexpected piece of information seemed to spark the participants' interest in the task, possibly because they realised that it was not going to contain the usual messages that they thought it would.

A specific aspect of the intervention that was unexpected concerned the questions about making plans to avoid drinking alcohol. The majority of participants reported that they had not thought about this as a way to avoid alcohol or peer pressure. They were generally positive about the scenarios used in the quiz questions but not when it came to whether would enact previously made plans themselves. A common concern was whether they would actually be able to keep to the plan they had made given the social pressure in a situation where you may encounter alcohol. Connected to this it is important to note that many of the participants did actually want to drink alcohol with their friends and so were resistant to making plans to avoid drinking. However they did often come up with their own ideas around reducing the negative consequences from drinking such as to arrange to have a friend to take care of them or to ensure they ate beforehand. One participant pointed out that young people might not think to make a plan in advance if they have not experienced a drinking situation and that it would only be once you had that this type of tool would be useful. On the other hand the younger participants were more accepting of the benefits of making a plan to avoid drinking. These findings suggest that the intervention should incorporate different ways of including implementation intentions. For example, participants could be encouraged to reflect on the scenarios in the quiz and then to come up with their own personal plan. Encouraging young people to reflect in advance about any possible situations they might find themselves in would be one way to encourage them to see the relevance of making these types of plans. Implementation intentions research suggests that making plans can help people both to increase health behaviours such as breast examination (Luszczynska & Schwarzer, 2003) and to decrease health risk behaviours such as alcohol consumption in adults (Armitage, 2009). In adolescents, making plans about contraceptive use was successful in reducing the risk of becoming pregnant (Martin, Sheeran, Slade, Wright, & Dibble, 2011a). It is possible therefore that young people will be able to make successful plans even if they think that it would not work, as long as they



could be convinced to do so. However, successful planning draws on executive functioning and decision making skills, which as discussed in chapter one are not fully developed within the teenage brain (Blakemore & Robbins, 2012; Powell, 2006). It is possible that this may limit young people's ability to make and enact successful plans to avoid drinking or drinking to excess. Studies that have explored adolescents' ability and motivation to make successful plans about alcohol consumption have not been identified; this is an important aspect to be tested in a trial of the current intervention.

The inclusion of content that participants found surprising meant that they often made suggestions for the intervention about what they felt was missing. These were things such as long term health effects or using shock tactics to show consequences from drinking. It is interesting that they wanted to see this type of content when the evidence of it having an effect in reducing alcohol consumption is limited; indeed the participants themselves even reflected that they would probably end up drinking anyway. It is possible that this type of information is appealing to young people because it has a high sensation value (Sargent, et al., 2010). It is also interesting because this links into what the teachers said in chapter six about bringing in outside speakers to talk about alcoholism. In a sense this type of alcohol education might be entertaining for young people and meet the expectations of teachers but there is a lack of evidence for its effectiveness. This can be seen within the continued use of the DARE programme as discussed in chapter one (West & O'Neal, 2004). There needs to be a shift towards an understanding that this is a limited approach and that alternative methods are needed.

The second main theme identified in relation to the aims of the study was about perceptions of drinkers and drinking. There were a number of questions in the quiz about prototypes and this was reflected in the interview data. Participants disagreed about how they would describe the typical person of the same age as them who drank alcohol with some who were younger describing them as sad or stupid and others who were older describing them as normal. This finding supports the findings of the focus group study reported in chapter three, where younger participants were negative about drinkers but older participants were not. Overall the findings suggested that the perception of non-drinkers was negative and that they would be viewed as boring or the odd one out at a party where other people

were drinking alcohol. However some of the participants also said that non-drinkers were sensible or relaxed, which were more positive descriptions, although this was not the norm. There was an evident difference in how participants talked about what 'other people' might think about non-drinkers and what they themselves said that they thought. They thought non-drinkers would be viewed negatively by others whereas they claimed to view them in a neutral way. This supports the way that the intervention presents information as coming from other people of the same age to challenge the belief that non-drinkers are always viewed negatively.

Drinking was perceived to be a cool activity for young people highlighting that it is important to target this image within the intervention. Participants identified drinking as cool because it was a forbidden activity for young people and therefore engaging in it gave them a certain status among their peers. This supports Crossley's (2001) suggestion that risk taking behaviours symbolise a transgression of social rules or values and rebellion for young people. Although the participants who had tried alcohol said that they had done so out of curiosity and not because they themselves thought it would make them appear cool, it was clear that this was an important driver in maintaining the behaviour. Linked to this was the notion of peer-pressure, which is directly mentioned in the quiz questions as it was discussed in the focus group findings, and has a strong basis in the literature. Participants attempted to describe how peer pressure operates and their discussion revealed it to be a complex interplay between perceptions of drinking and the reactions you might receive if you did not drink. Pressure could be explicit such as name calling or implied involving perceived expectations about the consequences of failing to engage in a particular behaviour. There was a sense of inevitability about pressure to drink, which highlights the importance of this aspect of the intervention. Peer pressure has been widely researched in the area of adolescent alcohol use (Marsden, et al., 2005; Teunissen, et al., 2012) but it is difficult to determine exactly how to target this in interventions. Testing the current intervention in a wide sample of young people should be able to shed some more light on this important area.

The final main theme was composed of overall reactions to the intervention. There were many positive reactions to the intervention and the participants felt that it compared favourably to the things that they had done in school.

The quiz format was something that the participants liked as was the idea of the responses being delivered in video format by other young people rather than by a teacher or other adult standing at the front of the class giving a lecture on the topic. The unexpected content and surprising answers to questions were also seen as positive because they challenged the pre-conceptions the participants had about an alcohol related activity or lesson and therefore was able to capture their attention.

Negative reactions were centred around the perceived barriers to making plans to either avoid or limit alcohol consumption: for older participants the non-drinker image was sometimes seen as either unrealistic or as stereotyping. Two of the younger boys thought that some of the questions were difficult or tricky, but this seemed to be because it challenged their preconceptions and so should not necessarily be seen as a bad feature. There is a clear need to consider the way that prototype drinkers and non-drinkers are described in order to challenge young people's perceptions without losing credibility. Overall participants did find the intervention content to be credible and they found the content to be believable. Participants also made some suggestions about how to improve the design of the quiz such as making it more colourful or how the website should look and these can be incorporated into the final specification.

The first aim of this study was to determine what young people thought about the content of the intervention. In summary the participants in this study found some of the content to be unexpected and this was something that seemed to interest them in comparison with the usual messages about alcohol they had heard. There was an evident disconnection between what the participants said that they themselves thought about drinkers and drinking and what they said that other people thought. This highlights the importance of challenging the perception of drinking as cool and a normal activity for young people, which is associated with a general feeling of pressure to engage in this behaviour. A further challenge is to ensure the relevance of the planning questions to different groups of young people, some of whom may already be intending to drink. Young people in this study were interested by the general idea of thinking about situations in advance. A focus on reducing harm rather than complete abstinence may be one way to ensure that plans do not seem unrealistic to the recipients of the intervention.

In relation to the second aim of the study the format of the intervention was found to be acceptable to the participants in the study. In particular they liked being able to complete the questions and think about the answers on their in comparison to having a lesson about alcohol from a teacher or other adult. There were some suggestions to improve the visual aspects of the quiz and perhaps include some follow up activities.

The think aloud method allowed the intervention to be tested with young people to see how acceptable they found it to be before a full trial. This means that their suggestions can now be taken into account for the final specification of the intervention. Although this method has been used to test other interventions designed to be delivered on the internet aimed at adults (Yardley, et al., 2011; Yardley, et al., 2010) no similar studies were identified that had done so with adolescents. The current study has shown that this method can be used to gain feedback from adolescents on a proposed intervention and that it can generate detailed discussions on the topic.

Although the sample was small, the findings indicated that the participants aged 12-14 who were in years 8 and 9 at school were the most receptive to the intervention in its current format. The 11 year old participants appeared to think that they may not want to drink or be influenced by peers to do so. For the older participants in year 10 or 11 at school, it was apparent that they and their friends were already drinking. They may not therefore be motivated to make plans not to drink, but perhaps may be encouraged to plan to drink less, and to consider harms and consequences.

A summary of the main findings from the think aloud study that suggest changes or areas for consideration in improving the proposed intervention are shown in table 7.3. The main areas identified to improve the acceptability of the intervention to young people were; 1) non-drinker images, 2) challenging coolness and pressure, 3) making and enacting plans and 4) overall presentation and delivery. These implications are considered in conjunction with the feedback from the Delphi study and the teachers and parents survey in the next chapter of the thesis.

**Table 7.3** *Summary of the findings of the think aloud study and implications for improvements to the intervention*

| Areas to consider for changes or further development    | Intervention implications   |
|---|---|
| 1. Prototypes: Perceptions about non-drinkers           | 1. Perceptions of prototype non-drinkers need to be presented with caution to maintain credibility.   |
| 2. Perceptions about drinking as cool and peer pressure | 2. The intervention does consider the complex perceptions of drinking as cool and how peer pressure impacts young people’s decisions. Consider overall focus within plans and prototypes on reducing harm rather than refusal or abstinence |
| 3. Barriers to making or enacting plans                 | 3. Young people were interested in the idea of making plans but unsure how they would work in reality. Consider the content of plans in the quiz and how to relate to young people’s experiences  |
| 4. Presentation and delivery                            | 4. The quiz format was well received but the final website should consider presentation issues such as colour and how it will be delivered in a classroom setting.  |

There were some limitations to the think aloud study that should be acknowledged. Firstly, the small self-selecting sample was from one English county and so generalisations cannot be made. Secondly, parents were required to bring their child into the University and met the interviewer before it took place in order to give consent and so there was a possibility that the participants doubted the anonymity of their responses. Another general limitation of think aloud studies is in the complexity of the analysis being both specifically focused on the quiz questions and on a thematic analysis of the

interview transcripts (Cotton & Gresty, 2006). Nonetheless if it is possible to improve the overall acceptability of the intervention to the target population then this is a worthwhile step for intervention development.

Overall the planned intervention received support from young people in the intended target population. The study generated four priority areas to be addressed in the next stage of intervention development. The study suggests that young people will be receptive to an intervention in the form of a quiz and that they were interested in the content because it was different to what they expected. Further development may be needed in terms of prototype descriptions, challenging coolness and peer pressure, making and enacting plans and overall presentation and delivery.

## **7.5 Conclusion**

This study completes step six of the intervention development framework by testing the acceptability of the intervention content and mode of delivery with young people in the target population. This think aloud study found support for much of the content and delivery but raised some important areas to consider improving before a full trial. The findings of this study will be combined with the priorities identified by the experts in chapter five and with the findings of the teacher and parent survey reported in chapter six. The implications of all three studies are discussed and integrated in the following chapter.

# 8

## **Chapter Eight: Integration of findings and intervention specification**

## 8.1 Introduction

The overall aim of this project was to develop an intervention to reduce alcohol misuse in young people based on the social reaction pathway in the Prototype Willingness Model (PWM). The project met this overall aim in a sequence of seven delineated steps employing five original research studies in a multiphase mixed methods design. The analysis of each study was conducted separately and was presented within the preceding chapters. The integration of the quantitative and qualitative findings of a mixed methods study is a crucial stage. The aim of the current chapter is to integrate the findings of the research studies and specify the intervention in order to complete the seventh step in the development framework outlined in chapter two. This chapter concludes by specifying a protocol for an intervention based on the social reaction pathway of the Prototype Willingness Model, thus completing step seven of the intervention development framework.

### 8.1.1 Integration

The process of mixing the findings of qualitative and quantitative studies is a central aspect of mixed methods research (Creswell & Plano Clark, 2011; O'Cathain, et al., 2010). Mixed methods data analysis involves both the separate analysis of individual studies as well as the mixing, or integration, of the data (Creswell & Plano Clark, 2011). Within this project a multiphase mixed methods design was used to address the overall research question:

*Does the social reaction pathway in the Prototype Willingness Model offer an appropriate basis for an intervention to reduce alcohol misuse in young people under the age of 18 in the UK?*

A seven step framework was used to guide the project and this included qualitative and quantitative research studies. The final step within this framework aimed to integrate the findings of the other steps and to specify the content and format of the intervention. Integration with a multiphase mixed methods design can take a number of different strategies depending on whether the data was collected concurrently or sequentially (Creswell & Plano Clark, 2011). It also may depend on the priority given to the qualitative and quantitative components of the study (Yardley & Bishop, 2008). Although integration of the studies is key, Yardley and Bishop (2008) point out that the



process is fraught with challenges and often not well executed. This may be because it is still a relatively new area and there is limited guidance available to inform the process (Bazeley, 2009). It may also be because researchers may fail to fully consider their own assumptions in light of the different paradigms within which quantitative and qualitative research traditionally reside (Yardley & Bishop, 2008). In order to account for the challenges of integrating mixed methods studies, this chapter clearly states the process used for combining the data.

In this project, the aim of integrating the findings was in order to contribute to the final design of an intervention based in the social reaction pathway of the PWM. Thus the integration was carried out from pragmatic perspective, using the data to answer the specific research question and to contribute to the final design of the intervention. There was some initial integration of the first two studies within chapter five where the intervention was designed and BCTs selected and applied. The current chapter addresses the integration of findings of the studies in light of the research question in two distinct sections. Firstly, it draws together the findings from the feedback studies drawing out important priorities to address in order to improve the design of the intervention. Secondly it integrates the whole body of data that has been collected and considers implications for theory and intervention design. Finally, the chapter concludes by presenting a protocol for an intervention based on the social reaction pathway in the PWM.

### ***Methods of integration***

There are a number of approaches to integrating the findings in a mixed methods project. A merged or parallel mixed data analysis involves separate analyses of quantitative and qualitative studies, which are then brought together to form meta-inferences about a topic (Teddlie & Tashakkori, 2009). Conversion mixed methods analysis involves transforming quantitative findings into qualitative and vice versa (Creswell & Plano Clark, 2011; Teddlie & Tashakkori, 2009). Another form of analysis is sequential mixed data analysis where the analysis of one study informs the next (Teddlie & Tashakkori, 2009). The current project employed a merged mixed analysis because the aim was to integrate the findings in the final step of the

framework and draw some overall inferences from this integration in light of the research question.

In the first part of this chapter, the analysis focuses on the findings of the feedback studies reported in chapters five, six and seven. They were combined focusing on the identification of similar areas for improvement of the intervention. This process involved looking across the priority areas identified in each feedback study and generating a set of over-arching topic areas. These common feedback topics were then discussed in light of the literature and their implications for the final design of the intervention.

In the second half of the chapter a meta-matrix was used in order to display the integration of the findings from across the whole thesis. Meta-matrices have been used in previous mixed methods studies to draw together the quantitative and qualitative findings and show links between them (O'Cathain, et al., 2010; Wendler, 2001). Miles and Huberman (1994) describe meta-matrices as 'master charts' (p178) within which large amounts of data can be combined and summarised to address a complex research question. These meta-matrices were designed for integrating multiple pieces of purely qualitative information. Wendler (2001) proposed that this approach was ideal for integrating mixed methods studies. Wendler's study integrated findings from within the same case, looking at a patient's blood pressure and other quantitative measures, their own interview data and an interview about that patient with a practitioner (Wendler, 2001).

A meta-matrix was chosen as an appropriate method of drawing together the findings of the five studies reported within this thesis. The process by which the meta-matrix was constructed is reported in section 8.4.

It is important to note that a complete integration of all the findings of the five studies that were presented in this thesis is not the goal of this part of the chapter. Although this might result in some useful and informative findings it is quite likely that they would go beyond the main objective of the project. Thus, because of the theory driven focus of the project, findings that are specific to a PWM intervention are presented here. The findings are presented as theory-driven 'meta-themes' that are related to the PWM, with evidence from each study linked to each theme and the implications for the project presented below.

## ***Aims***

The overall aim of this chapter is to integrate the findings of the five studies reported in the thesis in order to specify the final design of the intervention.

Firstly the findings from all five of the studies reported in this thesis are summarised. Next the intervention priorities identified in the Delphi study, parent/teacher survey and think aloud study are combined and discussed in light of their implications for the development and design of the intervention.

Then the findings of all the studies within the thesis are integrated.

Overarching themes drawing together the findings in light of the research question are presented in a meta-matrix. Finally, to complete step seven of the intervention development framework, a protocol for a trial of the intervention is presented.

## **8.2 Summary of the findings**

The first piece of research conducted during this PhD was the focus group study reported in chapter three. This was an exploratory study that aimed to determine the relevance of PWM constructs to UK teenagers. A deductive thematic analysis identified that these young people did have clear alcohol prototypes and there was evidence to suggest a distinction between planned and unplanned drinking contexts. There were some clear differences between the younger (aged 11-13) and older (aged 16-17) participants in this study. Younger participants were more negative in their descriptions of drinker prototypes than the older participants for whom consuming alcohol was seen as a regular, normal occurrence. Conversely, the older participants were more negative in their descriptions of people of their own age who did not drink alcohol. Overall the focus group findings suggested that the PWM was a suitable basis for an intervention aimed at teenagers in the UK and a list of culturally and age relevant prototype descriptions was generated.

Chapter four reported the findings from an online survey of young people aged 11-17 conducted to examine the relationship between the theoretical constructs in the PWM and alcohol consumption in this population. The questionnaire included measures on prototypes, willingness, alcohol consumption, impulsivity and implicit attitudes in order to meet its four specific aims. Firstly, there was a strong relationship found between

prototype perceptions (favourability and similarity), willingness and alcohol consumption. Secondly, principal components analysis revealed three scales of characteristics within the drinker and non-drinker prototype ratings on 18 characteristics derived from the focus group study. Willingness to drink was most strongly related to the sociability scale suggesting a focus on these types of characteristics. The third aim of the study was concerned with possible factors that might influence the relationship between PWM and alcohol consumption. There were significant differences found between the older (aged 16-17) and younger (aged 11-15) participants on all of the main outcome measures in the survey. This highlighted that the younger participants might be a more appropriate focus for this type of intervention. Impulsivity had a strong relationship with prototype perceptions, willingness and alcohol consumption but was not found to be a significant moderator. Some gender differences were also found, with girls rating themselves as more similar to the drinker prototype than boys. Girls also reported higher levels of intentions to drink, intentions to get drunk, and drunkenness than boys. Finally the study aimed to explore the utility of two additional potential measures; alcohol related harms and implicit attitudes. The findings suggested that a harm scale could be included along with quantity and frequency measures. There was a relationship between implicit measures and prototype similarity, willingness and intentions to drink alcohol. This suggested the potential for future work to be undertaken to explore the measurement and application of implicit attitudes to a PWM intervention.

The third piece of research reported in this thesis was a Delphi study that aimed to identify areas for improvement to a prototype intervention, designed by incorporating the findings of the first two studies and insights from existing literature. The result of this process was a draft intervention in the form of an internet delivered quiz where the questions were related to specific BCTs reflecting the change mechanisms of the PWM. The Delphi study was conducted over two rounds with 15 experts taking part in round one and 11 completing round two, which built on the findings of the first. The findings of this study identified four areas that could be addressed to improve the intervention: 1) increase BCTs addressing social pressure, 2) increase intensity and length of the intervention, 3) consider participants' motivations or their incentive to complete the intervention and 4) ensure believability of

intervention messages. A good level of consensus was achieved between the expert participants in the study.

In the fourth study, presented in chapter six of this thesis, parents and teachers completed an online survey that aimed to generate feedback from them to improve and inform the intervention. Overall the parents and teachers who completed the questionnaire were supportive of the proposed content and mode of delivery. The findings showed that there were four areas to consider that may improve the intervention, summarised under the headings; 1) image credibility 2) theoretical information 3) content information and 4) communication about the evidence base.

Finally, chapter seven reported the findings from sixteen think aloud interviews conducted with the aim of determining what young people aged 11-15 thought about the intervention. Findings were analysed in two parts; firstly the participants' responses to each quiz question showed that overall they were understandable to the young people who took part. The interview data was then analysed using deductive thematic analysis and three main themes were identified; unexpected intervention content, perceptions about drinkers and drinking, and overall reactions to the intervention. Participants found the intervention to be unexpected because it did not contain the usual messages about alcohol that they had heard before either in PSHE or at home. Participants perceived that other people would describe non-drinkers in a negative way and there was evidence of the perception of drinking as cool and that other people would influence young people's decisions to drink. Positive and negative reactions and suggestions for improvements to the intervention were captured in the final theme. The findings were collated into four areas to be considered in order to improve the intervention; 1) non-drinker images, 2) challenging coolness and pressure, 3) making and enacting plans and 4) overall presentation and delivery

### **8.3 Implications of the feedback studies**

The feedback studies reported in chapters five to seven generated some priority areas related to the intervention that were identified as important to each of the participant groups. Table 8.1 presents each of the priorities and comments on their relationship to each other. There were a number of similar areas that emerged from the three studies with experts, teachers, parents and

young people. The priorities were compared and where the topics were considered to be addressing a similar aspect of the intervention they were combined. This resulted in five topic areas identified as important to address from the feedback studies.

Firstly, the area of social pressure was considered important to address using additional behaviour change techniques by the experts in the Delphi study. This topic was also identified as a theme in the think aloud interviews, both as an influence on young people's drinking and in terms of their response to making plans to avoid or limit alcohol consumption, as they believed that it would be difficult to enact these plans in social situations. Secondly, it was suggested by the experts that additional content to complement the quiz questions was required. This links to the area of content information, which was identified in the teacher and parent study. Another overarching topic area was related to designing the intervention to be appealing to young people. This links the priorities about motivation and incentive from the Delphi study with the design aspects from the think aloud study. The fourth similarity was about the provision of supporting information and training linking three of the areas that emerged from the parent and teacher survey. The fifth overarching topic area that was identified in the findings from the three studies concerns the credibility of the content of the intervention. This was directly identified in the Delphi study by the expert participants, and in the findings of the other two feedback studies. In summary, it was possible to make some links and integrate the priority areas identified in the three studies into five overarching topics to consider. These were labelled 1) social pressure, 2) credibility of content, 3) appeal to young people, 4) training and supporting information and 5) additional content. It is important to consider the five overarching topic areas whilst maintaining a focus on the theoretical basis and aims of the project and each is considered in light of all of the findings of the PhD and the relevant literature.

### **8.3.1 Social pressure**

Delphi study participants suggested that the intervention should consider specifically including implementation intentions as a BCT to address social pressure. The think aloud study participants were responsive to the idea of making plans about reducing drinking but saw some barriers to actually

enacting these plans. In the first draft of the intervention, the quiz questions were designed to suggest planning to avoid drinking or excessive consumption but did not directly use the implementation intentions technique. The intended intervention technique that was applied in the first draft of the intervention (see the logic model in table 5.5) was to provide instruction on resisting social pressure. From the findings of these studies, in order to improve the way that the intervention addresses social pressure it will incorporate implementation intentions. Using the 40 item BCT taxonomy as a tool in the same way that it was used in chapter five, this technique was identified as 'prompt specific planning/goal setting (Abraham, 2012a). Implementation intentions were labelled 'action planning' within the more recent 93 item taxonomy of BCTs (Michie et al., 2013b).

**Table 8.1** *List of all priority areas identified in findings from the feedback studies and how they were combined*

| <b>Feedback study:</b> Priority area                          | Overlapping topic areas and researcher comments related to relationship between the topics                  | Overall areas to address                          |
|---|---|---|
| 1. <b>Delphi:</b> Additional BCTs for social pressure         | Links to coolness and pressure as need to ensure this important influence is addressed                      | Social pressure                                   |
| 2. <b>Delphi:</b> Intensity and length                        | Links to content information  | Additional content                                |
| 3. <b>Delphi:</b> Motivation/incentive                        | Links to presentation and delivery if interesting to complete the quiz                                      | Appealing to young people                         |
| 4. <b>Delphi:</b> Believability                               | Links to non-drinker images   | Credibility of content                            |
| 5. <b>Teacher and parent:</b> Image credibility               | Links to non-drinker images believability   | Credibility of content                            |
| 6. <b>Teacher and parent:</b> Theoretical information         | Links to content information  | Training and supporting information               |
| 7. <b>Teacher and parent:</b> Content information             | Links to theoretical information and intensity and length   | Additional content / Training and supporting info |
| 8. <b>Teacher and parent:</b> Communicating the evidence base | Links to content and theoretical information  | Training and supporting information               |
| 9. <b>Think aloud:</b> Non-drinker images                     | Links to believability and credibility  | Credibility of content                            |
| 10. <b>Think aloud:</b> Coolness and pressure                 | Links to additional BCTs for social pressure, believability   | Social pressure                                   |
| 11. <b>Think aloud:</b> Making and enacting plans             | Links to additional BCTs for social pressure – specific to implementation intentions                        | Social pressure                                   |
| 12. <b>Think aloud:</b> Presentation and delivery             | Links to intensity and length as young people talked about extra topics /activities and experts on leaflets | Appealing to young people                         |



A number of studies have incorporated implementation intentions into interventions to reduce alcohol misuse in adults (Armitage, 2009; Armitage & Arden, 2012; Hagger, Lonsdale, & Chatzisarantis, 2011) but none have been identified that have applied it to reducing alcohol consumption in young people. The technique was successfully applied to adolescent contraceptive use (Martin, et al., 2011a), suggesting that it could work in this population. One way to apply this technique in the present intervention would be to use volitional help sheets (Arden & Armitage, 2012) that include pre-determined barriers and situations for participants to select. In their study, Arden and Armitage (2012) supplied a list of potential situations within which undergraduate students might be tempted to binge drink, together with possible solutions they could use to avoid this behaviour. Linking the situations with the solutions created the if-then statements, which are central to implementation intentions (Gollwitzer, 1999). Participants who had made these plans reduced their self-reported binge drinking significantly more than control participants who were told to make their own plan to reduce drinking without any guidance (Arden & Armitage, 2012). Similarly, in another study, students were given options of things that they could say in order to refuse drinks (Murgraff, White, & Phillips, 1996). The options included saying 'no thanks, I do not want to get drunk' or 'no thanks, I am watching my weight'. Participants were also asked to detail the time and place at which they would enact these plans. This study was also successful in reducing binge drinking in the student participants (Murgraff, et al., 1996). Thus, it is intended that the intervention will provide a range potential scenarios and refusal options with the quiz questions. Participants can then use a help sheet to make their own links between scenarios and preferred refusal options as in the studies described above. Moreover this may mean that plans can be more specific to the participants' actual experiences as discussed in chapter seven. For example older teenagers they may be better directed towards plans avoiding drunkenness or harms whereas younger teenagers might make plans to avoid alcohol altogether.

### **8.3.2 Credibility of content**

The credibility of intervention content was identified as an important consideration in all three feedback studies. Expert participants suggested that believability was important with reference to the creating a negative image of

drinkers that may not relate to young people's experiences. Teachers and parents rated lower levels of agreement to statements about the image of drinkers and non-drinkers. Young people themselves reported that they found the intervention messages believable but the thematic analysis suggested differing views about non-drinker images. The intervention aims to increase the favourability and similarity of non-drinker prototypes using behaviour change techniques that aim to promote a positive group identity for non-drinkers and negative group identity for drinkers. Firstly, considering images of drinkers, as previously mentioned in this thesis there have been some recent studies that have explored different types of drinker prototypes, such as negative excessive drinkers or tipsy drinkers (Van Lettow, et al., 2012b). These findings suggest that suggesting that those who drink have negative characteristics is too simplistic, particularly for older teenagers who may drink regularly. Therefore it is important to ensure that the drinker prototype in the intervention is broader than just a typical drinker. Secondly, concerning the images of non-drinkers, it is important to clearly highlight the positive aspects of non-drinking in a way that is believable. There were some additional descriptions used in the think aloud study such as 'chilled' and 'relaxed' that might be beneficial to include in order to reflect the language used by young people themselves. It was also clear that there were some negative perceptions of non-drinkers as some thought they would be 'judged' or called 'boring' if they did not drink. Using the participants own words is one way to try to enhance the credibility of the messages about non-drinkers. It is also important to consider other ways to present both the drinker and non-drinker images to suit the recipient audience. One solution could be to expand the range of descriptions within the quiz questions rather than give three possible answers with three descriptions within them. Participants could choose their own combination of characteristics by clicking on them or highlighting them and then they could compare their own answers with the correct quiz answer. Adding to this question in this way increases participants' choices within the quiz to remove the straightforward question and answer format. Encouraging contemplation of images was shown to be successful in a previous PWM intervention (Ouellette, et al., 2005) and so could be a justifiable means of adapting the current intervention. Thus the range of prototype descriptions will be enhanced within the intervention.

However it is important to ensure that this does not detract from promoting a positive image of non-drinkers and a less favourable image of drinkers.

A specific concern about credibility raised by some of the expert participants was about the use of fake survey data within the intervention. This format was used in other PWM intervention research (Blanton, et al., 2001; Lane, Gibbons, O'Hara, & Gerrard, 2011; Todd & Mullan, 2011) and was adapted for the first draft intervention within this project. In order to challenge prototype images of drinkers and non-drinkers there is a clear need to manipulate certain characteristics. Following the development work undertaken within this thesis, it is now possible to use participants own words as described above. Thus although presented as the findings of a survey in order to set a structure for the delivery of the intervention messages, the answers to the quiz questions represent those of young people within the target population. In addition, further changes to the information and question wording have been made. It is important to note that not all the Delphi participants were concerned by this; indeed it is not uncommon for interventions to represent information as from a particular source when it may not be. Moreover, young people are bombarded with information from alcohol advertising, which is of dubious source and credibility, and this has been shown to influence their alcohol consumption (Smith & Foxcroft, 2009b). There is a real need to consider the benefit of manipulating prototype images in terms their potential to reduced alcohol related harms in this context.

### **8.3.3 Appeal to young people**

The third topic area that came from both the findings of the Delphi and think aloud study was concerned with ways to ensure the intervention is appealing to young people, and that they are motivated to complete it. Delphi expert participants were concerned about motivation or incentive to take and complete the quiz. However if the intervention is delivered within schools then incentives as such are not required because young people would be expected to complete the task in class. This is supported by what the young people themselves said in the think aloud study. Additionally they found the format to be appealing and potentially preferable over a teacher or instructor led lecture on alcohol. However it is important to consider other means of making the intervention more appealing to young people as this has been

identified as an important feature of internet delivered programmes aimed at this age group (Crutzen, et al., 2008). This would also be particularly important if the intervention was delivered in an alternative setting as might be challenging to include a tangible incentive. Exploring this issue with young people in the think aloud study indicated that they may not be particularly concerned with a reward but that the attractiveness and layout of the intervention should be enhanced to make it more appealing, and thus more likely to engage participants. Suggestions were made about colours and visual layout that could be easily incorporated into a website format once the intervention has been finalised. Another way to enhance the appeal of the intervention would be for it to have an interesting name, something as yet not considered. If completion of the quiz questions was linked to a score board this might incentivise some young people within a class but could disincentivise others and so any kind of sharing of answers or scores would have to be carefully managed. Thus the most appropriate means of enhancing the appeal of a high score might be to display a congratulatory message within the quiz itself. If comparisons are made to other people's scores then it should probably be done anonymously or possibly could compare one class or school to another rather than individually. The think aloud study also demonstrated that young people did find the intervention interesting because it was so different to what they usually expected and so this feature will be highlighted to further increase its appeal. A screen that displays participants' scores will also be incorporated.

#### **8.3.4 Training and supporting information**

The topic of training and supporting information is drawn mainly from the teachers and parents study. The findings suggest the importance of including information about the theoretical basis of the intervention to teachers within the intervention manual. A clear description of the theory and some of the supporting background evidence can be used to explain why the intervention is targeting certain aspects of drinking. This will also be useful in enhancing the credibility of the intervention to teachers. However it is important to take into account demand characteristics that could influence the outcome of a trial. Training could be provided by an interventionist to deliver the information about the theoretical basis and it could be supplemented within the manual for future reference. The interventionist could also provide de-

briefing to schools to give full details about the intended intervention outcomes and the results. Additionally there was a wide range of alcohol related topics mentioned as important in the teachers and parents survey. This highlights the importance of including information about what content is covered within the intervention and what is not, as well as why. Supporting information is therefore also needed for parents of young people who are receiving the intervention. This will be provided in the format of a standard letter home that schools could send out to parents. Another important area that was identified in the survey was about how evidence based information is communicated to both teachers and parents. The example of using outside visitors is particularly important due to a lack of evidence that this is an effective way of reducing alcohol misuse. Parents also talked about buying alcohol for their child or the so called continental approach to introducing alcohol and giving young people sips from a young age. Parents also have varied attitudes towards their own and their child's drinking. This variation and disagreement in what is the best approach to take with young people could result in mixed messages at home and school. It is important to consider what the best way of communicating the latest evidence on this topic to teachers and parents might be, although this is much wider than the remit of the current project. In summary the intervention could be improved by considering the way in which information on the theoretical basis and the content is communicated to teachers and parents. It is important that any training for teachers must be brief in order not to impact upon already pressured time in schools. To reduce the impact of training on school time, it could be provided online. It is also important that information for parents is understandable and communicates the purpose of the intervention clearly. It could function to enhance the content of the intervention by providing guidance for parents about talking to young people; however as the evidence in chapter one and six suggests, not all parents would engage with this information and it might conflict with their own views or behaviour. Thus, an intervention website will be designed to provide training for teachers and information for parents. Information for teachers and parents might be enhanced by the addition of evidence about young people's drinking but this is probably better considered outside of the current intervention project.

### **8.3.5 Additional content**

The final common topic from the three feedback studies was about the inclusion of additional content within the intervention. The Delphi participants talked about it being too brief and mentioned the possibility of including additional items such as fact sheets. Young people talked about wanting to see more information on the health consequences of drinking alcohol. It is important to maintain that this is a very specifically theory driven project focusing within the social reaction pathway of the PWM. If the intervention that has been designed as a result of this project is shown to be effective, then it is possible that it is a component that could be used within other broader programmes and not a stand-alone tool. Nevertheless there are some additional elements that will be added to further enhance the application of the specific BCTs in the quiz. As mentioned above, widening the range of plans and options could enhance the effectiveness of implementation intentions. Similarly the image based questions could be changed to include more descriptive words and increase participants' engagement with the quiz questions. The Delphi study findings pointed out that there was no interaction between young people included in the intervention. It is therefore important to talk about the quiz answers within the class to increase the interactivity between recipients, which has been shown to be an effective feature of school based interventions (Cuijpers, 2002). The correct answers will be distributed as a hand-out to the participants for them to discuss as a group. Revisiting the plans at a later date may also be important in order that they reflect the situations and contexts that young people are experiencing. One of the suggestions from the Delphi study was that the intervention could also use prompts or follow up messages reminding young people about the content. Using booster messages reminding participants about the plans they have made has been shown to be one way of enhancing interventions that use implementation intentions (Chapman & Armitage, 2010). One study, which aimed to increase physical activity using implementation intentions, used text messages to remind participants of their plans (Prestwich, Perugini, & Hurling, 2010). Thus, participants will be reminded of their responses to the quiz and their if-then plans as a prompt. This will be delivered as short booster sessions at three months following the intervention based on previous studies (Chapman & Armitage, 2010). These additions will ensure that the theoretical

basis is maintained while increasing the length of the intervention and adding to the content in a way that could increase acceptability within schools and engagement with the BCTs.

The final design of the intervention reported in the final section of this chapter incorporated the five overarching feedback topics. Firstly by adapting the quiz questions to include implementation intentions, secondly by adapting the questions about prototypes, thirdly through enhancing the overall visual design of the quiz, fourthly, by producing information for teachers and parents, and finally enhancing some of the features to increase the length of the intervention.

## **8.4 Overall integration of findings**

### **8.4.1 Mixed methods data analysis**

As described in the introduction to this chapter, there are a number of strategies for combining the findings of qualitative and quantitative studies in a mixed methods project. The analysis strategy in the current project was a merged data analysis (Creswell & Plano Clark, 2011) as the integration took place after each study was analysed separately. The findings of all five studies were reviewed and the main conclusions from each were noted. Then the researcher compared the findings of each study in light of the overall research question. This involved considering the implications of the findings in two ways; 1) in light of their application to the specific design of the intervention and 2) in light of their implications for applying the social reaction pathway in the PWM to the specific population and behaviour. Through a process of returning to the data and comparison of findings, nine meta-themes were identified as having important implications for these two areas. A meta-matrix was used as a tool for displaying the findings of this process. As described in the introduction to this chapter, a meta-matrix is a means of displaying the relationship between findings in mixed methods studies (Miles & Huberman, 1994; Wendler, 2001). The meta-matrix in table 8.2 displays each of the nine themes alongside some of the evidence from each study that relates to the theme. A final column indicates whether there was agreement, disagreement or any discrepancies between the findings of the studies. The themes and their implications are discussed below the meta-matrix.

**Table 8.2** *Meta themes and supporting evidence for PWM and intervention*

| Meta-theme             | Focus group   | Online survey  | Delphi study  | Parents & Teachers                                    | Think aloud   | Overall   |
|------------------------|---|--|---|---|---|---|
| Drinker prototypes     | Sociable (Aisha 16-17)<br>Show off (Owen 11-13)                   | High on rebelliousness scale. DPF and DPS related to willingness and consumption | Caution about creating negative image – could be attractive | Low agreement that YP positive about drinkers         | Normal – fine (Matthew)<br>Sad (Lydia)  | Disagreement (age differences)<br>Drinker prototype complexity                      |
| Non-drinker prototypes | Strange (Ollie 16-17)<br>Sensible (Jack 11-13)                    | Rated more favourably than drinkers.<br>High on responsibility scale             | Agree that intervention will increase NPF                   | Agreement that YP would believe non-drinkers positive | Cool, strong (Emily)<br>Boring (Natalie)                                      | Disagreement (age differences)  |
| Prototype perceptions  | It's just what people do (Josie 16-17)                            | Sociability scale strongest relationship with willingness                        | YP might feel manipulated/patronised                        | Lower agreement to image statements than others       | Drinking as cool sub theme  | Agreement that perceptions important but not about how to present them<br>Agreement |
| Willingness            | Unplanned drinking theme  | Increases with age, strong negative correlation with NPS                         | Contextual influences are important                         | 0   | At a party you are more likely to (Lucas)                                     | Agreement   |
| Pressure               | You don't want to look bad in front of your friends (Harry 11-13) | Description as pressure not included in PCA                                      | Agree that it will target peer influence                    | High agreement that pressure is drinking reason       | If everyone else was doing it you wouldn't want to be the odd one out (Alice) | Agreement that this is an important consideration                                   |



| Meta-theme        | Focus group   | Online survey                                     | Delphi study   | Parents & Teachers  | Think aloud  | Overall                                   |
|-------------------|---|---|--|---|--|---|
| Intentions        | Planned drinking  | Strongly related to all PWM measures              | 0  | 0   | Planning to obtain alcohol for parties                                     | Agreement but not apparent in all studies |
| Attitudes         | Negative at 11-13<br>By 16-17 you know your limits      | Implicit attitudes linked to alcohol are negative | Young people will be aware of adults drinking so harm reduction focus best | Alcohol and fun versus don't talk about positive effects        | It's bad, we know that (Amelia)<br>Alcohol in moderation is fine (Matthew) | Agreement                                 |
| Norms of drinking | It's just British culture that you start (Kieran 16-17) | Age at first drink = 13                           | Drinking is normative for adults   | Normalisation of drinking is a threat to safety (mother)        | In the end they always end of drinking at some point (Melissa)             | Agreement                                 |
| Forbidden fruit   | You know you're not supposed to (Josie 16-17)           | 0   | Experimentation occurs in early adolescence                                | If you tell them alcohol is bad they won't believe you (mother) | If something is banned it makes it all the more cool (Jon)                 | Agreement                                 |

Note 0 = not identified in this study

Abbreviations: YP = young people, DPF = drinker prototype favourability, DPS = drinker prototype similarity NPS = non-drinker prototype similarity,

## **8.4.2 Meta themes**

Nine meta-themes were identified in the integration of the findings of all five of the studies. Some are specifically linked to PWM constructs and others are factors that have influenced the perception of drinker and non-drinker prototypes. The nine themes are discussed below in light of their implications for the intervention and to the theory itself.

### ***1) Drinker prototypes***

The findings strongly suggest that drinker prototypes are described differently by participants of different ages. For older participants a specific focus on 'drinker' prototypes may be ineffective. As discussed, most previous PWM research has been conducted in the United States or with college student populations rather than teenagers. Moreover there are different laws and norms about drinking in the USA and so a different focus may be appropriate in the UK. The young people who took part in the research undertaken within this thesis tended to see drinking as a normal and inevitable part of being a teenager. Thus the intervention will focus on drinker prototypes that include drinking heavily or coming to harm rather than simply drinker status. PWM research should incorporate a range of drinker prototypes, not simply actor and abstainers.

### ***2) Non-drinker prototypes***

Linked to the previous theme it was shown that overall, young people were more negative about non-drinkers than drinkers in their descriptions but that non-drinkers were rated more favourably than drinkers. If the questionnaire findings were viewed in isolation then it may seem that non-drinkers were viewed and described in a positive way compared to drinkers. Non-drinkers were rated more favourably than drinkers overall and higher on the sociability scale. However this is not supported in the qualitative studies where non-drinkers were sometimes described using negative words such as boring. This discrepancy illustrates one of the strengths in mixed methods research in that it can reveal the complexity of a particular phenomenon. This is extremely important in intervention design where a decision made based on the findings of one of these studies may reduce the effectiveness of the subsequent intervention. Delphi study participants and parents and teachers

supported the notion that non-drinker images could be enhanced and made more believable within the intervention. Thus, the intervention will focus on presenting the positive image of non-drinkers using the participants own words but with caution to ensuring that these images are credible to young people.

### ***3) Prototype perceptions***

The findings highlighted that young people had a wide range of alcohol prototype perceptions. The similarity of young people to non-drinkers rather than drinkers is an important focus as previously discussed with reference to the questionnaire findings. Non-drinker prototype similarity was strongly negatively correlated with willingness, harms and intentions to drink and get drunk. Similarity is therefore an important factor to highlight within the intervention, specifically with reference to non-drinkers. The patterns in prototype characteristic ratings revealed in the principal components analysis suggested that characteristics related to sociability were an important focus and so perhaps suggest that the intervention should further enhance non-drinker sociability. However there was also some criticism of the focus on describing just drinkers and non-drinkers, which is important to consider. Some of the findings suggested that this distinction was too simplistic. For example within the focus groups some of the participants just described drinking as normal; *it's just what people do (Josie)*. The Delphi study participants also picked this up with some urging caution about the credibility of prototype messages. Parents and teachers also rated the statements about images lower than the other statements and within the think aloud interviews it was evident that the image of drinking as cool was present. These discrepant findings again show the need for caution in presenting the images within the intervention.

### ***4) Willingness***

There were a number of pieces of evidence within the studies to show a distinction between planned and unplanned drinking and therefore support the assumption in the PWM of a dual process distinction. This was identified in the analysis of the focus group studies where a distinction between planned intentional drinking and unplanned drinking was drawn out from the analysis of the transcripts. Quantitative findings in the survey of young people

demonstrated that willingness to drink increased with age. However there was a strong negative correlation between non-drinker prototype similarity and willingness suggesting that the more similarly young people rated themselves to the typical non-drinker the lower their level of willingness to drink. These findings showed the importance of attempting to increase non-drinker similarity as well as favourability within the intervention.

Furthermore the experts in the Delphi study agreed that a two mode model that took into account contextual influences was important. The findings from the think aloud study drew this distinction out further by talking about how they might be influenced to drink alcohol in situations such as parties.

### ***5) Pressure***

Strongly linked to the above theme, peer-pressure was identified as a reason why young people had tried alcohol in an unplanned context. Initially focus group participants brought this concept into their discussions, suggesting that it should be further explored. Evidence related to peer-pressure was found in the other studies although the description 'pressured' was not related to any of the factors found in the PCA. Delphi study participants agreed that the intervention would be able to target this influence on behaviour and parents/teachers agreed that it was an important influence as well. Think aloud study participants elucidated further on this topic when it was prompted by the quiz questions.

### ***6) Intentions***

Intentional drinking was reflected in the planning of alcohol consumption by older focus group participants, suggesting there may be a difference in how a PWM intervention might work depending on the age of the young people it was targeted at. Unplanned drinking is suggested to be more harmful than intentional drinking because young people may not think about potential harms or consequences (Gibbons, et al., 2003). On the other hand recent evidence suggests that many young people aged 11-15 are drinking with the intention of getting drunk (Fuller, 2013). Older participants in both the focus group and think aloud studies talked about intending to drink at parties and other social events and planning to obtain alcohol to drink on these occasions. This suggested an intervention focussed on the social reaction pathway in the PWM would be less appropriate for this age group. Intentions were also

strongly related to PWM measures and alcohol consumption within the questionnaire. These findings support the assumed role of intentions within the PWM. In terms of the proposed intervention these findings support the inclusion of prompting the making of plans with regard to intentional drinking as well as willingness based drinking. They also support the choice of targeting younger adolescents with an intervention based in the social reaction pathway. However the intervention trial will determine the most appropriate age group to target, as well as compare its effectiveness to a quiz that targets attitudes and intentions.

### ***7) Attitudes***

It is important to consider the influence that the prevailing attitudes towards drinking might have upon the planned intervention. Initially, the focus group study revealed that attitudes towards drinking were negative in early adolescence but by age 16-17 this had changed. Although the findings related to implicit attitudes were tentative, overall young people were implicitly negative about alcohol. When this was found in previous research it was explained as possibly due to the social disapproval experienced by young drinkers (van Hemel-Ruiter, et al., 2011). Although chapter four was not able to conclude that there was sufficient evidence from the exploration of implicit attitudes, further research looking at how attitudes towards alcohol change over the course of adolescence would be useful in intervention design. Delphi experts and teachers/parents findings also suggested a need to take into account societal attitudes towards drinking. In British society drinking is a regular occurrence and associated with a very wide range of situations and so abstinence until age 18 is unlikely to be a realistic aim for an intervention. There was also a common attitude that 'responsible drinking' was acceptable across the focus group and think aloud studies. It is difficult to determine exactly what drinking responsibly entails but the phrase was in common use among the teenagers within these studies. It is possible that this reflects the common use of the term within alcohol advertising. This positively viewed mode of drinking might be contrasted with irresponsible or binge drinking, however heavy drinking with the consequence of illness or injury was valued by some of the older teenagers in both studies. These findings might link with the idea of 'heroic drinking' found in other research (Demant & Torronen, 2011). A recent UK study also found that some of the negative aspects

associated with heavy drinking such as caring for a friend who had been sick were important in strengthening young peoples' social bonds and therefore not always viewed in a negative light (de Visser, et al., 2013). These findings suggest that excessive drinking is valued in the current cultural context; a huge challenge for any intervention to address.

### ***8) Norms of drinking***

The meta-theme of norms also found support within all of the five studies. This is linked to the theme of attitudes towards drinking discussed above as social norms and expectations clearly influenced young people's attitudes. The prevailing norm was that there was inevitability to starting to drink during the teenage years; this was evident in the talk of young people themselves as well as Delphi participants and the teachers and parents.

### ***9) Forbidden fruit***

Finally, the theme of forbidden fruit was identified as important across the study findings. This meta-theme is linked with the prototype perception theme and helps to explain why drinking alcohol was perceived as a cool activity by the young people who took part in the project. The participants saw drinking and drinkers as cool, at least partly because it was something that they were not supposed to be doing. In the focus group study the older participants were aware that this was an influence on their behaviour, with one group acknowledging that increasing the price of alcohol might actually make it even more enticing. Delphi study participants pointed out that experimentation was likely to occur in early adolescence regardless of intervention messages. Parent and teacher comments highlighted a need for balanced messages about alcohol. Their comments that supported this theme suggested things like acknowledging that alcohol became interesting to young people during their teenage years in order to appear more grown up and if they were told that it was bad then they would not believe you. Finally, think aloud study participants talked about drinking being cool because it was not allowed for young people. One participant also pointed out that seeing specific sections in shops for alcohol and tobacco served to highlight this idea even further. A PWM based intervention must consider this aspect of drinking for young people because simply altering prototype perceptions and similarity

is unlikely to impact on the enticing forbidden nature of drinking for young people.

In summary there were nine meta-themes identified from across the whole body of data collected during the course of this project. These themes have implications for intervention development and the PWM.

## **8.5 Specifying the intervention**

This section sets out a protocol for a trial of the intervention, drawing together the findings discussed in this chapter and completing the work for step seven in the intervention development framework.

Providing a memorable name for the quiz is important to make it easy to identify and to refer to both for the end users and within the vast intervention literature. Thus the intervention has been named the Alcohol Smart Quiz (ASQ). This name has been selected to clearly denote the subject matter and that it is a game that will test participants' knowledge. It was important to try to use an reasonably neutral adjective in order not to give too much away about the content of the quiz given the findings of the think aloud study that suggested that the surprising content was a positive feature. In addition this name is easily shortened into an easy to refer to acronym 'ASQ'. The name could also be altered depending on the context of delivery and preferences of recipients and facilitators as the content is more important than what the intervention is called. The protocol is set out under the headings in the acronym 'PICO'; population, intervention, comparison and outcomes in order to clearly address each of these key areas (Smith & Dixon, 2009).

### **8.5.1 Participants**

The findings of the think aloud study indicated that the participants who were aged 12-14 or in years 8 and 9 at school were the most receptive to the quiz but this needs to be tested with a larger sample. Thus a trial of the ASQ should recruit young people aged 11-15, specifically within years 7-11 at UK secondary schools to determine the best target for this type of intervention. The intervention materials have a Flesch reading ease score of 85 and thus should be understandable to children aged 11 and upwards. A pilot of the materials will be conducted prior to the trial to test that this is the case. Participants will be recruited via schools and schools will be randomly

allocated to one of the three arms of the trial. The required sample size will be calculated when the effect size has been determined from preliminary work.

### **8.5.2 Intervention**

It is intended that the ASQ should be trialled using the LifeGuide open source software for the development of digital interventions (Yang, et al., 2009). This is an ESRC funded project that is part of the national Digital Social Research programme. LifeGuide provides software that allows intervention designers to create their own digital interventions and features include allowing tailoring and providing feedback to participants. Thus it is ideally suited to the testing of an online intervention in the chosen format for this project. Researchers involved in the LifeGuide project have conducted a number of think aloud studies to test their interventions with positive results (Morrison, Yardley, Powell, & Michie, 2012; Yardley, et al., 2011), which was one of the reasons that the method was selected in the current project.

The updated version of the ASQ quiz questions and answers are detailed in full within Appendix F. Table 8.3 below presents an updated logic model for the ASQ that builds on table 5.5 from chapter five to show how the BCTs have been enhanced, how they relate to processes in the social reaction pathway in the PWM and their intended outcomes.

The intervention will be delivered within class time in school. Baseline measures will be completed prior to the session. Teachers/ facilitators will introduce the session using a standard set of instructions. Participants will then complete the quiz questions individually on the website (see Appendix F for intervention materials, procedure and full quiz questions and answers). They will be provided with a work sheet to use to create their 'if-then' plans. Following completion of the quiz, each participant will receive a fact sheet with all the correct quiz answers. The answers will be discussed in groups to provide interaction within participants. Following the session, participants will receive a booster session at three months to remind them of the quiz answers and their plans. This will take the form of a printed sheet with the answers and a space to write down individual if-then plans from the original session, which the participant can change at that stage if required.



### **8.5.3 Comparison**

The intervention will be compared to a control group receiving usual PSHE provision and an active control group receiving an internet delivered quiz providing health risk information. Active control groups may be preferable for schools who agree to take part in trials. It can be challenging to recruit schools into research projects and they may be unwilling to give their time to a project unless they actually receive the intervention. In this case an active control condition is a similar quiz but with questions about alcohol health risk information. Another reason to include a quiz containing health risk information as the active control in this case is to attempt to show the effectiveness of the ASQ over an information only intervention. It was argued in chapter one that this type of programme is based on the assumptions of rational models of health behaviour such as the TPB and therefore this is an important part of a trial of the ASQ. In order to further increase the likelihood that schools will agree to take part in the intervention, it will be necessary to offer control schools the intervention once they have completed the study.

**Table 8.3** *Logic model for the ASQ intervention to specify BCTs, processes and intended outcomes*

| Input: BCT   | Process in PWM   | Intended Outcome  |
|--|--|---|
| BCT 1) Adapt and present information on other people's drinking to reduce perception of drinker prototype as the norm to enhance similarity to non-drinker   | Images are often based on misperceptions. Similarity to prototype drinker is strongly related to willingness and drinking  | Drinker prototype decrease similarity as not the norm.<br>Corrects norm misperception   |
| BCT 2) Present negative image of heavy or risky drinkers. Present positive image of non-drinkers paying attention to credibility of description and enhance similarity to positive non-drinker image | Target prototype favourability and similarity. Enhance positive features of non-drinker. Present negative image of drinker | Drinkers and drinking are less favourable and less similar to self.<br>Non-drinkers and non-drinking more favourable and more similar to self |
| BCT 3) Teach awareness of social/ environmental cues to behaviour specifically that unplanned drinking more risky  | Spontaneous influences on behaviour may occur when young people do not plan to drink                                       | Young people are aware of risks of reactive behaviour   |
| BCT 4) Action planning using implementation intentions. Incorporate a range of scenarios and options   | Reduce unplanned behaviour and decrease willingness to drink.  | Young people are able to recognise and deal with social pressure themselves   |

#### **8.5.4 Outcomes**

The primary outcome measures are quantity and frequency of alcohol consumption, including self-reported drunkenness and alcohol related harms. The secondary outcome measures are prototype perceptions, willingness and implicit attitudes. Although implicit attitudes were only weakly related to some of the variables, the identified weaknesses in the measurement tool will be overcome and this relationship tested further as part of a trial. Intentions and attitudes will also be measured in order to compare groups on rational measures compared to reactive measures. Measures will be collected at baseline, and one month and six months following the intervention. These timescales are chosen based on previous studies and taking into account the need to ensure participants are at the same school and in the same class given the format of delivery. A longer term follow up could be incorporated if ethical issues in identifying and contacting young people can be overcome. Outcome measures will be collected online, building on the survey reported in chapter four of this thesis.

#### **8.6 Conclusion**

This chapter aimed to integrate the findings of all five studies reported in the thesis. Five pieces of intervention specific feedback were identified in the 12 priority areas from the Delphi, parent/teacher survey and the think aloud study. These were related to 1) social pressure, 2) credibility of content, 3) appeal to young people, 4) training and supporting information and 5) additional content. The final design of the intervention incorporated these by adapting the quiz questions to reflect the implementation intentions BCT, adapting the questions about prototypes, enhancing the overall visual design of the quiz, producing information for teachers and parents, and enhancing some of the features to increase the length of the intervention.

A meta-matrix was then used to present findings in relation to nine PWM meta-themes identified that cut across the five studies. Agreement and discrepancies were discussed highlighting the benefit of a mixed methods design in this context.

Finally a protocol for the Alcohol Smart Quiz (ASQ) intervention was presented. An updated logic model detailed the final BCTs, processes and

intended outcomes, and the key issues related to participants, comparison groups and outcomes were considered. In the following, final chapter of this thesis, the implications, strengths and weaknesses of the project are discussed.

# 9

## **Chapter Nine: Discussion**

## 9.1 Introduction

This thesis reported the development of an intervention based in the social reaction pathway of the Prototype Willingness Model. The Alcohol Smart Quiz (ASQ) is an online intervention which applies four Behaviour Change Techniques (BCTs). It was developed using a seven step guiding framework in a mixed methods design. The overarching research question addressed within this thesis was:

*Does the social reaction pathway in the Prototype Willingness Model offer an appropriate basis for an intervention to reduce alcohol misuse in young people under the age of 18 in the UK?*

During the course of addressing the research question, five individual studies were conducted. The project used a multiphase mixed methods design with integration of the findings presented in chapter eight. This chapter aims to provide an overall discussion of the work that was reported in this thesis. It reviews the ASQ intervention, the seven step framework that guided the project, and considers limitations and implications for future work.

## 9.2 The ASQ intervention

### 9.2.1 Overview and strengths

The intervention was named The Alcohol Smart Quiz (ASQ) and details of its final specification were set out in the previous chapter and in Appendix F. The ASQ is an online quiz consisting of questions and answers that are linked to four specific behaviour change techniques (BCTs) reflecting the social reaction pathway in the PWM. The revised version of the ASQ set out in chapter eight includes a fact sheet with the correct answers and a 'booster' where the quiz answers are sent to recipients three months later in which they are prompted to remember the drinker and non-drinker images and implementation intentions. A brief protocol for a trial of this intervention was set out and it was proposed that it should be compared to (i) a similar quiz that targets attitudes, in order to compare it to the rational pathway in the PWM, and (ii) usual Personal Social and Health Education in school.

The ASQ has a number of strengths and advantages over other interventions that aim to reduce alcohol misuse in teenagers. It is delivered using a

primarily online method, which increases intervention fidelity. It is also a brief intervention that does not require sustained input from teachers, beyond the classroom and booster session, or require the involvement of parents.

Young people were particularly interested in the content of the ASQ because it did not contain the usual messages about alcohol that they expected. Think aloud study participants were surprised by some of the questions, particularly that the number of young people who drink is falling. They also expressed surprise that the intervention did not appear to specifically tell them not to drink, or that it was bad for them. Because of this the ASQ has the potential not to be dismissed by young people as 'yet another lecture' on the perils of drinking.

By targeting social influences on drinking, the intervention also appeared to relate to young people's own experiences of alcohol. For example the think aloud and focus group participants talked about drinking at parties and pressure to drink or fit in. They also demonstrated how images of drinkers and drinking were influential in their discussions. Thus, the social reaction pathway in the PWM does appear to be an appropriate basis for an intervention for young people in the UK.

The ASQ was also designed with input from experts, teachers, parents and young people. Thus, the acceptability of the intervention has been established prior to a trial. The ASQ also uses the words of the participants who took part in the study in order to ensure that it uses relevant language for this population.

### **9.2.2 Limitations**

Although the format and content of the draft version of the ASQ received support from Delphi study participants, parents, teachers and young people, it is important to acknowledge there are a number of limitations.

The intervention is delivered using a website and therefore requires participants to read and answer questions. This format may not be appropriate for young people who have a lower reading age than expected for their age. It also may be inappropriate for those with dyslexia or other impairments. Adjustments may need to be made in order to account for individual needs. It is also important to note that some schools might have

better computer access than others, and this may limit their ability to deliver the ASQ in the classroom.

Credibility has been addressed in a number of the preceding chapters, nevertheless this remains an important issue in terms of addressing health messages aimed at young people. Young people perceived the overall intervention messages as acceptable, and were interested in the content. However, they did not always agree with the prototype descriptions, and suggested that other people their age may not either. This meant that the descriptions were changed for the final version and the focus was shifted from 'drinker' to 'heavy drinker'. Thus it may be preferable to test the new quiz questions and answers in another think aloud study prior to the trial. As mentioned in chapter eight, it is possible that credibility could also be undermined by the adoption of the survey information format used in other PWM interventions. Some of the expert participants raised concerns about suggesting that the survey information came from a real survey when in fact this was not the case. The wording of the ASQ information was amended to take this into account. However it is also important to consider this mode of information presentation in light of the wide range of messages about alcohol that young people encounter, for example through advertising, which has been shown to influence young people's alcohol consumption (Smith & Foxcroft, 2009b).

The participants in the qualitative studies came from one English county. Their prototype descriptions may therefore be specific to one area and so it would be useful to run some additional focus groups or interviews with young people in other parts of the UK. Ideally, the intervention trial should run in more than one area of the UK in order to ensure that that the content and format is suitable for use across the country. It is important to note that the young people who took part in the online questionnaire were drawn from around the country and so these results could be said to be reflective of young people's responses around the UK (although there were other limitations to the generalizability of those findings).

There may also be a further limitation in designing an intervention based solely on one part of the PWM, rather than the whole model. If an intervention was based on the whole model it would be possible to test the pathways



between all of the constructs following a trial for example. However, it was important to try to explore the application of reactive constructs in more detail because so much previous research had been conducted already looking at attitudes and intentions. This required detailed exploration at the development stage because so few interventions had previously attempted to target spontaneous influences on young people's drinking. There was already a small amount of evidence that prototype perceptions may add something new to an understanding of young people's drinking (Rivis, et al., 2006), but it was not evident how exactly these constructs should be operationalized and applied within an intervention. Now that the groundwork has established the relevance of this pathway and the constructs, further work will be able to compare it to other interventions and those that are based on rational constructs.

It is also important to consider the limitations of the intervention at a broader level. An important meta-theme identified at the integration stage was the topic of 'forbidden fruit'. This phrase was chosen to represent the notion that by being off limits for young people, alcohol is an even more enticing and interesting substance. It seems unlikely that the ASQ, or any intervention, would be able to counter this influence on its own. One example to illustrate this challenge is the amount of alcohol related songs that appear in the UK top 40. Researchers at Liverpool John Moores University analysed the lyrics of popular songs and found that nearly 20% contained references to alcohol, most of which were positively framed (Hardcastle, Hughes, Sharples, & Bellis, 2013). Indeed, the younger girls within the focus group study reported in chapter three also talked about alcohol in popular music. For example:

*People think it's cool because of like music videos, and that and like all these rap artists and that which people are so influenced by.... You just think, oh if Kanye West, drinks and does all sorts, and takes drugs and that, then you think, Oh it's alright because, it's normal (Poppy)*

*Yeah cos you have like all the music videos they're always like opening champagne or getting really drunk (Beth)*

At a higher level, the intervention must compete to influence young people's drinking in the context of a society where alcohol consumption is the norm. In the UK, alcohol is consumed in an almost limitless variety of situations, in both

celebration and commiseration (Plant & Plant, 2006). Alcohol is also associated with a range of leisure activities from sport to music. Until there is a significant change in our relationship with this drug across population groups, it may be wishful thinking to seek solutions to reduce risky drinking in young people. Indeed, there is a risk of 'demonising' certain groups within the population rather than seeking to address this bigger picture. For example, evidence suggests that nearly a quarter of adults aged over 16 could be classed as hazardous drinkers (The NHS Information Centre, 2011).

This was a specifically theory driven project and thus the intervention which has been defined above would perhaps most likely be delivered in conjunction with other measures rather than as a stand-alone solution to alcohol misuse. It could be argued that problem driven intervention design therefore is a more appropriate focus for a complex issue like teenage alcohol misuse. However theoretically focussed research is essential in order to further an understanding of this behaviour so that future intervention designers are able to select the most effective and evidence based components for their programmes.

### **9.2.3 Future work**

As proposed in chapter eight, the findings of this development project suggest that a trial of this intervention should be conducted in order to determine its effectiveness. Prior to evaluating the effectiveness of the intervention the next stage of work should be an exploratory trial in order to determine the feasibility of delivering the ASQ intervention within a school setting. This exploratory trial will assess recruitment, retention, feasibility and sample size for a full trial. During the exploratory trial, qualitative work will be undertaken to determine acceptability to both young people and teachers and to identify factors that will facilitate school recruitment into a full trial. It is important to determine what structures, resources and partnerships are necessary for a definitive trial to take place. For example it may be advisable to invite head-teachers and PSHE teachers onto the project steering committee to ensure their needs are met. It is also important to determine how the ASQ relates to current alcohol education provision and in what curriculum context it would best fit. The exploratory trial will also determine

the acceptability of using digital media to deliver alcohol and other health education in schools.

The effectiveness of the ASQ in comparison to an intervention targeting attitudes and intentions is of particular importance. There may also be some useful further applications of this format to other interventions aimed at teenagers in the UK. For example the PWM has been applied to smoking, physical activity and tanning behaviour in the United States, and given the findings of the current project it is likely that it could be applied to these behaviours in UK adolescents.

Further exploratory work would also be valuable regarding the application of implicit measures within intervention design. This project was not able to conclude strong evidence for a relationship between PWM constructs and implicit attitudes which may have been due to the way that it was measured. Using a more accurate measure of reaction time within the computer based Implicit Association Test (IAT) (Greenwald, et al., 1998) would be preferable to the format adopted in the current project. As described in chapter four, measuring willingness as a truly reactive construct could be problematic. A trial of the ASQ should attempt to incorporate this type of measure in order to establish if the intervention has any effect on spontaneous rather than deliberative measures. An important extension of this part of the work will be to compare questionnaire measures of implicit attitudes with a reaction time measure and then to ascertain whether this can be feasibly included within the intervention measures, even for a subset of the sample.

## **9.3 The seven step framework**

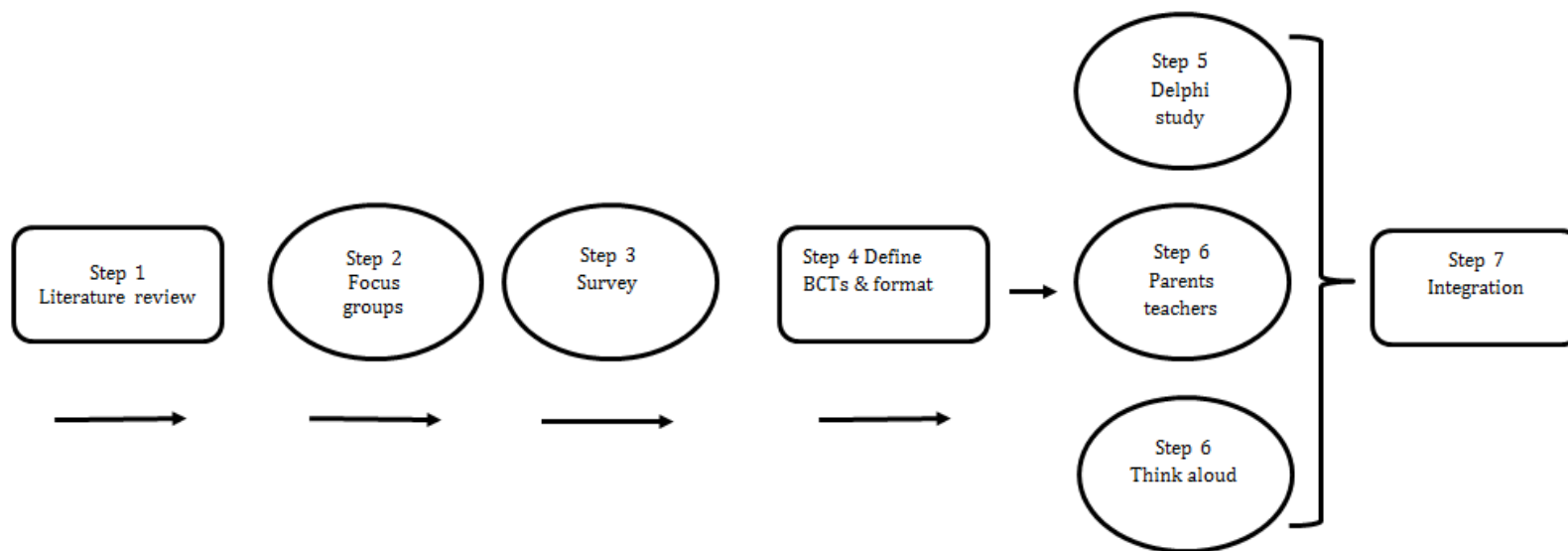
### **9.3.1 Overview and strengths**

The development of the ASQ intervention was guided by a seven step framework set out in chapter two and reproduced in figure 9.1 above. It is important to consider the strengths and weaknesses of this approach and how it could be adapted for future work. The steps in the framework set out a plan of work for the thesis, specifically to guide a project taking a single theory approach because there was no clear and detailed existing guidance on how to undertake a project of this nature. The framework drew on the Intervention Mapping (IM) approach (Bartholomew, et al., 1998), and The Medical

Research Council (MRC) guidance (Craig, et al., 2008) in order to set out some steps to complete the 'development' part of the process.

The project began with a review of the literature in order to establish what might offer a suitable basis for an intervention. This was named formally as step one in the framework in order to acknowledge its importance in any intervention development project. The second and third steps explored the application of the social reaction pathway to young people and alcohol consumption in the UK. These were both important steps because although it appeared that prototypes might be a good intervention target, most of the existing literature came from the USA, or used young adult rather than adolescent populations. These steps are therefore essential in applying any theory to a new population or target behaviour and could be applied in other intervention development projects.

Step four detailed exactly how the BCTs were selected and applied for the first draft of the intervention. It is not usually possible to report this level of detail within a publication and therefore it is not always clear how intervention developers arrive at their decisions. Step five involved a Delphi study on the development process up to that point. This represented a novel application of the Delphi method and was useful in gaining feedback to inform the final design of the ASQ.



**Figure 9.1** Diagram of the seven step framework for developing a theory driven intervention showing the sequence of work undertaken in the thesis

The sixth step within the framework consisted of two studies, the teacher and parent questionnaire and the think aloud interviews. Obtaining teacher and parent input appeared to be uncommon in the design of interventions aimed at young people and so although it was a small study it generated useful feedback and raised some avenues for further exploration. Intervention developers may want to consider other possible stakeholder groups and how their views can be sought and incorporated. The think aloud study method was used to obtain the views of young people. This method was chosen because other researchers developing online interventions had applied it within their projects. This was an essential part of the current project because it enabled young people to have input into the product and also revealed some important and interesting insights.

The seventh step formally addressed how the studies would be integrated and the final design of the intervention specified. Integration is a key consideration in mixed methods research and so it was important that it was conducted in a distinct step within the framework.

Using mixed methods in health psychology has become increasingly popular in recent years (Dures, et al., 2011). This 'third paradigm' has been particularly beneficial to researchers attempting to understand complex social phenomenon such as health risk behaviours (de Visser & McDonnell, 2012; Yardley, et al., 2011). In the current project the qualitative studies were able to give a voice to the participants on this complex topic. The use of multiple quotes to support identified themes was particularly beneficial in justifying analysis because this took a deductive approach. The use of a larger quantitative survey about prototypes, willingness and alcohol consumption was able to establish that patterns identified in the qualitative work were likely to be present in a wider population. Undertaking several studies drawing on both qualitative and quantitative methods is advantageous for intervention developers. Starting with a qualitative study allows the researcher to establish if the theoretical basis is appropriate but also to identify aspects about the target behaviour that are important to the target population and to determine intervention acceptability prior to a full trial (Dixon-Woods, Agarwal, Young, Jones, & Sutton, 2004).

There is a growing tendency toward the use of mixed methods in intervention design. These projects often use multi-skilled teams with expertise from each paradigm but increasingly intervention designers may have skills which cut across the traditional divide. This project contributes to this field by using mixed methods at the early stage of intervention development for a theory driven project. It provides a suggested framework within which other similar projects could use mixed methods to achieve a similar aim.

In summary, the ASQ intervention has therefore been developed using a transparent and systematic approach. Each stage of development has been reported in full within this thesis, with separate studies currently being prepared for submission to journals. Reporting each stage of the development process allows it to be reviewed, adapted and replicated. Additionally, the ability to demonstrate a clear and detailed design process may be advantageous when applying for funding to trial an intervention.

### **9.3.2 Limitations**

The seven step framework provided a clear pathway for the current project enabling the research question to be addressed. However there were some limitations and areas which may need to be adapted if it is to be used in future projects.

One theme that emerged within the integration of the findings was the need to consider looking at different types of drinker prototypes rather than just actor and abstainer. Although there was evidence of this need in the focus group study, because it was a very small piece of work it was not possible to fully define different types of prototypes at that stage. This highlights the importance of early qualitative work and suggests that a larger number of focus groups should have been conducted.

Another limitation of applying this framework is that it might be considered to be time consuming. The level of detail should really be seen as a strength, however studies reported in chapter two suggested that teams of researchers had difficulty in applying all of the steps of IM (Dalum, et al., 2012; McEachan, et al., 2008). While this level of detail and amount of work may be appropriate within a longer project, often funding restrictions will mean that not all of the desired work can be completed, purely for practical reasons.

The seven step framework was designed to address a theory driven research question. The majority of intervention research is problem-driven and not based solely on one theory however. This may mean that there need to be additional work undertaken within steps two to four. As suggested, more qualitative work would be preferable in any case, but a greater number of focus groups or interviews would probably be required in a problem driven project. In step four, the guiding questions would need to be adapted in order to address how BCTs are selected and applied.

### **9.3.3 Future work**

In order to test the utility of the seven step framework, it would be beneficial to apply it to the development of another intervention. Refinements could then be made to address some of the limitations identified and to explore its application to a different behaviour or population group. Specific to the current project, refinements could be made based on how the framework was applied and it could serve as a prototype for other similar projects.

## **9.4 Overall contribution, limitations and implications for future work**

### **9.4.1 Overall contribution of the project**

This project has made a contribution its theoretical basis, the Prototype Willingness Model. Much of the existing evidence in support of applying this model to young people's health risk behaviours came from the United States and was undertaken using college age students (18-25). This project has therefore contributed to the evidence in support of this model in applying the constructs to the drinking behaviours of teenagers in the UK. There was also no evidence identified that had applied this model to an alcohol misuse intervention for this age group. Thus a trial of this intervention has the potential to be an important contribution to the field.

The project was conceptualised in seven distinct sequential steps which reflected the need for a framework by which to guide a theory driven intervention development project. The seven steps were derived from a thorough review of existing frameworks and drew upon the Medical Research Council (MRC) guidance for the development and evaluation of complex interventions (Craig, et al., 2008) and Intervention Mapping (Bartholomew, et



al., 1998). The seven steps allowed for a detailed exploration of the PWM prior to decisions about the intervention components and format being made. This approach was advantageous because it allowed the theoretical constructs to be operationalized in a way that is most appropriate to the target population and behaviour. This avoids the potential pitfall of making assumptions based on previous research with different populations which may not reflect the experiences and language of the target group. Moreover there was little existing detailed guidance about how to approach a project purely focussed at the 'development' phase of intervention design. In order to ensure a systematic and transparent project it was necessary to set out clearly at the start the exact steps that would be undertaken and why. Thus this type of approach could potentially be used and adapted by other intervention designers who are undertaking the very early stages of theoretical exploration and development. There are many proposed frameworks and guidance documents already in existence to which this project has now contributed. The future direction of this area is firmly headed at achieving further transparency and to development a robust science of intervention design. By reporting this detailed approach to development this project aligns with and contributes towards the future of the field.

#### **9.4.2 Limitations**

The limitations of the individual studies that were conducted as part of this project were discussed within each chapter. Some further limitations are now considered in light of their overall implications for the research question.

The focus group study reported in chapter three was a small study with only four focus groups from one school. The benefits of conducting more qualitative research were considered in previous section. In addition, the qualitative analysis undertaken in this and the think aloud study was deductive in nature as it was guided by the theory and specific research question. This type of analysis can be critiqued in both studies as it may not fully let participants' experiences on the topic emerge. Indeed, there were further analyses undertaken in both studies that revealed a range of other aspects of young people's drinking. They are not reported within this thesis due to the focus of the research question, but do raise some areas for further exploration.

There were also numerous challenges in recruiting young people to complete the online survey which may limit the generalizability of the findings. Attempting to conduct the research within schools was particularly problematic due to the time required for them to administer the consent process or the time needed to complete the survey at school which meant that almost all schools that were approached ( $N= 50$ ) were unwilling or unable to participate. Thus, alternative opportunistic means of recruitment were employed in order to enable the study to achieve its sample size. These included posters around the University and local area, using social media and appealing to personal and professional contacts. The time taken to complete this part of the project subsequently impacted on the composition of the sample and upon completion of the remainder of the data collection. It is important to consider how best to engage schools in research projects of this nature as their contribution is vital.

It is also important to consider limitations of the integration of the mixed methods studies. This step in the project was conducted with a specific focus on the research question in order to specify the final design of the intervention, thus some important over-arching themes may have been overlooked. It is usually also common to see the position of the research acknowledged in qualitative research (Bryman, 2004), and this was not set out in the current project as it was conducted using deductive methods. However it is important to acknowledge that the biases and previous experiences of the researcher may have an important influence in qualitative work.

In chapter two, table 2.1 presented detail about how the seven step framework could consider aspects of development, evaluation, implementation and reporting. The work in this thesis has clearly contributed to the development of the intervention, but the impact of this work on evaluation and implementation is yet to be determined. Whilst the chapters have attempted to address the reporting standards for each separate study clearly, how the whole process of development, including each of the steps, should be reported has not been addressed.

### **9.4.3 Implications and future work**

There are some additional implications of the project, aside from trialling the ASQ and applying the seven step framework. Firstly, it is important to address how best to engage schools with alcohol (and other drug) research. Given that the average age of a teenager's first drink is around 12 or 13 (Bremner, et al., 2011; Moore, et al., 2010), it is imperative that work be conducted with young people before, during and after this transition. Ethical issues with gaining parental consent are a real barrier to the willingness of schools to take part in a research study.

As mentioned, there were some additional themes that emerged in the qualitative studies that warrant further exploration. For example, in both the focus groups and think aloud interviews there were findings related to the cost of alcohol, types of drink and acquiring alcohol. Young people also frequently mentioned the phrase 'drink responsibly', although there was no real explanation of what this might mean. The use of this phrase might reflect that it is used in drink advertisements, which have a big influence on young people (Smith & Foxcroft, 2009b). Further work should be conducted to explore the use and perception of this term.

The findings of this project support previous research that suggests dual process models may be better able to explain young people's alcohol consumption than rationally based models. The project has extended the current literature by applying the PWM to adolescents in the UK. Further work should be undertaken to explore the application of dual process models in other prevention and intervention research in this population. For example this type of approach might be useful within interventions aimed at eating behaviours, smoking and drug use.

### **9.5 Concluding comments**

The overall objective of this thesis was to develop an intervention to reduce alcohol misuse in young people based on the social reaction pathway in the Prototype Willingness Model. The Alcohol Smart Quiz (ASQ) intervention was developed using a multi-phase mixed methods design and through a framework incorporating seven steps. The intervention content and format was found to be acceptable to experts, teachers, parents and young people.

Feedback from these groups was used to improve the design of the intervention and this was specified in a protocol. Further work should now be undertaken to run a full trial of this intervention to test its effectiveness. This systematic approach to theory driven intervention development offers a potential framework for similar projects using mixed methods to fully specify the content and acceptability of a theory based intervention prior to a trial.

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## Appendices

Appendix A: Ethics Committee Approvals

Appendix B: Questionnaire

Appendix C: Delphi study materials and first draft intervention

(i) Alcohol quiz intervention plan for Delphi study

(ii) Round one questionnaire

(iii) Round two questionnaire

Appendix D: Teacher and parent study example questionnaire

Appendix E: Think aloud study materials

(i) Full list of quiz questions and answers

(ii) Each page of the quiz as presented in the think aloud study

Appendix F: The ASQ Intervention

Appendix G: Published paper

Davies, E., Martin, J., & Foxcroft, D. (2012). Young people talking about alcohol: Focus groups exploring constructs in the Prototype Willingness Model. *Drugs: education, prevention and policy*. doi: 10.3109/09687637.2012.726662

## Appendix A: Ethics Committee Approvals



### University Research Ethics Committee

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Professor David Foxcroft, Director of Studies  
Dr Jilly Martin, 2<sup>nd</sup> supervisor  
School of Health and Social Care  
Marston Road Site  
Jack Straw's Lane  
Oxford Brookes University

22<sup>nd</sup> February, 2011.

Dear Professor David Foxcroft and Dr. Jilly Martin

UREC Registration No: 110531: "Young people's views about drinking alcohol – Stage 1" – PhD study Ms Emma Davis

Thank you for your letter dated 9<sup>th</sup> February 2011 outlining your response to the points raised in my previous letter about your study and attaching the revised documents.

I am pleased to inform you that, on this basis, I have given Chair's Approval for the study to begin.

The UREC approval period for this study is two years from the date of this letter, so the 22<sup>nd</sup> February 2013. If you need the approval to be extended please do contact me nearer the time of expiry.

In order to monitor studies approved by the University Research Ethics Committee, we will ask you to provide a (very brief) report on the conduct and conclusions of the study in a year's time. If the study is completed in less than a year, could you please contact me and I will send you the appropriate guidelines for the report.

Yours sincerely

Dr Elizabeth T. Hurren  
Chair of the University Research Ethics Committee

cc Louise Wood, ethics officer, RDBO  
Hazel Abbott, school ethics officer  
Jill Organ, graduate school



[www.brookes.ac.uk](http://www.brookes.ac.uk)

Professor David Foxcroft, Director of Studies and  
Dr Jilly Martin, Second Supervisor  
School of Health and Social Care  
Oxford Brookes University  
Marston Road Site

19th July 2011

Dear Professor David Foxcroft and Dr Jilly Martin

UREC Registration No: 110572: "Young people's views about drinking alcohol (part two)"

Thank you for your email of the 18th July 2011 outlining your response to the points raised in my previous letter about the PhD study of your research student Emma Davies, and attaching the revised documents.

I am pleased to confirm, that on this basis, I have given the study full ethical approval. It may now commence.

The UREC approval period for this study is two years from the date of this letter, so the 19th July 2013. If you need the approval to be extended please do contact me nearer the time of expiry.

In order to monitor studies approved by the University Research Ethics Committee, we will ask you to provide a (very brief) report on the conduct and conclusions of the study in a year's time. If the study is completed in less than a year, could you please contact me and I will send you the appropriate guidelines for the report.

It just remains for me to wish Emma Davies all the best with the research,

Yours sincerely

Dr Elizabeth T. Hurren  
Chair of the University Research Ethics Committee  
cc Emma Davies, Research Student  
Hazel Abbott, School Research Ethics Officer  
Jill Organ, Graduate Office  
Louise Wood, UREC administrator



Professor David Foxcroft  
Director of Studies, and  
Dr Jilly Martin, Second Supervisor  
Department of Social Work and Public Health  
Faculty of Health and Life Sciences  
Oxford Brookes University  
Marston Road Site

13 April 2012

Dear Professor Foxcroft and Dr Martin

**UREC Registration No: 120618**  
A Delphi study to gain expert feedback on the development of a theory based intervention to reduce alcohol misuse in young people

**UREC Registration No: 120617**  
Teachers' and parents' views on an intervention to reduce alcohol misuse in young people

**UREC Registration No: 120619**  
Young people's views about an alcohol misuse intervention

Thank you for the emails of 11 and 12 April, plus hard copies of the revised documentation outlining the response to the points raised in my previous letters about the three linked studies for your research student **Emma Davies**. I am pleased to inform you that, on this basis, I have given Chair's Approval for the studies to begin.

The UREC approval period for the three studies is two years from the date of this letter, so 13 April 2014. If you need the approval to be extended please do contact me nearer the time of expiry.

In order to monitor studies approved by the University Research Ethics Committee, we will ask you to provide a (very brief) report on the conduct and conclusions of the studies in a year's time. If the studies are completed in less than a year, could you please contact me and I will send you the appropriate guidelines for the report.

Yours sincerely

Hazel Abbott  
Chair of the University Research Ethics Committee

cc Emma Davies, Research Student  
Jill Organ, Graduate Office  
Louise Wood, UREC Administrator

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## Appendix B: Questionnaire study materials

Remember, all your answers will be treated in confidence and kept anonymous

Please take the time to read each section carefully

### Section 1: About you:

1.1 How old are you? \_\_\_\_\_

1.2 Please place a tick in one of the boxes below to show what year you are in at school:

7 [ ] 8 [ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ] 13 [ ] I don't go to school [ ]

1.3. Please tick to show whether you are male or female: Male [ ] Female [ ]

1.4. Is English your first language yes [ ] no [ ]

If no, what is your first language \_\_\_\_\_

1.5: In this section we would like you to indicate which response best applies to you by ticking the box in the column with the corresponding letter

**A) describes me very well**

**B) describes me a bit**

**C) does not describe me very well**

**D) does not describe me at all**

For example in question 0 if the statement 'I like to play sport' describes you a bit then you put your tick in box B.

|   | Question:   | A<br>Describes<br>me very<br>well | B<br>Describes<br>me a bit | C<br>Does not<br>describe<br>me very<br>well | D<br>Does not<br>describe<br>me at all |
|---|---|-----------------------------------|----------------------------|--|--|
| 0 | Example question: I like to play sport  |                                   | ✓                          |  |  |
| 1 | When the water is very cold, I prefer not to swim even if it is a hot day.                          |                                   |                            |  |  |
| 2 | When I listen to music, I like it to be loud  |                                   |                            |  |  |
| 3 | I stay away from films that are said to be frightening or suspenseful                               |                                   |                            |  |  |
| 4 | If I were to go to an amusement park, I would prefer to ride the rollercoaster or other fast rides. |                                   |                            |  |  |
| 5 | I would never like to gamble with money, even if I could afford it.                                 |                                   |                            |  |  |

|    |   |  |  |  |  |
|----|---|--|--|--|--|
| 6  | I like a movie where there are a lot of explosions and car chases                 |  |  |  |  |
| 7  | In general, I work better when I'm under pressure.                                |  |  |  |  |
| 8  | It would be interesting to see a car accident happen.                             |  |  |  |  |
| 9  | I like the feeling of standing next to the edge on a high place and looking down. |  |  |  |  |
| 10 | I can see how it must be exciting to be in a battle during a war.                 |  |  |  |  |

### **Section 2: Images**

**The following questions concern your images of people. What we are interested in here are your ideas about typical members of different groups. For example, we all have ideas about what typical celebrities are like or what the typical teacher is like. When asked, we could describe one of these images – we might say that the typical celebrity is attractive or rich, or that the typical teacher is strict or clever. We are not saying that all celebrities or all teachers are exactly alike, but rather that many of them share certain features.**

2.1: Take a moment to think about the typical person who is **the same age as you who drinks alcohol**

**The following scale shows some words that might describe this person**

Please place tick in the box on the scale to show how much you think each word might describe the typical person the same age as you who **drinks alcohol**: The scale runs from 1 (this word does not describe them at all) to 7 (this word describes them exactly). You can place the tick anywhere on the scale to show how much or little each word describes the **typical person your age who drinks alcohol**.

|             | 1 (not at all like this) | 2 | 3 | 4 | 5 | 6 | 7 (exactly like this) |
|-------------|--------------------------|---|---|---|---|---|-----------------------|
| Careless    |                          |   |   |   |   |   |                       |
| Sociable    |                          |   |   |   |   |   |                       |
| Cool        |                          |   |   |   |   |   |                       |
| Fun         |                          |   |   |   |   |   |                       |
| Responsible |                          |   |   |   |   |   |                       |
| Aggressive  |                          |   |   |   |   |   |                       |
| Healthy     |                          |   |   |   |   |   |                       |
| Boring      |                          |   |   |   |   |   |                       |
| Pressured   |                          |   |   |   |   |   |                       |
| Rebellious  |                          |   |   |   |   |   |                       |
| Confident   |                          |   |   |   |   |   |                       |
| Respectful  |                          |   |   |   |   |   |                       |
| Tough       |                          |   |   |   |   |   |                       |
| Anti-social |                          |   |   |   |   |   |                       |
| Stupid      |                          |   |   |   |   |   |                       |
| Grown-up    |                          |   |   |   |   |   |                       |
| Sensible    |                          |   |   |   |   |   |                       |
| Calm        |                          |   |   |   |   |   |                       |

2.2 You have now chosen some characteristics of the type of person who **drinks alcohol**. Overall how would you rate this person from 0 = extremely negative and 100 = extremely positive

1 \_\_\_\_\_ 100

**extremely negative**

**extremely positive**

2.3. How similar are you to this type of person (from 1 = not at all to 7 = very similar)

Not at all similar      1      2      3      4      5      6      7      Very similar

2.4. Now take a moment to think about the typical person **who is the same age as you** who **does not drink alcohol**.

The following scale shows some words that might describe this person. Please place tick in the box on the scale to show how much you think each word might describe the typical person the same age as you who **does not drink alcohol**: The scale runs from 1 (this word does not describe them at all) to 7 (this word describes them exactly). You can place the tick anywhere on the scale to show how much or little each word describes the **typical person your age who does not drink alcohol**

|             | 1 (not at all like this) | 2 | 3 | 4 | 5 | 6 | 7 (exactly like this) |
|-------------|--------------------------|---|---|---|---|---|-----------------------|
| Careless    |                          |   |   |   |   |   |                       |
| Sociable    |                          |   |   |   |   |   |                       |
| Cool        |                          |   |   |   |   |   |                       |
| Fun         |                          |   |   |   |   |   |                       |
| Responsible |                          |   |   |   |   |   |                       |
| Aggressive  |                          |   |   |   |   |   |                       |
| Healthy     |                          |   |   |   |   |   |                       |
| Boring      |                          |   |   |   |   |   |                       |
| Pressured   |                          |   |   |   |   |   |                       |
| Rebellious  |                          |   |   |   |   |   |                       |
| Confident   |                          |   |   |   |   |   |                       |
| Respectful  |                          |   |   |   |   |   |                       |
| Tough       |                          |   |   |   |   |   |                       |
| Anti-social |                          |   |   |   |   |   |                       |
| Stupid      |                          |   |   |   |   |   |                       |
| Grown-up    |                          |   |   |   |   |   |                       |
| Sensible    |                          |   |   |   |   |   |                       |
| Calm        |                          |   |   |   |   |   |                       |

2.5 You have now chosen some characteristics of the type of person who **does not drink alcohol**. Overall how would you rate this person from 0 = extremely negative and 100 = extremely positive

1 \_\_\_\_\_ 100

**extremely negative**

**extremely positive**

2.6 How similar are you to this type of person (from 1 = not at all to 7 = very similar)

Not at all similar

1

2

3

4

5

6

7

Very similar

**Section 3: What would you do in the following situations?**

**Think carefully about each of the following situations. You may not have ever been in any of these situations but we would like you to imagine that you are and to say what you would do.**

**Please put your answer on the scale by selecting the circle from 1 = unlikely to 7 = likely.**

1) Imagine you are at a family wedding party and you can see that your relatives, including your mum, dad and older brother, have had a few alcoholic drinks throughout the evening. Everyone is dancing and having a good time. Towards the end of the evening, an older cousin you have always got on well with offers you a full alcoholic drink they have just got from the bar.

How likely is it that you would do each of the following things? (Please answer both questions)

a) Take the drink and drink it?

Unlikely 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 Likely

b) Say no thanks?

Unlikely 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 Likely

2) Imagine you are out at the park your friends and some of them are drinking and seem to be having a good time. One of the most popular people from school notices that you are not drinking and offers you some of their alcohol. It is night time and you are sure that no-one in your family or any other adult you know will see you.

How likely is it that you would do each of the following things? (Please answer both questions)

a) Take the drink and drink it?

Unlikely 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 Likely

b) Say no thanks?

Unlikely 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 Likely

3) Imagine that you are at a house party with all of your friends and you are all drinking. There are no parents at the party and you will be able to sleep over at a friend's house afterwards. You have already had a lot to drink when your best friend arrives with some more bottles of alcohol. You feel a little drunk already but your friend tells you not to be boring and offers you another drink:

How likely is it that you would do each of the following things? (Please answer both questions)

a) Take the drink and drink it?

Unlikely 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 Likely

b) Say no thanks?

Unlikely 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 Likely

## **Section 4: About alcohol**

**1) Think about what might happen in the *next month*. To what extent do you intend to do the following?**

Please put your answer on the scale by selecting the circle from 1 = definitely do not intend to do this to 7 = 'definitely intend to do this'

a) Have an alcoholic drink

Definitely do not intend to 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 definitely intend to

b) Get drunk

Definitely do not intend to 1\_\_2\_\_3\_\_4\_\_5\_\_6\_\_7 definitely intend to

**2. Have you ever had an alcoholic drink – a whole drink, not *just a sip*?**

Yes [ ]

No [ ] *If no, please go section 5.*

**3. How old were you when you had your first whole alcoholic drink?**

[ ] years

**4. Have you ever felt or got drunk in the last 6 months? (Please tick one answer).**

**By drunk we mean that you may not have remembered what you've been doing, or felt a bit dizzy, or may have been sick, or not been able to walk straight, or may have had a hangover.**

Yes [ ]

No [ ] *If they have not been drunk they should go to section 7*

**5. How many times have you been drunk in the last week?** (Please tick one answer).

None

Once

Twice

Three times

4 or more times

**6. How many times have you been drunk in the last month?** (Please tick one answer).

None  5 times

Once  6 times

Twice  7 times

3 times  8 times

4 times  9 or more times

In the following questions we would like you to indicate the amounts by putting numbers into the boxes to show your answers

**7. When you drink, how much do you normally drink?**

(Please put the number of drinks where applicable e.g. '2... large cans of beer', '3 bottles of alcopops'.)

.....large cans or bottles of beer/lager/cider

.....small cans or bottles of beer/lager/cider

.....full pints of beer/lager/cider

.....half-pints of beer/lager/cider

.....small glass of wine

.....large glass of wine

.....shots of spirits (e.g. vodka, gin, whiskey)



.....bottles of alcopops (e.g. Smirnoff ice, Bacardi Breezer, WKD)

Other – please write .....

**8. In the last month, what's the most you've had to drink on a single occasion?**

.....large cans or bottles of beer/lager/cider

.....small cans or bottles of beer/lager/cider

.....full pints of beer/lager/cider

.....half-pints of beer/lager/cider

.....small glass of wine

.....large glass of wine

.....shots of spirits (e.g. vodka, gin, whiskey)

.....bottles of alcopops (e.g. Smirnoff ice, Bacardi breezer, WKD)

Other – please write .....

**9: Have any of the following things happened to you when you have been drinking?**

.....been sick

.....suffered from memory loss

.....been embarrassed by something you had done

.....been in trouble with the police

.....suffered an injury

.....been taken to hospital

.....had a fight with someone

.....lost something belonging to you (such as keys, mobile phone)

Other - please write.....

## Section 5: Words and Categories

In this section, you will identify words and group them into one of two headings as quickly as possible. There will be a box like the one below with two columns. Each column has two headings to tell you which words belong in that column. Your task is to look at the words listed in the middle and to place a tick in the correct column.

In this example you should tick the left side of the box when the words in the middle are either flowers OR positive words and the right side when the words are insects OR negative words.

| Flower   | Insect     |
|----------|------------|
| OR       | OR         |
| Positive | Negative   |
|          |            |
|          | Terrible ✓ |
| ✓        | Daffodil   |
| ✓        | Cheerful   |
|          | Ant ✓      |

In the example above, the circle in left hand column has been selected for 'daffodil' and 'cheerful' as they fit into either the 'flower' or 'positive' category. The circle in the right hand column has been selected for 'ant' and 'terrible' as they fit into either the 'insect' or 'negative' category.

Now have a go at the following example:

| Fruit                 | Vegetable             |
|-----------------------|-----------------------|
| OR                    | OR                    |
| Positive              | Negative              |
| <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> |

Left

Right

If you selected the circle on the **left** for 'apple' and 'excellent' then you are correct because they are either a fruit or a positive word.

If you selected the circle on the **right** for 'carrot' and 'awful' then you are correct as they are either a vegetable or a negative word.

On the next screen some of the words will be positive such as 'cheerful' and some of the words will be negative such as 'terrible'. Instead of flowers and insects, or fruit and vegetables the words will be alcohol related OR not alcohol related. Your task will be to select the circle in the correct column to show where the word belongs.

When you click 'next' the screen will display for 30 seconds. Try to finish as many of the words on the list as you can – but do not worry if you are not able to complete them all. After 30 seconds the screen will disappear and move to the next one.

| Not Alcohol | Alcohol   |
|-------------|-----------|
| OR          | OR        |
| Positive    | Negative  |
|             | Boring    |
|             | Happy     |
|             | Nice      |
|             | Coca-Cola |
|             | Lemonade  |
|             | Nasty     |
|             | Bad       |
|             | Cider     |
|             | Alcopop   |
|             | Whisky    |
|             | Laugh     |
|             | Horrible  |
|             | Water     |
|             | Milk      |
|             | Fun       |

Pain

Good

Sad

Wine

Vodka

Juice

Coffee

Pleasure

Beer

For the next task we want you to do the same task again, but this time the column headings have changed.

For example

| Insect   | Flower     |
|----------|------------|
| OR       | OR         |
| Positive | Negative   |
|          |            |
|          | Terrible ✓ |
|          | Daffodil ✓ |
| ✓        | Cheerful   |
| ✓        | Ant        |

In the example above, the circle in the left hand column has been selected for 'ant' and 'cheerful' as they fit into either the 'insect' or 'positive' category. The circle in the right hand column has been selected for 'daffodil' and 'terrible' as they fit into either the 'flower' or 'negative' category.

Now have a go at the following example:

| Vegetable | Fruit     |
|-----------|-----------|
| OR        | OR        |
| Positive  | Negative  |
|           |           |
|           | Carrot    |
|           | Apple     |
|           | Awful     |
|           | Excellent |

Left

Right

If you selected the circle on the **left** for carrot and excellent then you are correct because they are either a vegetable or a positive word.

If you selected the circle on the **right** for apple and awful then you are correct as they are either a fruit or a negative word.

On the next screen some of the words will be positive such as 'cheerful' and some of the words will be negative such as 'terrible'. Instead of flowers and insects, or fruit and vegetables the words will be alcohol related OR not alcohol related. Your task will be to select the circle in the correct column to show where the word belongs.

When you click 'next' the screen will display for 30 seconds. Try to finish as many of the words on the list as you can – but do not worry if you are not able to complete them all. After 30 seconds the screen will disappear and move to the next one.

| Alcohol<br>OR<br>Positive | Not Alcohol<br>OR<br>Negative |
|---------------------------|-------------------------------|
|                           | Boring                        |
|                           | Happy                         |
|                           | Nice                          |
|                           | Coca-Cola                     |
|                           | Lemonade                      |
|                           | Nasty                         |
|                           | Bad                           |
|                           | Cider                         |
|                           | Alcopop                       |
|                           | Whisky                        |
|                           | Laugh                         |
|                           | Horrible                      |
|                           | Water                         |
|                           | Milk                          |



|          |
|----------|
| Fun      |
| Pain     |
| Good     |
| Sad      |
| Wine     |
| Vodka    |
| Juice    |
| Coffee   |
| Pleasure |
| Beer     |
|          |

That is the end of the questionnaire. Thank you very much for taking part and completing the questions. If you have any questions then please contact the main researcher Emma Davies by email [edavies@brookes.ac.uk](mailto:edavies@brookes.ac.uk).

If you have any concerns about your own or others drinking then you might want to have a look at the website Talk to Frank <http://www.talktofrank.com/> which includes advice and a helpline number

## Appendix C: Delphi study materials and first draft intervention

### (i) Alcohol quiz intervention plan for Delphi study

#### **A Delphi study to gain expert views on the development of a theory based intervention to reduce alcohol misuse in young people**

This document shows how the described behaviour change techniques might translate into a web or application based interactive quiz. In the following stages of the project a version of the quiz will be made into a website in full colour in order to obtain feedback from young people, parents and teachers. Young people will be consulted to help with the wording of the questions and the layout of the quiz. Figure 1 shows how the quiz questions relate to the techniques.

- Participants take each quiz question in a set order, each on a different page as they progress through the website / application.
- Each question will have three possible options. The correct answer option will play a video of a young person or group of young people giving the answer. The score so far will be shown in the answer box. Incorrect answers will offer the participant the chance to try again until they get the right answer. A point will be scored only if they get the answer correct the first time. They can repeat the quiz at the end to get a better score. A summary of the correct answers will be provided at the end.
- Exact question wording to be used in the intervention to be constructed in collaboration with young people aged 11-15 in a later part of this project. Drinker- non-drinker may be swapped for binge drinker versus non-binge drinker to contrast not drinking at all with drinking for older participants may not be seen as realistic.

*Figure 1 PWM intervention quiz questions and behaviour change techniques*

| Q   | BCT   | Process in PWM          | Outcome   | Behavioural impact |
|-----|---|-------------------------|---|--------------------|
| 1.  | Provide information about others' behaviour                               | Descriptive norm        | Drinker prototype decrease similarity as not the norm<br>Corrects misperception | Reduce drinking    |
| 2-5 | Present a positive group identity of non-drinkers<br>Negative identity of | Prototype favourability | Drinkers and drinking are less favourable                                       | Reduce drinking    |

|      |   |  |   |                 |
|------|---|--|---|-----------------|
|      | drinkers  |  |   |                 |
| 6    | Awareness of social / environmental cues to behaviour | How spontaneous pathway influences behaviour | Move behaviour to intentional pathway           | Reduce drinking |
| 7-10 | Instruction on how to deal with social pressure       | Decrease willingness to drink.               | Able to recognise and deal with social pressure | Reduce drinking |

### Examples of possible quiz questions:

#### Example prototype question

We asked people in the survey how they would describe a typical teenager who drinks (binge drinks)

Which were the three most popular words used

- a) boring, depressed, anxious
- b) crazy, dangerous, stupid
- c) anti-social, careless, unhealthy

Answer is provided by video clip of someone saying ““Teenagers who drink were described as anti-social, careless and unhealthy. It is really anti-social to be drunk and sick at a party. It ruins the night for everyone else.”

#### Example social pressure question

How many people in the survey had experienced peer pressure

- a) 25%
- b) 50%
- c) 75%

Answer provided by video clip of someone saying “75% of people in the survey had experienced peer pressure of some sort. I do think that some people binge drink because of pressure. I have seen before but I’m not the sort of person who gives in to peer pressure. I’m my own person”.

Figure 2 is a rough draft plan of how the full intervention could be set out. This provides suggestions for the layout and content and some further draft questions and answers.

*Figure 2 Rough draft intervention plan with suggested question wording*

| Page                 | Content            | Content/ question                                       | Answer |
|----------------------|--------------------|---|--------|
| Page 1<br>Picture of | Welcom<br>e screen | A recent survey of teenagers<br>in the UK revealed some |        |

|  |             |   |   |
|--|-------------|---|---|
| bottles                                      |             | <p>surprising results about what young people think about alcohol.</p> <p>Find out if you really know what other people your age really think about alcohol</p> <p>Take the quiz now!</p>   |   |
| Page 2<br>Picture of a newspaper             | Question 1) | <p>1) Over the last ten years the number of young people aged 11-15 who drink has.....?</p> <p>a) increased<br/>b) decreased<br/>c) stayed the same</p>   | <p>Answer b)<br/>Decreased<br/>"The number of young people who have drunk alcohol has decreased over the last ten years"</p>  |
| Page 3<br>Picture of an empty glass          | Question 2) | <p>So, many people young people don't drink alcohol at all. What were the reasons given for not drinking?</p> <p>a) Parents don't approve<br/>b) There has been a change in the way drinking is viewed by young people<br/>c) Young people prefer soft drinks</p> | <p>Answer b)<br/>"It doesn't have a cool image any more. It's not really a rebellious thing like it used to be, teenagers now have better things to do"</p>                                       |
| Page 4<br>Picture of someone being sick      | Question 3) | <p>We asked people in the survey how they would describe a typical teenager who drinks</p> <p>Which were the three most popular words used</p> <p>a) boring, depressed, anxious<br/>b) crazy, dangerous, stupid<br/>c) anti-social, careless, unhealthy</p>       | <p>Answer c)<br/>"Teenagers who drink were described as anti-social, careless and unhealthy. It is really anti-social to be drunk and sick at a party. It ruins the night for everyone else."</p> |
| Page 5<br>Picture of a group of young people | Question 4) | <p>We asked people in the survey how they would describe a typical teenager who does not drink</p> <p>Which were the three most popular words used</p>  | <p>Answer a)<br/>"The image of non-drinkers is that they are sociable, confident and independent. I don't need alcohol to have fun, and I am really</p>   |

|  |                    |   |  |
|--|--------------------|---|--|
|  |                    | <p>a) sociable, confident, independent</p> <p>b) hard-working, anti-social, careful</p> <p>c) boring, antisocial, sensible</p>  | <p>confident and independent person, who knows my own mind.</p>  |
| <p>Page 6<br/>Picture of magazine</p>                        | <p>Question 5)</p> | <p>A lot of teenagers in the survey were aware of the negative aspects of binge drinking. Which was rated the as the worst by young people? Three pictures</p> <p>a) bad skin</p> <p>b) liver disease</p> <p>c) putting on weight</p> | <p>Answer a)</p> <p>“Bad skin. The image of someone who binge drinks with bad skin was rated the worst in this survey. Binge drinking can ruin your appearance and that’s really stupid.</p>   |
| <p>Page 7<br/>Picture of group of young people</p>           | <p>Question 6)</p> | <p>We asked young people why they had tried alcohol for the first time. What was the most common answer?</p> <p>a) Peer pressure</p> <p>b) To get drunk</p> <p>c) To see what it tasted like</p>                                      | <p>Answer a) Peer pressure</p> <p>“Most people said peer pressure. I tried alcohol because someone I was hanging out with pressured me into it, it seems stupid to say it now but I was influenced<br/>Sometimes we act without thinking in social situations”</p> |
| <p>Page 8<br/>Picture or image that indicates confidence</p> | <p>Question 7)</p> | <p>How many people had experienced peer pressure</p> <p>a) 25%</p> <p>b) 50%</p> <p>c) 75%</p>  | <p>Answer b)</p> <p>“50% of people in the survey had experienced peer pressure of some sort. I do think that some people binge drink because of pressure. I have seen it before and the weaker people are trying to fit in or something. I’m</p>                   |

|  |              |  |   |
|--|--------------|--|---|
|  |              |  | not the sort of person who gives in to peer-pressure. I'm my own person".   |
| Page 9<br>Picture or image that indicates confidence | Question 8)  | We interviewed some of the people who had completed the questionnaire<br><br>Which of the following people has experienced peer pressure<br><br>Three pictures of people | The correct person says ""yeah, that did happen to me once, this group of girls was kind of pressuring people but I'm a really strong minded individual, I'm confident without alcohol."  |
| Page 10<br>Picture of scales                         | Question 9)  | Why do people want to resist peer pressure?<br><br>A bottle of wine has the same amount of calories as<br><br>Three pictures<br><br>2 burgers<br>2 apples<br>2 cakes     | Answer a) 2 burgers<br>Person says:<br>"Two burgers is a lot of calories. I care about my appearance and I don't want to put on weight. Alcohol is like full of calories. I sort of tell people that fact, they might laugh, but it is true and no one bothers me about it" |
| Page 11<br>Picture of sports                         | Question 10) | Resisting peer pressure<br><br>True or false<br><br>If you get drunk then drinking black coffee can help you to sober up   | Answer b)<br>False<br>"The only thing that can sober you up is time. I'm really into football so if someone is saying let's get drunk, I just tell them that I need my fitness, I want to be healthy and that, no one ever thinks bad of you"                               |
| Page 12<br>Picture of                                | Score        | Well done - you have completed the quiz and your   |   |

|              |         |   |  |
|--------------|---------|---|--|
| score board  |         | score is XX/10  |  |
| Page 13      | Summary | Summary of all survey answers   |  |
| Final screen | End     | If want to find out information about alcohol you can visit <a href="http://www.talktofrank.com/drug/alcohol">http://www.talktofrank.com/drug/alcohol</a><br>Or take the quiz again to improve your score |  |

### **(iii) Round one questionnaire**



University Research Ethics Committee number 120618

## **A Delphi study to gain expert views on the development of a theory based intervention to reduce alcohol misuse in young people**

### **Round one**

Thank you for agreeing to take part in this Delphi study. Completing this questionnaire implies that you agree to take part in the study and you confirm that you have read the participant information sheet. Please contact the main researcher on [edavies@brookes.ac.uk](mailto:edavies@brookes.ac.uk) if you have any questions about the study.

**Aim of the study:** The overall aim of this study is to get a consensus of feedback from a range of experts in order to inform the development of a theory based intervention to reduce alcohol misuse in young people aged 11-15.

You have been sent a short summary of the intervention development process and a description of the intervention content and design. Please read this information before answering the questions. You will be sent two rounds of questions in total. In this first round there are three sections. Where possible please provide detailed comments in the boxes provided to give further information to support your response.

In round two you will be sent the group's average responses to the questions and a summary of the comments that were made in this round. At this stage you will have the opportunity to amend your own answers or provide further comments and there may be some additional questions to respond to.

Please leave a question blank if you do not wish to respond to it.

## Section A: About you

1. Please enter your email address\_\_\_\_\_

This will be used to identify you to the researcher only and will be replaced with a code. Your responses will remain anonymous, you will not be identified to other group members and your name will not be used in any written work resulting from this process.

2. Your area(s) of expertise (please tick all that apply).

\_\_\_Health psychology

\_\_\_Alcohol research

\_\_\_Charity

\_\_\_Working with young people

\_\_\_Intervention design

\_\_\_ E Health (web or mobile phone interventions)

3. Gender: Female \_\_\_\_\_ Male\_\_\_\_\_

4. Age group: 21-30                      31-40                      41-50                      51-60  
61+

5. Location: Country\_\_\_\_\_

6. This intervention is based on the Prototype Willingness Model. Please rate your familiarity with this model below

Not at all familiar 1    2    3    4    5    6    7 Very familiar

Please use this space for your comments

## Section B. Theory and technique

Please read the following statements and indicate your level of agreement on the scale shown from 1 (lowest) to 7 (highest). Please use the text boxes under each question to make further comments.



1) This theory is a suitable basis for an intervention with young people aged 11-15

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

2) The intervention materials reflect the theoretical basis of the intervention

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

3) The change processes targeted by this intervention are clear

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

4) The behaviour change techniques applied reflect the change processes specified by the theory

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

5) The behaviour change techniques have been applied appropriately in the intervention

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

6) The process of intervention development from theory to proposed planned materials is clear

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

### Section C. Format and mode of delivery

Please read the following statements and indicate your level of agreement on the scale shown from 1 (lowest) to 7 (highest) Please use the text boxes under each question to make further comments.

1. The use of a mobile phone application is a suitable mode of delivering the intervention

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

2. The use of a game is a good way to engage with young people

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

3. The use of survey information makes the information credible to young people

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

4. This intervention will create a positive image of young people who do not drink alcohol

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

5. This intervention will be effective in targeting peer influences on drinking

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

6. This intervention would be interesting for young people aged 11-15

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please add your comments below

## Section D. Overall comments

1. What do you think are the main strengths of the proposed intervention?
2. What are the main weaknesses or changes that need to be made?
3. The age range that the intervention is to be targeted at is 11-15 and this may change when the materials are tested with young people. Do you have any comments about the most suitable age for this intervention or comments about the most appropriate age to intervene in general?
4. Interventions aimed at reducing risky drinking in young people often aim to reduce the quantity and frequency of alcohol consumption. The current project may aim to reduce alcohol related harms. Do you have any comments about the most appropriate outcome measures to use
5. Please use this section to make any other comments that you have on the proposed intervention

Thank you for your time in completing round one of the study. Your responses will now be reviewed and then collated with the other participants' responses. The second round of the study will begin on 8<sup>th</sup> October 2012 and will ask for your opinion on the full range of feedback that has been received. If you have any questions at all about the study then please contact Emma Davies on the details provided below

Thank you

Emma L Davies

September 2012

Contact details: Emma L Davies, Faculty of Health and Life Sciences, Oxford Brookes University, Jack Straw's Lane, Marston, Oxford, OX3 0FL

Tel: +44 (0)1865 482697

Email: [edavies@brookes.ac.uk](mailto:edavies@brookes.ac.uk)

This project is being supervised by:

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(iv) Delphi study questionnaire round two



University Research Ethics Committee number 120618

**A Delphi study to gain expert views on the development of a theory based intervention to reduce alcohol misuse in young people**

**Round Two**

Thank you for your valued contribution to the first round of this study.

The aim of the second round is to seek the group's opinion on the feedback received in round one, generating a list of priorities for the next stage of intervention development.

A summary and a series of statements has been generated from the comments and feedback provided in each section. You are asked to rank each according to how important you think each statement is. You also have the opportunity to comment if you disagree with or want to add to any of the feedback.

This round should take no more than 15 minutes and is open from Monday 8th October to Wednesday 31st October.

Please leave a question blank if you do not wish to respond to it.

Please contact the main researcher on [edavies@brookes.ac.uk](mailto:edavies@brookes.ac.uk) if you have any questions about the study.

**Section A:**

7. Please enter your email address \_\_\_\_\_

This will be used to identify you to the researcher only and will be replaced with a code. Your responses will remain anonymous, you will not be identified to other group members and your name will not be used in any written work resulting from this process.

**Section B: Theory and technique**

Group members were positive about the PWM as a basis for the intervention, about the development process and about the application of the theory to behaviour change techniques.

Group members made the following common comments and suggestions in this section. Please rank them in order of how important you think they are to address in the development of the intervention (with 1 as the most important and 6 as the least important in your opinion).

Please type the rank from 1-6 on the line next to the statement

\*Intervention does not sufficiently target reactive pathway in the model\_\_\_\_

\*The distinction between norms and prototypes should be clearer\_\_\_\_

\*Further work is needed on how the intervention addresses social pressure\_\_\_\_

\*Expand on reasons for alcohol refusal – include cognitive effects and other cons\_\_\_\_

\*Incorporate implementation intentions\_\_\_\_

\*Consider using insights from other theories (such as social influence theory, competence enhancement) \_\_\_\_

**What are your views about the comments and suggestions from the group? Please use the space below to respond.**

### Section C: Format and mode of delivery

Group members were positive about using a mobile phone application and a game as a way of engaging young people and many members thought that using survey information could be useful. Group members also thought that it was appropriate to target 11-15 year olds and that they would find it the intervention interesting.

Group members made the following common comments and suggestions in this section. Please rank them in order of how important you think they are to address in the development of the intervention (with 1 as the most important and 6 as the least important in your opinion).

Please type the rank from 1-6 on the line next to the statement

\*There needs to be more incentive for young people to complete the quiz e.g. a reward\_\_\_\_

\*Ethical issues with using fake survey information should be considered\_\_\_\_

\*Believability of messages in the survey – how to ensure that the intervention is credible\_\_\_\_

\*There needs to be caution about creating a negative image of drinkers\_\_\_\_

\*Concerns about the context of the intervention related to the context of drinking behaviour \_\_\_\_

\*Inclusion of follow –up prompts (texts or messages to remind about content) or the addition of fact sheets should be considered \_\_\_\_

**What are your views about the comments and suggestions from the group? Please use the space below to respond.**

## Section D: Overall comments

Group members thought the strengths of the intervention were as follows:

- It is theory based
- Method of presentation
- Covers a number of points in a short amount of time
- Using internet or mobile phone to allow participants to complete away from adults in classroom or parents
- It incorporates the target group in development
- Incorporates social elements of drinking that are important for this age group

Group members made the following common comments and suggestions in this section. Please rank them in order of how important you think they are to address in the development of the intervention (with 1 as the most important and 6 as the least important in your opinion).

Please type the rank from 1-6 on the line next to the statement

\*Credibility. It may not be taken seriously by the target group\_\_\_\_

\*There is a crowded market for apps\_\_\_\_

\*It is difficult to recruit in the target age range\_\_\_\_

\*It does not address contextual issues\_\_\_\_

\*It is too brief (limit to impact on its own or need a booster session)\_\_\_\_

\*It does not include interaction between young people\_\_\_\_\_

**What are your views about the comments and suggestions from the group? Please use the space below to respon**

Section E:

Your experience of taking part

1. Have you taken part in a Delphi study before? Yes/No
2. Have you conducted a Delphi study before? Yes/No
3. What are your thoughts on using the Delphi method to inform the development of an intervention?
4. Do you have any further comments about the use of a Delphi survey or your experience of taking part?
5. Would you like to receive a summary of the findings? Yes/No

Thank you for taking the time to complete round one and two of the study.

Emma L Davies, Faculty of Health and Life Sciences, Oxford Brookes University, Jack Straw's Lane, Marston, Oxford, OX3 0FL

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Email: [edavies@brookes.ac.uk](mailto:edavies@brookes.ac.uk)

## **Appendix D: Teacher and parent study**

**Example of teacher questionnaire (parent questionnaire wording was changed slightly)**



**University Research Ethics Committee number 120617**

### **Teachers' views about an alcohol misuse intervention programme**

Thank you for agreeing to take part in the survey. If you have read the participant information sheet and are happy to take part then please tick the boxes below expressing your consent, then click continue in order to begin the questionnaire.

#### **Section A: Your views about the intervention**

Please read though the summary below before moving on to the questions on the next page

Summary: An 'intervention' is any effort to promote healthy behaviours such as physical exercise or to prevent unhealthy behaviours such as drinking or smoking.

This intervention is based on a theory of health behaviour that has been shown to be effective in reducing adolescent risk taking. This intervention targets young people's images of 'typical' people their own age who do and do not drink alcohol and helps them to learn about influences on their behaviour.

The intervention is aimed at young people aged 11-15 and takes the form of a quiz to be played online or using a mobile phone. Players have to answer ten questions during the quiz which asks them to guess the answers that were given to a survey about alcohol, taken by people of the same age.

The first half of the quiz focuses on the images of young people who drink and do not drink alcohol. For example one question asks the player to pick the most common words from the survey that were used to describe a non-drinker.

The questions in the second half of the quiz are about social pressure and how other young people deal with it. For example one question asks the player to identify strategies for refusing alcohol.



Each question is multiple choice and players see their score as they progress through the quiz. Correct answers are played in a video clip with a young person giving the answer. At the end, players can go back and try to improve their score if they have got any questions wrong.

The quiz could be used as part of a lesson at school, or it could be something that parents use with children at home to address issues around drinking alcohol in a structured way.

We would like to know what you think about the quiz and to use your feedback to develop it.

Please read the following statements and indicate your level of agreement on the scale shown from 1 (lowest) to 7 (highest).

1. I would be happy if my school wanted me to use this alcohol quiz

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. I **would not** feel confident talking about the alcohol quiz with the children I teach

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. The alcohol quiz would be suitable for parents to use at home with their children

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. The alcohol quiz would be suitable for children aged 11-15

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5. Alcohol education should include ways of dealing with social pressure

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

6. The survey findings described non -drinkers in a positive way. The children I teach **would not** believe these findings.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

7. A quiz is a good method to use in alcohol education

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

8. Young people generally have a positive image of other people of the same age who drink alcohol

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

9. Online or mobile phone games **are not** suitable method to use in alcohol education

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Please use the space below to make any further comments about the questions or the alcohol quiz

## Section B: Your views about young people and alcohol

Now please think about your experiences of young people and alcohol education in general and then answer the following questions.

1. My school provides students with an appropriate amount of education/information about alcohol

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. I **do not** think it is important that children learn in school about alcohol

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. Social pressure is often a reason that young people start drinking

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. Parents are a better source of information about alcohol than schools

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5. The internet is a good source of information about alcohol for my students

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

6. My students should learn about alcohol from their own experiences

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

7. Schools **should not** need to ask parental permission before teaching children about alcohol

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

8. I feel confident in answering questions about alcohol from my students

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

9. I think that my school would be likely to agree to take part in a test or trial of an intervention like the alcohol quiz:

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

10. At what age do you think children or young people should learn about alcohol?

Under 7

8-11

12-14

15+

11. What do you think that children or young people should learn about **at school** about alcohol?

Long term health effects such as liver problems

Short term health effects such as having a hangover

Responsible drinking

Social effects such as violence and crime

Positive effects such as feeling relaxed and sociable

Reasons why people drink alcohol, such as to celebrate or to unwind

Nothing

Other

12. What do you think that children or young people should learn **at home** about alcohol?

Long term health effects such as liver problems

Short term health effects such as having a hangover

Responsible drinking

Social effects such as violence and crime

Positive effects such as feeling relaxed and sociable

Reasons why people drink alcohol, such as to celebrate or to unwind

Nothing

Other

Free text answer

Please use the space below to make any further comments about the questions or about young people and alcohol education

Free text answer

## Section C: About you

1. Your age
2. Your gender
3. Is English your first language yes [  ] no [  ]

If no, what is your first language?

4. Please indicate which year groups you teach (please tick all that apply) 7 [  ] 8 [  ] 9 [  ] 10 [  ] 11 [  ] 12 [  ] 13 [  ]

5. Do you currently teach about alcohol (in any lessons including PSHE, biology etc)

Yes

No

If yes in which lessons

6. What does your school currently do with regards to alcohol education?  
Please give brief details.

**Thank you very much for taking the time to complete this questionnaire. Your feedback is very important to enable us to develop an effective intervention to reduce alcohol misuse in young people. If you would like to know more about this project or receive a summary of the findings please contact me [edavies@brookes.ac.uk](mailto:edavies@brookes.ac.uk)**

**If you would like to know more about talking to young people about alcohol you can visit [www.talktofrank.com](http://www.talktofrank.com) or [www.drinkaware.co.uk/talking-to-under-18s](http://www.drinkaware.co.uk/talking-to-under-18s)**

**If you would like to enter the prize draw then please enter your email address below**

---

**Please note that we will store your email address securely and it will not be linked to your responses.**

**The winner will be notified by email by the end of May 2013.**

## Appendix E: Think aloud study materials

### (i) Full list of quiz questions and answers

Table of quiz questions used in the Think Aloud Study

| PWM BCT Purpose of question in relation to PWM and BCT to target this aspect                | Question content  | Answer and text for young person in video to explain answer  |
|---|---|--|
|   | First page: A recent survey of teenagers in the UK has revealed what young people think about alcohol<br>Find out if you really know what other people your age really think by taking the quiz!  |  |
| Images are often based on misperceptions: Correct misperceptions about the target behaviour | 1) Over the last ten years the number of young people aged 11-15 who drink has.....?<br><br>a) increased<br>b) decreased<br>c) stayed the same  | Answer b)<br>Decreased<br>The number of young people aged 11-15 who drink alcohol has been falling for the last ten years  |
| Young people often think that other young people have favourable risk images                | 2) Most people aged 11-15 don't drink alcohol at all<br>What were the reasons given for not drinking?<br>a) Parents don't approve of young people drinking alcohol<br>b) There has been a change in what young people think about drinking alcohol<br>c) Young people prefer soft drinks to alcohol | Answer b) There has been a change in what young people think about drinking alcohol<br>Olivia: Drinking alcohol does not have a cool image any more. Young people who drink are not really seen in a positive way by other people their age, as rebellious, cool or grown up like they used to be. |
| Young people often think that other young people have favourable risk images.               | 3) We asked the young people in our survey how they would describe a typical  | Answer c)<br>The three most popular words were anti-social, careless and unhealthy   |

|  |  |   |
|--|--|---|
| <p>Most young people do actually have negative risk images</p>   | <p>teenager who drinks alcohol<br/>Which do you think were the three most popular words used?<br/>a) boring, depressed, anxious<br/>b) crazy, dangerous, cool<br/>c) anti-social, careless, unhealthy</p>  | <p>Dan: Teenagers who drink were described as anti-social, careless and unhealthy. It is really anti-social to be drunk and sick at a party. It ruins the night for everyone else.</p>  |
| <p>Enhancement of non-drinker image to reinforce positive characteristics – healthy images represent goal states</p> | <p>4) We asked young people in the survey how they would describe a typical teenager who does not drink alcohol<br/><br/>Which do you think were the three most popular words used?<br/><br/>a) sociable, confident, independent<br/>b) hard-working, anti-social, careful<br/>c) boring, antisocial, sensible</p> | <p>Answer a)<br/>The three most popular words were sociable, confident and independent.<br/>Lucy: The image of non-drinkers is that they are sociable, confident and independent. Most people don't need alcohol to have fun, and I am a really confident and independent person, who knows my own mind</p> |
| <p>Similarity important due to social comparison. Enhance similarity to non-risk prototype</p>                       | <p>5) In the survey we asked people if they thought they were more similar to the typical drinker or the typical non-drinker their age<br/>Which do you think they said?<br/>a) Drinker<br/>b) Non-drinker</p>   | <p>Answer b) Non-drinker<br/>Robert: Most young people were more similar to non-drinkers. Non-drinkers were also rated as more healthy, fun and responsible than drinkers.</p>  |
| <p>Lack of intention = risk due to lack of preparedness. Teach that some behaviour is unplanned.</p>                 | <p>6) We asked young people why they had tried alcohol for the first time? What do you think was the most common answer?<br/>a) Peer pressure<br/>b) To get drunk<br/>c) To see what it tasted like</p>  | <p>Answer a) Peer pressure<br/>Most people did not plan to drink alcohol. Peer pressure was a reason that most people tried alcohol for the first time.<br/>Jade: I tried alcohol because someone at a party pressured me into it, it seems stupid to say it now but I was</p>                              |

|  |  |   |
|--|--|---|
|  |  | <p>influenced.</p> <p>I did not plan to get drunk before I went to the party, and I did not really think about it advance</p>   |
| <p>Unplanned behaviour can be risky</p>                          | <p>7) Jade said she did not plan to drink when she went to the party. What did some people say had happened to them after drinking alcohol when they had not planned to?</p> <p>a) Someone took an embarrassing photo of them</p> <p>b) They had too much to drink and were very ill</p> <p>c) They ended up doing something they regretted</p>                                    | <p>Answer: b) They had too much to drink and they were ill</p> <p>Kieran:</p> <p>I did not plan to drink before I went there. I had not had anything to eat and I was sick. I did not think about getting home safely or think about what would happen.</p>   |
| <p>We might act in an unplanned way because of peer pressure</p> | <p>8) This question has changed</p> <p>What do you think was chosen in our survey as the best way to deal with pressure to drink?</p> <p>a) Stay away from situations where you might be pressured into drinking</p> <p>b) Make a plan in advance of what to do or say to someone who is trying to pressure you</p> <p>c) Avoid people who you think might try to pressure you</p> | <p>Answer b) Young people made plans in advance to help them if they felt under pressure</p> <p>Katie: This group of girls was kind of pressuring me once so I made a plan to deal with it in the future. If someone tries to make me do something I don't want to do I tell them I'm a really strong minded individual, I'm confident without alcohol.</p> |
| <p>If, then plan for an unplanned behaviour</p>                  | <p>So making a plan seems like a good idea. Knowing the facts about alcohol can help to make plans about what to say if you feel under pressure</p> <p>For example, do you know how many calories are in alcoholic</p>   | <p>Answer a) 2 burgers</p> <p>Nina: Two burgers is a lot of calories. Alcohol is so full of calories! If someone pressures me to drink then I tell them that fact, they might laugh, but it is true and no one bothers me about it</p>  |

|   |  |   |
|---|--|---|
|   | <p>drinks? Can you guess how many calories are in a bottle of wine?</p> <p>a) 2 burgers<br/>b) 2 apples<br/>c) 2 cakes</p>   |   |
| <p>If, then plan for an unplanned behaviour</p> | <p>There are many myths about alcohol. Harry's friend told him that if you get drunk then drinking black coffee can help you to sober up</p> <p>Is this true or false?</p> <p>a) True<br/>b) False</p> | <p>Answer b) False</p> <p>Harry: It is false. The only thing that can sober you up is time. I'm really into football so if someone is telling me to drink, then I tell them that I need to be fit and healthy to stay on the team</p> |
| <p>Page 12<br/>Picture of score board</p>       | <p>Well done - you have completed the quiz and your score is XX/10</p>   |   |



(ii) Each page of the quiz as presented in the think aloud study

**Welcome to the quiz**  
This quiz will test your alcohol knowledge  
Are you ready to find out how much you know about what young people your age think about drinking alcohol?



**Instructions**



A recent survey of teenagers in the UK has revealed what young people think about alcohol

Find out if you really know what other people your age really think by taking the quiz!

Score 1 point for each question you get right  
10 points = Excellent knowledge about alcohol  
5-9 points = Good  
1-4 points = OK  
0 points = You need to know more about alcohol  
Press 'start' to begin.




**Question One**


Over the last ten years the number of young people aged 11-15 who drink alcohol has

- a) Increased
- b) Decreased
- c) Stayed about the same

Select your answer below


**a** **b** **c** 


**Correct!**



*That's right*

*The number of young people aged 11-15 who drink alcohol has been falling for the last ten years*



Your score is 1/10 


**WRONG**



**Sorry, you picked the wrong answer!**


Your score is 0/10

**Question Two**



Most people aged 11-15 don't drink alcohol at all  
What were the reasons given for not drinking?

- a) Parents don't approve of young people drinking alcohol
- b) There has been a change in what young people think about drinking alcohol
- c) Young people prefer soft drinks to alcohol

**a** **b** **c** 

**Correct!** 

There has been a change in what young people think about drinking alcohol

Click on Olivia's picture to hear why



Drinking alcohol does not have a cool image any more. Young people who drink are not really seen in a positive way by other people their age, as rebellious, cool or grown up like they used to be


Your score is 2/10 


**Question Three**

We asked the young people in our survey how they would describe a typical teenager who drinks alcohol

Which do you think were the three most popular words used?

a) boring, depressed, anxious  
b) crazy, dangerous, cool  
c) anti-social, careless, unhealthy


a b c 

**Correct!** 

You picked the right answer

The three most popular words were anti-social, careless and unhealthy

Click on Dan's picture to hear him explain



Teenagers who drink were described as anti-social, careless and unhealthy. It is really anti-social to be drunk and sick at a party. It ruins the night for everyone else.


Your score is 3/10 

**Question Four**

We asked young people in the survey how they would describe a typical teenager who does not drink alcohol

Which do you think were the three most popular words used?

a) sociable, confident, independent  
b) hard-working, anti-social, careful  
c) boring, antisocial, sensible

a b c 

**Correct!** 

You picked the right answer

The three most popular words were sociable, confident and independent.

Click on Lucy's picture to hear her explain



The image of non-drinkers is that they are sociable, confident and independent. Most people don't need alcohol to have fun, and I am a really confident and independent person, who knows my own mind


Your score is 4/10 


**Question Five**

In the survey we asked people if they thought they were more similar to the typical drinker or the typical non-drinker their age


Which do you think they said?

a) Drinker  
b) Non-drinker


a b 

**Correct** 

People rated themselves as more similar to the typical non-drinker their age  
Click on Robert's picture to hear more




Most young people were more similar to non-drinkers. Non-drinkers were also rated as more healthy, fun and responsible than drinkers.



**Question Six**

We asked young people why they had tried alcohol for the first time. What do you think was the most common answer?

a) Peer pressure  
b) To get drunk  
c) To see what it tasted like

**a b c** 

**Correct!** 

Most people did not plan to drink alcohol. Peer pressure was a reason that most people tried alcohol for the first time  
Click on Jade's picture to hear her explain




I tried alcohol because someone at a party pressured me into it, it seems stupid to say it now but I was influenced. I did not plan to get drunk before I went to the party, and I did not really think about it advance


Your score is 6/10 

**Question Seven**


Jade said she did not plan to drink when she went to the party.  
What did some people say had happened to them after drinking alcohol when they had not planned to?

a) Someone took an embarrassing photo of them  
b) They had too much to drink and were very ill  
c) They ended up doing something they regretted


**a b c** 

**Correct!** 

That's right. There were a number of other risks and harms reported by young people who had ended up drinking when they did not intend to.  
Click on Kieran's picture to hear him explain




I did not plan to drink before I went there. I had not had anything to eat and I was sick. I did not think about getting home safely or think about what would happen.

Your score is 7/10 

**Question Eight**


What do you think was chosen in our survey as the best way to deal with pressure to drink?

a) Stay away from situations where you might be pressured into drinking  
b) Make a plan in advance of what to do or say to someone who is trying to pressure you  
c) Avoid people who you think might try to pressure you

**a b c** 


**Correct!**

You picked the right answer  
 Young people made plans in advance to help them if they felt under pressure  
 Click on Katie's picture to hear more



This group of girls was kind of pressuring me once so I made a plan to deal with it in the future. If someone tries to make me do something I don't want to do I tell them I'm a really strong minded individual, I'm confident without alcohol.

Your score is 8/10




**Question Nine**

So making a plan seems like a good idea. Knowing the facts about alcohol can help to make plans about what to say if you feel under pressure  
 For example, do you know how many calories are in alcoholic drinks? Can you guess how many calories are in a bottle of wine?

a) 2 burgers  
 b) 2 apples  
 c) 2 cakes

a b c




**Correct!**

You picked the right answer  
 It is two burgers!  
 Click on Nina's picture to hear her explain



Two burgers is a lot of calories. Alcohol is so full of calories! If someone pressures me to drink then I tell them that fact, they might laugh, but it is true and no one bothers me about it

Your score is 9/10




**Question Ten**

There are many myths about alcohol.

Harry's friend told him that if you get drunk then drinking black coffee can help you to sober up  
 Is this true or false?

True False



**Correct!**

You picked the right answer  
 False, drinking black coffee will not sober you up  
 Click on Harry's picture to hear why



It is false. The only thing that can sober you up is time. I'm really into football so if someone is telling me to drink, then I tell them that I need to be fit and healthy to stay on the team

Click next to see your total score



**CONGRATULATIONS**

You have reached the end of the quiz

Your score is 10/10

You have excellent alcohol knowledge



## **Appendix F: Alcohol Smart Quiz**

### **ASQ Intervention**

#### **Procedure**

1. School agrees to take part, parents informed and consent process completed
2. Teachers / facilitators complete online training
3. Participants allocated unique identification number for survey measures
4. Baseline measures taken using online survey for all three groups
5. Teacher / facilitator introduces ASQ to participants
6. Participants log onto website and complete quiz
7. Participants complete volitional help sheet worksheet
8. Class discussion of factsheet answers
9. One month follow up measures taken using online survey
10. Booster session materials including correct answers and reminder of implementation intentions three months later
11. Six month follow up measures taken using online survey
12. Control and active control schools receive ASQ Intervention

#### **Materials**

The following materials will be included within the intervention pack sent to participating schools

ASQ intervention manual (online and print version)

Link to ASQ information for teachers and parents webpage

Letter to parents for schools to send home

Consent forms

Link to ASQ intervention LifeGuide webpage (pages, questions and answers as Table AF)

ASQ worksheet for participants to complete tasks

Factsheet of all correct answers for classroom discussion

Booster session materials

Active control group online quiz

**Table AF ASQ intervention quiz: Web pages, quiz questions, quiz answers and details of improvements from draft version used in Delphi study.**

| BCT  | Question  | Answer   | Revision from draft version   |
|--|---|--|---|
| N/A First page introduces the quiz<br>Are you smart about alcohol?   | Welcome to the Alcohol Smart Quiz.<br>Interviews with young people revealed what they think about alcohol<br>Test your knowledge                | N/A Lists the instructions and the format  | Changes information so does not refer to survey – refers to interviews  |
| 1) Adapt and present information on other people’s drinking to reduce perception of drinker prototype as the norm to enhance similarity to non-drinker   | 1) Over the last ten years the number of young people aged 11-15 who drink has.....? <b>(Multiple choice)</b>                                   | Decreased. The number of young people aged 11-15 who drink alcohol has been falling for the last ten years   | No change from previous version   |
| 1) Adapt and present information on other people’s drinking to reduce perception of drinker prototype as the norm to enhance similarity to non-drinker   | 2) Why has the number of young people aged 11-15 who drink alcohol decreased? <b>(Multiple choice)</b><br><br><b>Video answer</b>               | There has been a change in what young people think about drinking alcohol: Olivia: Drinking alcohol does not have a cool image any more. Young people who drink a lot are not really seen in a positive way by other people their age. | Change wording of answers to refer to heavy drinker prototype not just drinker.   |
| 2) Present negative image of heavy or risky drinkers. Present positive image of non-drinkers paying attention to credibility of description and enhance similarity to positive non-drinker image | 3) What do you think other people aged 11-15 think?<br>Young people who drink heavily are described as <b>(List)</b><br><br><b>Video answer</b> | <b>anti-social, careless, unhealthy,</b> unhappy, depressed, cool, rebellious, pressured, boring, unusual  | Select from list of 10 descriptive adjectives before seeing the answer – write them on the worksheet<br>Compare your answer to the quiz answer<br>Prototype is specific to heavy drinker rather than just drinker<br>Not multiple choice answer |

| BCT  | Question   | Answer   | Revision from draft version   |
|--|--|--|---|
| 2) Present negative image of heavy or risky drinkers. Present positive image of non-drinkers paying attention to credibility of description and enhance similarity to positive non-drinker image | 4) Young people who do not drink are described as: <b>(List)</b><br><br><b>Video answer</b>  | <b>sociable, confident, , relaxed,</b> chilled, cool, boring, anti-social, unusual, independent<br>Video answer: | Select from list of 10 descriptive adjectives before seeing the answer – write them down<br>Compare your answer to the quiz answer<br>Changed to use the word relaxed<br>Not multiple choice answer |
| 2) Present negative image of heavy or risky drinkers. Present positive image of non-drinkers paying attention to credibility of description and enhance similarity to positive non-drinker image | 5) Think about the descriptions given in the previous answers<br>Are you more similar to a heavy drinker or a non-drinker?<br>What do you think the interviewees say?<br><b>(Choice of two answers)</b><br><br><b>Video answer</b> | They said non-drinker. They preferred to be described as <b>sociable, confident and relaxed</b>                  | Change to question and answer to give more detail   |
| 3) Teach awareness of social / environmental cues to behaviour<br>Specifically that that unplanned behaviour more risky  | 6) What did some people say had happened to them after drinking too much alcohol <b>(multiple choice)</b><br><b>Video answer</b>   | Had too much to drink and was sick. Then did not know how to get home and was in a dangerous situation           | Changed order of questions to show the risky outcome first and the reason for the risky outcome in the next question  |
| 3) Teach awareness of social / environmental cues to behaviour<br>Specifically that that unplanned behaviour more risky  | 7) What do you think is the was the most common reason that young people give for drinking too much?<br><b>(Multiple choice)</b>   | Peer pressure<br>Felt that they had to get drunk because everyone else was                                       | Changed the answers to make them more risky<br><br>Video answer of someone ending up in a risky situation   |

| BCT  | Question   | Answer   | Revision from draft version   |
|--|--|--|---|
| 4) Action planning using implementation intentions | 8) What is the best way to avoid pressure to get drunk?<br>(To avoid the risky situation in the previous answers)  | Make a plan in advance so that you know how to deal with a situation   | No change<br>Just added pressure to get drunk rather than drinking  |
| 4) Action planning using implementation intentions | Knowing the facts about alcohol can help to make plans about what to say if you feel under pressure<br>For example, do you know how many calories are in alcoholic drinks? Can you guess how many calories are in a bottle of wine?<br><b>Video answer</b> | Nina: Two burgers is a lot of calories. Alcohol is so full of calories! If someone pressures me to drink then I tell them that fact, they might laugh, but it is true  | No change to question – focus is on the answer<br><br>Select your own situation - using the help sheet  |
| 4) Action planning using implementation intentions | There are many myths about alcohol.<br>Harry's friend told him that if you get drunk then drinking black coffee can help you to sober up<br>Is this true or false?<br>a) True<br>b) False<br><b>Video answer</b>   | Harry: It is false. The only thing that can sober you up is time. I'm really into football so if someone is telling me to drink at a party, then I tell them that I need to be fit and healthy to stay on the team | No change to question – focus is on the answer<br><br>Select response for the situation in the previous answers<br><br>Write down situation and response using the help sheet |
| End of quiz questions                              | Participant gets their score   | Can revisit questions<br>Ensure all correct answers are written down on the worksheet  | Write down your situation and response  |



## **Appendix G: Published paper**

Davies, E., Martin, J., & Foxcroft, D. (2012). Young people talking about alcohol: Focus groups exploring constructs in the Prototype Willingness Model. *Drugs: education, prevention and policy*. doi: 10.3109/09687637.2012.726662

Published paper removed from electronic version