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Group motivational interviewing in schools: Development of a health promotion intervention

Jemma L Hawkins^a, Paulina Bravo^{a,b}, Nina Gobat^c, Stephen Rollnick^c, Gabrielle Jerzembek^a, Sarah Whitehead^a, Sue Chanon^d, Mark Kelson^e, Orla Adams^d and Simon Murphy^a

^a*DECIPHer, School of Social Sciences, Cardiff University, Wales, UK*

^b*School of Nursing, Pontificia Universidad Católica de Chile, Santiago, Chile*

^c*Cochrane Institute of Primary Care and Public Health, Cardiff University, Wales, UK*

^d*Cardiff & Vale University Health Board, Wales, UK*

^e*South East Wales Trials Unit, Cardiff University, Cardiff, UK.*

Abstract

Objective: In the light of the shortcomings of curriculum-based health promotion in secondary schools, group motivational interviewing provides a potential alternative approach. This two-phase study set out to establish the key components, feasibility and acceptability of a group motivational interviewing intervention, focused on alcohol consumption.

Methods: In phase one, focus groups with 12 students and 8 teachers explored issues with existing health education. Phase two involved the development of a one-hour group motivational interviewing session to address the issues raised. The session was delivered to two classes of students aged 13-15 years, facilitated by two motivational interviewing practitioners. Sessions were observed and audio-recorded and coded by two researchers using the Assessment of Motivational Interviewing Groups Observer Scale (AMIGOS). Student acceptability of the session was captured using a satisfaction questionnaire.

Results: Sessions were consistent with motivational interviewing principles, providing empathic and focused discussion while maximising participants' autonomy and strengths. The majority of students felt listened to during the session, considered it was helpful and felt that they could learn more from this kind of experience.

Conclusion: A group motivational interviewing session, developed based on key components identified during focus groups, was shown to be acceptable to students and feasible to deliver in secondary schools. The approach requires further research to establish sustainable delivery mechanisms.

Keywords: Group motivational interviewing, school health education, alcohol, competency-focused pedagogy, AMIGOS

Corresponding author:

Jemma Hawkins, DECIPHer, School of Social Sciences, Cardiff University, 1-3 Museum Place, Cardiff. CF10 3BD, Wales, UK.

Email: HawkinsJ10@cardiff.ac.uk

Introduction

Schools are key settings for promoting student health and wellbeing (NICE, 2009). In Wales, secondary schools have incorporated Personal and Social Education (PSE) into their curriculum. PSE encompasses all activities and programmes offered by a school to promote students' health, wellbeing and personal and social development, comprising learning opportunities within and beyond the classroom (Welsh Government, 2008). PSE contributes to education by helping students to be more effective personally, and to become healthy and responsible members of society (Welsh Government, 2008).

Whilst curriculum approaches have led to changes in health-related knowledge, there is limited evidence for an impact on behaviour (Inchley et al., 2007; Patton et al., 2006), possibly due to the way in which health education lessons are delivered (McCuaig et al., 2012; Markham and Aveyard, 2003). There are low levels of student acceptability for typical didactic approaches (Begoray et al., 2009) and the negative impact of performance-focused pedagogy¹ or didactic classroom processes has been noted repeatedly (Bernstein, 1990; Bishop et al., 2001; Whitty, 2002). In contrast, competency-focused pedagogy emphasises processes internal to the learner, such as the development of cognitive, affective and motivational competencies (Jerzembek and Murphy, 2012). Despite this, lesson processes appear to have received limited attention in school-based health promotion or education interventions (Markham and Aveyard, 2003).

Having a number of commonalities with competency-focused pedagogy Group Motivational Interviewing (GMI) offers an alternative to didactic approaches through its facilitation of active participation and the exploration of personal goals. Motivational interviewing (MI) adopts a conversational style that promotes behavioural change to improve health (Miller and Rollnick, 2013). GMI manifests the foundation of MI in client-centred counselling and its guiding principles. GMI has encouraging support in a range of settings for addressing health issues (Lundahl et al., 2013; VanBuskirk and Wetherell, 2014) with some preliminary guidance for its application in schools (Wagner and Ingersoll, 2012). This work suggests that GMI will have more impact if group members are verbally active, take personal responsibility for decisions, express positive and negative emotions equally, form a cohesive group and address real-life problems (Wagner and Ingersoll, 2012).

Research on GMI to date has been largely descriptive, with seven studies using a comparison group, and only two randomised controlled trials (Wagner and Ingersoll, 2012). Most of this research has focused on substance use behaviours, with adult and adolescent samples. D'Amico et al. (2013) observed reduced substance use and recidivism in adolescents 3- and 12-months after they received a GMI intervention focused on alcohol and drug use. Participants who received this intervention reported higher satisfaction than those who received usual care. Compared to usual care, the intervention involved fewer didactic information-giving techniques and focused more on discussion of participants' behaviour, readiness to make changes and strategies for doing so. Feldstein Ewing et al (2012) argued that GMI can lead to positive changes in behaviours as a result of such participative discussions. Therefore GMI offers an opportunity within school based health promotion to move towards more participative discussion as opposed to existing didactic lesson delivery.

Research on applying GMI in school settings is limited and has not to date focused on health promotion with students under 16 years old. This study sought to identify the key components, feasibility and acceptability of a GMI intervention for promoting health

¹ Performance-focused pedagogy refers to lesson processes characterised by a predominant transmission of facts from the teacher to the student, aligned to maximising examination grades (Bernstein, 1999).

behaviours in schools, with a focus on alcohol consumption. Following the Medical Research Council's (MRC) framework for developing and evaluating complex interventions, which highlights the importance of pre-clinical to phase II feasibility testing (Craig et al., 2008); the study consisted of two phases (see Figure 1). Phase one involved the development of the intervention. Phase two comprised feasibility and acceptability testing of the intervention. The methods and results for each phase of the study are presented in turn. Ethical approval was granted for all phases of the study by the School of Social Sciences, Cardiff University (SREC/1034).

[Figure 1. Research design overview]

Phase one: Developing the intervention

Methods

Phase one examined ideas about the key components/features of the use of GMI for health promotion in the secondary school setting.

Participants

Six students (aged 12-14) and four teachers were recruited from two schools in Cardiff, Wales, UK.

Design

Ideas about the key components of a school-based GMI intervention were explored using focus groups to allow for interaction between participants to clarify views and stimulate exploration (Wilkinson, 2004). Researchers ensured that all group members participated and used a semi-structured interview schedule to guide discussion. The schedule addressed views about PSE provision at the participants' schools and whether or not GMI could be an alternative methodology for delivery. Four focus groups were conducted, one with teachers and one with students in each school. They were audio-recorded and transcribed verbatim.

Analysis

Thematic analysis (Boyatzis, 1998) was used to identify common experiences amongst participants with regards to existing PSE practice and recurring comments related to the potential use of GMI within PSE. Two researchers conducted the analysis independently, followed by double coding.

Results

Three themes were identified in the data which summarise participants' views on PSE sessions and the use of GMI (Table 1).

[Table 1 about here]

Negative aspects of PSE

Lack of structure. Students noted the negative effect of a lack of structure in PSE sessions on their motivation for participation. They highlighted a perceived absence of teacher motivation, reflected in a lack of preparation for, and structure of, the session.

Student 2: "Some teachers don't really bother with it, they just say what they've been told to say, and they don't really chat to you about the problems and stuff about it, so I think outside of school we kind of forget about that." (School 1)

Teachers also identified students' lack of motivation to attend PSE sessions and consider their confusion about session locations as a form of avoidance.

Teacher 1: "a few (children) - will spend the majority of the lesson wandering round pretending they don't know where they're meant to be, whether that is the truth or whether they're just trying to avoid it I'm not sure." (School 1)

Non-participatory sessions. Students noted that PSE is typically delivered as a set of instructions to follow or a repetition of what they have previously done. This is seen to be "boring" and does not stimulate their participation.

Student 1: "Sometimes it's just copying or reading out of a book though, which is quite boring"

Student 2: She just tells us what to do, and we all have this booklet, so it's a page of that and then we do a poster for the rest of the lesson, I dunno why. We just do posters, every lesson!" (School 2)

Student 4: "They like to give us some information and we have to do a poster on the subjects, where you're just seeing things; you're not taking anything in, it's like, if you discussed it with other people— like when my dad talks to me, he tries to make it quite fun, it's like he's not taking it seriously, but I'm learning something from him.

Student 2: Yeah, lots of them just stick a DVD on about it and we just watch it." (School 1)

These observations were consistent with what teachers reported too.

Teacher 3: "I remember having to teach about careers and I had no interest in it at all. So I would skip through that and think "yeah, well you know just read that paragraph, ok?" (School 1)

Facilitators are not credible. Identifying PSE facilitators as role models appears important to students. The teacher responsible for the PSE session should be knowledgeable, committed to what they are teaching, and transmit this commitment to the students.

Student 3: "Teachers lie in PSE. They do. All the time,

Student 1: Some teachers say that they've never been drunk,

Student 2: Trying to set a good example to us,

Student 1: Yeah, but it's really very unlikely, and you can tell." (School 2)

The positive intervention

Promoting autonomy. Students highlighted the importance of autonomy, explaining that didactic messages around right and wrong behaviours are usually met with resistance. They value being presented with options and having the responsibility to make their own decisions about their behaviour.

Student 4: "When they speak of things in a negative way, like, "this is wrong; you shouldn't be doing this", then, some kids like to rebel, and think, " well, if it's wrong, then I'll do it, 'cause I want to be bad", you should set people on the right track, but give them options, and say, "it's not a black and white answer, you could choose to do-
Student 3: Yeah, 'cause it's wrong to say to kids, "oh, don't drink, it's bad for you", 'cause that's gonna make us drink more, we're obviously gonna drink at some point in our lives, so you might as well tell us which way's the best way to drink, more sensibly, then it'd give us something to think about." (School 1)

Student 2: "(none) of the lessons we've had on healthy eating or anything has really affected me, because, the way they teach it is they say eating unhealthy is bad, drinking is bad, smoking is bad,

Student 1: They don't really explain it,

Student 2: Yeah. If it's your life choice, then you should be able to do it, but I don't like the way they teach it saying it's all bad, you should never do it, because you could drink, but then it's not really going to hurt you, if you don't always do it, every day, but I don't like the way they say, "it's bad; you should never ever do it." (School 2)

Group size and peer support. Participants acknowledged that large classes could be challenging and may require further facilitators to support them. Working in small groups to discuss a PSE topic appeared important to the students. They valued the opportunity for within-group peer support where they could relate their experiences to those of similar others. Comments highlighted a desire for identification with their peers and normalisation of their experiences, two key processes of group interventions.

Student 3: "You can relate to other people then, you know there's people in the same situation as you,

Student 4: "You might even be comfortable to open up and say something you'd really been worrying about, because everyone else has had a story, and you think, "well, they're quite bad too, so I might as well say what I've been worrying about", and then you open up and everyone's just like, "yeah, that's totally normal", and then they can help with that, and you can talk about it in a group." (School 2)

Student 2: "But maybe if they had everyone in the group helping them on what that person's said, so it's not just the (facilitator) who's giving them guidance; it's also the students around them, all just helping each other that way, maybe it would work more as a group?

Student 3: You're worrying about something 'cause you think it's really big, and then you hear someone else's story and you think, 'well, it's not so bad'."

Student 5: "If you're listening to other people's bad experiences you might realise that things you've done are also bad, realise it yourself, instead of someone telling you, by hearing someone else's experiences." (School 1).

Confidentiality. Students highlighted the importance of confidentiality:

Student 4: “The only thing is, if someone does open up, you have to make sure that nobody's going to leave that room and go tell everyone what that person has said, 'cause that can lead to things like bullying.” (School 2)

They suggested that one way to maintain confidentiality is to use an “honesty box”, whereby students anonymously share their views by placing written responses into a sealed box. The facilitator could then use these responses, without identifying the authors, and discuss them with the group.

The effective facilitator

The engaging and trustworthy facilitator. Students described that PSE session facilitators should be someone they recognise as trustworthy. They need to feel that the facilitator is interested in their thoughts about the topic and will engage them in discussion.

Teacher 3: “If you’re not feeling passionate about it then what kind of lesson is that going to be?” (School 2)

Student 2: “It's the way they speak to you, if they say "oh, so you like this, how do you feel about that?" If they just asked you questions about what you're talking about, at least you'd feel like they're interested, and they want to talk to you, and that they're like, engaging with you.” (School 1)

Empathic setting. The facilitator should be able to create an empathic and respectful atmosphere during the session, in which students can share their experiences and opinions fearlessly. For some this could only be achieved by an external facilitator (i.e. not a teacher from their school).

Student 5: “If they wanna talk to us about mature things, they should treat us like we want to be treated, and as we treat them as well, and be equal, it makes us feel comfortable.

Student 1: There's a rule around the school that we have to show respect to the teachers and they'll show respect back to us, but some of them don't.” (School 1)

Developing an intervention prototype

A steering committee composed of two MI experts, two health researchers and one education expert synthesised the focus group findings and identified key components of a GMI session for PSE. The use of a written format (an ‘honesty box’) for anonymous responding was included in line with students’ suggestions that this would address issues of confidentiality. The steering committee decided to focus on alcohol as a topic for the session as this is likely to be covered during PSE with this age group (Welsh Government, 2008).

The prototype GMI session is outlined in the intervention logic model (Table 2) and consists of three main components. It aims to provide a safe forum to learn and make informed choices about alcohol consumption. It was expected that by the end of the session students would have learned information about alcohol as per the PSE curriculum and explored their options and decisions regarding alcohol consumption.

[Table 2 about here]

Phase two: Intervention implementation and feasibility testing

Methods

Phase two piloted the intervention prototype developed in phase one to assess its feasibility and acceptability.

Participants

Two schools were recruited to participate in this phase. One of these had taken part in the phase one focus groups (school 1). In each school a single year-9 class (aged 13-15) was invited to participate in a GMI session delivered during a PSE lesson. In school 1, there were 27 students (63% female participants) and in school 2 there were 29 students (52% male participants).

Design

Two experienced MI practitioners (SR, OA) facilitated the 60-minute GMI session following the prototype outlined in Table 2. A researcher observed the sessions and documented the extent to which students were engaged and participating, and elicited facilitators' reflections after the session.

Students' satisfaction was captured through an anonymised questionnaire collected at the end of each session. The questionnaire had 10 statements regarding how helpful the session was, whether students liked it, felt listened to, and felt that they could contribute to the discussion freely. Agreement with the statements was recorded on a 5-point Likert scale ranging from 'Strongly Disagree' to 'Strongly Agree'.

The sessions were audio-recorded and transcribed verbatim.

Analysis

Data collected through the honesty box activity, in the form of numbered written cards (numbered to enable linkage by student across the responses), were summarised.

Two researchers (PB, NG) independently and in parallel analysed the audio data from the sessions using the Assessment of Motivational Interviewing Groups – Observer Scale (AMIGOS; Ingersoll & Wagner, 2014). Researchers met to discuss their ratings and agree a consensus score. AMIGOS is, to the best of our knowledge, the only measure of GMI and is currently being validated. It captures global ratings on group processes, MI tasks, general tasks and leader descriptives (see Table 3). Each item is rated on a likert-like scale from 1 to 5, with higher scores indicating greater skilfulness.

Graphical exploration of the student satisfaction questionnaire data was conducted using the Likert (Bryer and Speerschneider, 2013) package in the R (R Core Team, 2013) programming language and environment.

Results

Intervention implementation

Student engagement. Similar proportions of students participated verbally in both sessions (52% in each school). In school 1, the majority of interactions were from male students (62%); in school 2, female students participated slightly more than males (56% vs. 44%). All but five of the students (three in school 1, two in school 2) completed all session activities.

MI integrity. The AMIGOS analysis (see Table 3) showed that overall facilitators had high scores, particularly on the MI tasks scale, including empathy (4/5 for school 1 and 5/5 for school 2), and maximum scores for autonomy, strengths, focusing, evoking, progress.

Honesty box. The written data from the Honesty Box activity revealed that some students were using alcohol and expressed ambivalence about this (see Table 4). Some students described not having used alcohol or having no desire to use it (school 1: 4/27, school 2: 12/29). Students described enjoyment, sociability and the effects of intoxication as aspects of alcohol use that they liked (school 1: 23/27, school 2: 17/29). Aspects that they disliked included the impact of poor judgments and hangovers (school 1: 22/27, school 2: 28/29). Many students described wanting to use alcohol but to be able to do this within safe limits (school 1: 14/27, school 2: 24/29).

[Table 3 & 4 about here]

Acceptability and feasibility

Students' satisfaction. Analysis of the satisfaction questionnaire showed positive responses overall, with the majority of students agreeing with most of the statements (Figures 2 and 3). Of particular note is that most students responded 'agree' or 'strongly agree' to the statement "I learned more than from a regular PSE session". However, some students (school 1: 33%, school 2: 19%) disagreed with the statement "I felt comfortable during the session".

[Figs 2 & 3 about here]

Discussion

This study utilised a process of pre-clinical intervention development in line with the MRC framework for developing and evaluating complex interventions (Craig et al., 2008) to identify the key components, feasibility and acceptability of a GMI approach to PSE in secondary schools. To identify key components, phase one employed focus groups to explore views of PSE and the potential use of GMI within the PSE curriculum. The findings were used to inform the design of a GMI-based PSE session prototype. To establish feasibility and acceptability, the prototype session was piloted in phase two and assessed for MI integrity and students' satisfaction.

Given the limited evidence for the effectiveness of existing curriculum-based health education (Inchley et al., 2007; Patton et al., 2006) and the known problems with performance-focused approaches (Begoray et al., 2009; Bishop et al., 2001; Whitty, 2002), the results of this study suggest that GMI may present an opportunity for improving the delivery of health education in secondary schools within the PSE curriculum. Students and teachers reported that existing PSE delivery was failing to meet their needs. Students highlighted teachers' tendency to use non-participatory methodologies which can make engagement difficult. This is at odds with current PSE guidance which states that students should be active participants of lessons (Welsh Government, 2008). Our findings suggest that students value opportunities for more participatory approaches, including an atmosphere that supports peer interaction. Specifically, they highlighted the importance of identification with peers and normalisation of experiences that an interactive group setting could offer. A GMI approach is interactive and participatory in nature and encourages peer support via group discussion (Feldstein Ewing et al., 2012). In this study, satisfaction with the GMI session was high,

suggesting that this approach has higher acceptability than has been shown with typical didactic lessons (Begoray et al., 2009). The majority of students felt that they could contribute in the GMI session, suggesting a more participatory atmosphere than the existing PSE delivery described in the focus groups.

Group-level student interaction in the classroom offers learning possibilities that teacher-led lessons and individual work do not provide (Blatchford et al., 2005), such as the development of affective and motivational competencies. Competency is developed out of interaction with non-culturally specific others, and such interaction requires active participation from students within the classroom (Bernstein, 1990). Evidence suggests that competency-focused approaches can have a positive impact on students' personal and academic development by promoting intrinsic goal orientation, motivation and self-regulation (Jerzembek and Murphy, 2012; Sungur and Tekkaya, 2006). The GMI session developed here encourages competency-focused processes in which pupils share and explore real experiences, attitudes and values. Using such experiences to inform own opinions and decisions is central to students' personal and social development (Welsh Government, 2008). Honesty box data revealed a depth of student experience with alcohol that would not have been expressed verbally in a PSE session. There may be scope to develop the use of such activities to further extend the potential of this part of the intervention.

In keeping with the findings of D'Amico et al. (2013; 2015), the GMI session piloted in this study was shown to be consistent with core MI principles. The facilitators scored highly on MI-consistent skills such as encouraging expression of personal values and evoking motivations and goals. The evocation process of MI aims to elicit statements in support of change, also referred to as 'change talk' (Magill et al., 2014). The honesty box activity was structured to encourage students to reflect on their personal motivations for and against drinking alcohol. Initial analysis of these data suggests that a reflective process may have been facilitated even for those who did not verbally participate in the session. Student statements of ambivalence were identified, as were statements suggesting sustain talk and change talk. However at this stage, few conclusions can be drawn about these written data, as change talk is essentially a spoken phenomenon. The presence of verbal change talk was observed in the D'Amico et al. study (D'Amico et al., 2015; Osilla et al., 2015), and this was shown to be associated with post-intervention alcohol use. D'Amico et al. (2015) suggest that selectively reflecting change talk within GMI can be an effective strategy to promote behaviour change whilst enhancing the group dynamic.

In this study, GMI was delivered under optimal conditions, facilitated by highly skilled and experienced MI practitioners. The use of external trainers in secondary schools as part of a wider roll out would not represent a 'real world' sustainable delivery mechanism. Future research is needed to identify a more sustainable mode of delivery that is feasible within the school setting and is acceptable to students and teachers.

Limitations

This was a small pilot study that had some strengths and limitations. First, our evaluation of GMI delivery used AMIGOS (Ingersoll and Wagner, 2014), a measure currently being validated. Given our small dataset, it was not possible to evaluate the reliability or validity of our AMIGOS scores. Rather, the measure provided a useful framework through which to consider the skillfulness of GMI delivery, particularly for group leader MI tasks. Lower scores were noted in school 1 on a number of AMIGOS dimensions. Student satisfaction levels were also lower in school 1 and a greater proportion of students in this school reported drinking alcohol. Further testing of this intervention would need to include

development of facilitator training and supervision to consider maximising the skillfulness with which it is delivered. In addition there may be a need for further development of AMIGOS for use in this setting. Some tasks and dimensions of AMIGOS might be more informative for evaluating therapeutic groups than for a one-off, large group format as was used in this study.

Secondly, we included only two schools for the delivery of the intervention, however to the best of our knowledge this is the first instance where GMI has been used as an alternative to conventional PSE sessions. These findings may contribute to emerging evidence on MI in groups however they are limited by our small sample size. Future work with larger numbers of schools and PSE sessions will need to identify the resources required to equip teachers with the skills to deliver the GMI session along with a form of training provision for this. Further development of the intervention in collaboration with teachers and other stakeholders is required so that it can be applied across the PSE curriculum. Identifying a feasible and acceptable form of delivery is essential prior to any subsequent test of the intervention's effectiveness within school settings.

A small proportion of the students reported feeling uncomfortable during the GMI sessions in the post-session student satisfaction questionnaire. It is not possible to ascertain from the wording of the statement in the questionnaire whether students felt uncomfortable with the delivery and format of the session, or whether they were uncomfortable with addressing alcohol as a topic. This requires further investigation in future work with larger samples to fully ascertain acceptability of the intervention.

Conclusion

This study developed and piloted a GMI session to promote health in secondary schools as an alternative to existing delivery of health promotion within PSE sessions. The results suggest that GMI is acceptable to secondary school students in Wales. It involves key processes that are important to them and are relevant to PSE policy. We suggest GMI is a feasible approach to alcohol-related health promotion in secondary schools but requires further development and piloting for application to other health behaviours and to establish sustainable delivery mechanisms.

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Declaration of conflicting interests

The authors have no conflicting interests to declare.

References

- Begoray DL, Wharf-Higgins J and Macdonald M (2009) High school health curriculum and health literacy: Canadian student voices. *Global Health Promotion* 16(4): 35-42.
- Bernstein B (1990) *Structuring of the pedagogic discourse: Class, codes and control*. London: Routledge.
- Bishop J, Whitear, BA and Brown S (2001) A review of substance use education in fifty secondary schools in South Wales. *Health Education Journal* 60(2): 164-172.
- Blatchford P, Galton M, Kutnick P and Baines E (2005) Improving the effectiveness of pupil groups in classrooms. *Final Report to ESRC*. Online available at: <http://www.leeds.ac.uk/educol/documents/189786.pdf>
- Boyatzis R (1998) *Transforming Qualitative Information: Thematic Analysis and Code Development*. Thousand Oaks, CA: Sage.
- Bryer J and Speerschneider K (2013) *Likert: Functions to analyze and visualize likert-type items*. Vienna: R Foundation for Statistical Computing.
- Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I and Petticrew M (2008) *Developing and evaluating complex interventions: New guidance*. Report for Medical Research Council. Online available at: <http://www.mrc.ac.uk/documents/pdf/complex-interventions-guidance/>
- D'Amico EJ, Hunter SB, Miles JN, Ewing BA and Osilla KC (2013) A randomized controlled trial of a group motivational interviewing intervention for adolescents with a first time alcohol or drug offense. *Journal of Substance Abuse Treatment* 45(5): 400-408.
- D'Amico EJ, Houck JM, Hunter SB, Miles JN, Osilla KC and Ewing BA (2015) Group motivational interviewing for adolescents: Change talk and alcohol and marijuana outcomes. *Journal of Consulting and Clinical Psychology* 83(1): 68-80.
- Feldstein Ewing SW, Walters, ST and Bear JS (2013) Motivational interviewing groups for adolescents and emerging adults. In: Wagner CC, Ingersoll K (eds) *Motivational Interviewing in Groups*. New York: The Guildford Press.
- Inchley J, Muldoon J and Currie C (2007) Becoming a health promoting school: Evaluating the process of effective implementation in Scotland. *Health Promotion International* 22(1): 65-71.
- Ingersoll K & Wagner CC (2014) Rating the fidelity of MI groups sessions: the AMIGOS coding system. 4th *International Conference on Motivational Interviewing*, Amsterdam, 16-18 June 2014. Online available at: http://www.icmi-conference.org/ICMI/Presentations_Day_2.html
- Jerzembek GS and Murphy S (2012) A narrative review of problem-based learning with school-aged children. *Educational Review* 65(2): 206-218.
- Lundahl B, Moleni T, Burke BL, Butters R, Tollefson D, et al. (2013) Motivational interviewing in medical care settings: A systematic review and meta-analysis of randomized controlled trials. *Patient Education and Counselling* 93(2): 157-68.
- Magill M, Gaume J, Apodaca TR, Walthers J, Mastroleo NR, et al (2014) The technical hypothesis of motivational interviewing: A meta-analysis of MI's key causal model. *Journal of Consulting and Clinical Psychology* 82(6): 973-83.
- McCuaig L, Coore S and Hay PJ (2012) Reducing dissonance along health-education fault lines. *Asia-Pacific Journal of Health, Sport and Physical Education* 3(1): 3-15.
- Markham WA and Aveyard P (2003) A new theory of health promoting schools based on human functioning, school organisation and pedagogic practice. *Social Science and Medicine* 56: 1209-1220.

- Miller W and Rollnick S (2013) *Motivational Interviewing: Helping People Change* (3rd edition). New York: The Guildford Press.
- National Institute for Health and Care Excellence [NICE] (2009) *Social and emotional wellbeing in secondary education*. Online available at:
<http://guidance.nice.org.uk/PH20/Guidance/pdf/English>
- Patton GC, Bond L, Carlin JB, Thomas L, Butler H, et al (2006) Promoting social inclusion in schools: A group-randomized trial of effects on student health risk behaviour and well-being. *American Journal of Public Health* 96(9): 1582-1587.
- Osilla KC, Ortiz JA, Miles JN, Pederson ER, Houck JM and D'Amico EJ (2015) How group factors affect adolescent change talk and substance use outcomes: Implications for motivational interviewing training. *Journal of Counselling Psychology* 61(1): 79-86.
- R Core Team (2013) *R: A language and environment for statistical computing*. Vienna: R Foundation for Statistical Computing.
- Sungur S and Tekkaya C (2006) Effects of problem-based learning and traditional instruction on self-regulated learning. *The Journal of Educational Research* 99(5): 307-320.
- VanBuskirk KA and Wetherell JL (2014) Motivational interviewing with primary care populations: Systematic review and meta-analysis. *Journal of Behavioural Medicine* 37(4): 768-780.
- Wagner CC and Ingersoll K (2012) *Motivational Interviewing in Groups*. New York: The Guilford Press.
- Welsh Government (2008) *Personal and social education framework for 7 to 19-year olds in Wales*. Online available at:
<http://new.wales.gov.uk/subsites/personalsocialed/publications/pseframework/pseframeworke.pdf?lang=en>
- Whitty G (2002) *Making Sense of Education Policy*. London: Paul Chapman Publishing.
- Wilkinson S (2004) Focus group research. In: Silverman D (ed). *Qualitative Research: Theory, Method and Practice*. London: Sage Publications.

Table 1. Main themes identified in phase one

Theme	Subtheme
Negative aspects of PSE¹	Lack of structure
	Non-participatory methods
	Facilitators are not credible
The positive intervention	Promoting autonomy
	Group size and peer support
	Confidentiality
The effective facilitator	The engaging and trustworthy facilitator
	Creates a respectful and empathic setting

¹ Personal and Social Education

Table 2: Intervention Logic Model – GMI session prototype for health promotion in secondary schools

GMI¹ Intervention for Health Promotion in Schools		
Inputs	Activities	Short-term Outcomes
<ul style="list-style-type: none"> - Effective facilitator(s) : engaging and trustworthy - Autonomy promoted - Students working as a group, providing peer support - Confidential and empathic setting - Honesty box activity 	<ol style="list-style-type: none"> 1) Opening (20 minutes): Engage participants and focus on the topic. <i>Ground rules</i>: Introduce facilitators and purpose of the session. Highlight confidentiality. <i>Introduction</i>: Explore students' existing knowledge, and provide topic overview (e.g. alcohol). Students anonymously write down their thoughts about the topic. <i>Lively exchange</i>: Facilitators elaborate on pre-planned themes based on the Personal and Social Education curriculum for the topic using the thoughts written down by the students. 2) Free talk (D'Amico et al, 2013) (30 minutes): This activity corresponds to the evoking and planning components of MI². <i>Pros and cons of the target behaviour (e.g. alcohol consumption) (evoking)</i>: Introduce the honesty box. Ask "What have you noticed that you like about [the topic] and you don't like about [the topic]?" Students write their response on pre-made cards and place into the box. The facilitator selects a card and initiates discussion about pros and cons of the behaviour. <i>My choices (planning)</i>: Ask "Thinking about [the topic], complete the sentences 1) I want to... and 2) I do not want to..." Again, students write down their responses. The facilitator selects an answer from the box and initiates discussion about goals. 3) Closing (10 minutes): Thank students for their participation and ask them to say in one sentence "what do you take from this session?" 	<ul style="list-style-type: none"> - The intervention is consistent with other forms of MI² – assessed by AMIGOS (Ingersoll & Wagner, 2014) - Change talk about alcohol consumption is elicited – identified in students' speech and written data - Students report satisfaction with the session – assessed in questionnaire responses

1. Group Motivational Interviewing, 2. Motivational Interviewing,

Table 3. AMIGOS scores (maximum score = 5)

Group Process	School 1	School 2
- <i>Climate</i>	3	4
- <i>Openness</i>	4	4
- <i>Cohesion</i>	3	3
- <i>Altruism</i>	3	3
- <i>Hope</i>	3	4
Leader General Tasks		
- <i>Floor time</i>	3	3
- <i>Linking</i>	2	5
- <i>Framing</i>	4	5
- <i>Time Orientation</i>	5	5
Leader MI Tasks		
- <i>Empathy</i>	4	5
- <i>Autonomy</i>	5	5
- <i>Strengths</i>	5	5
- <i>Engaging</i>	3	5
- <i>Focusing</i>	5	5
- <i>Evoking</i>	5	5
- <i>Progress</i>	5	5

Table 4. Honesty box response examples

	What do you like about alcohol?	What don't you like about alcohol?	When it comes to alcohol, I want to	When it comes to alcohol, I don't want to
Example 1	You can have a fun night out with your friends	Then you can mess things up with them	I want to drink because it is (normal) but it is not good to go over the top.	Drink too much
Example 2	I like the taste of some alcohol, the social aspects of alcohol and drinking for pleasure. I like that alcohol helps you relax.	The dangers of over drinking terrify me, that people can become addicted to alcohol. I dislike the thought that anything could happen to me while drunk.	Be able to enjoy alcohol with friends and family. Enjoy a glass of wine every now and again.	Become addicted. Depend on alcohol. Do anything stupid because of alcohol.
Example 3	It shows you've matured and you're older	I don't like that it turns you into a different person and ruins your health	Be able to control how much I drink. Only drink on occasions or out with friends. Stay with a group of people	Turn into an alcoholic, get alcohol poisoning or get kidney, liver failures

Figure 1. Research design overview

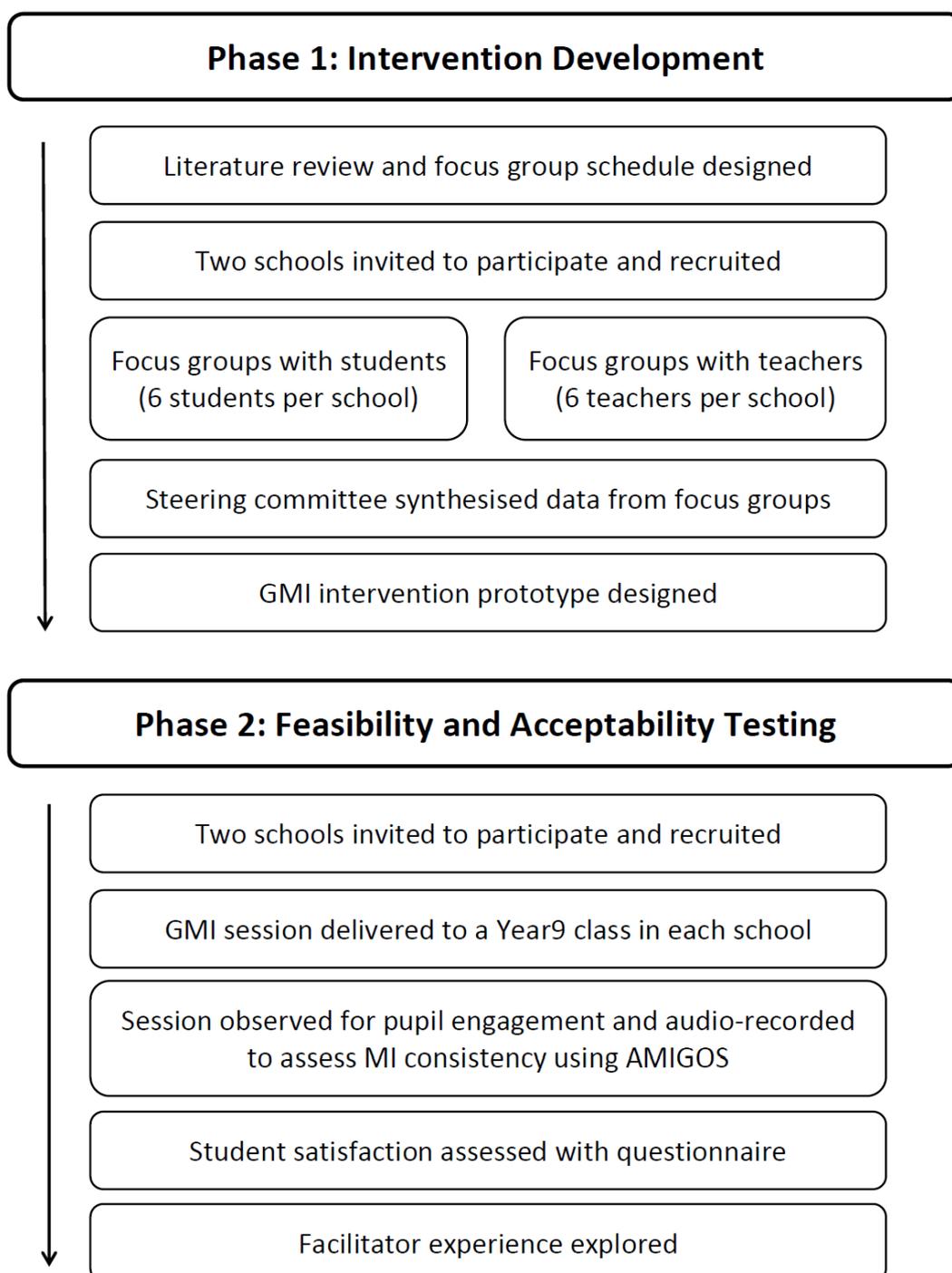


Figure 2. Responses to the student satisfaction questionnaire in school 1 (n=27)

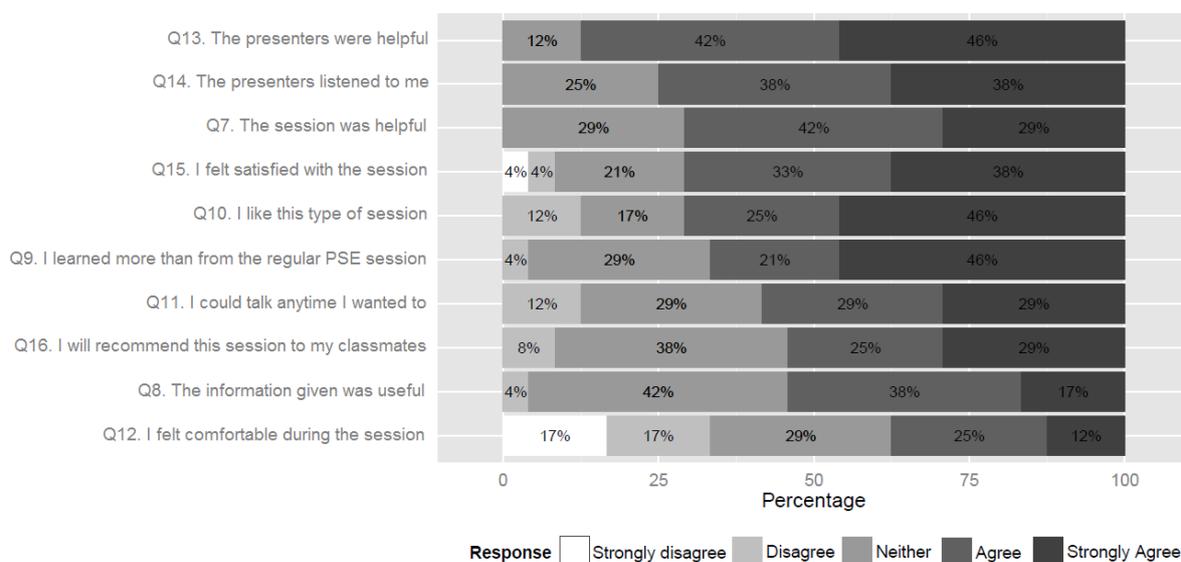


Figure 3. Responses to the student satisfaction questionnaire in school 2 (n=29)

