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Project title: Factors facilitating and constraining the delivery of effective teacher training to promote health and well-being in schools – a survey of current practice and systematic review

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Factors facilitating and constraining the delivery of effective teacher training to promote health and well-being in schools
– a survey of current practice and systematic review

1. Aims/Objectives

The main research questions are:

In what ways does teacher training prepare teachers to promote health and well-being in schools? How effective are interventions to train and support teachers? What are the barriers to, and facilitators of, effective training and delivery?

To answer this question the project has 2 research objectives:

1. To conduct a survey, using quantitative and qualitative methods, of a sample of initial teacher training providers in England to assess how health and well-being is covered in teacher training.
2. To conduct a systematic review of effectiveness, and barriers / facilitators, of teacher training around health and well-being.

2. Background and rationale for the research

2.1.1 The importance of teachers as health promoters

The importance of teachers as promoters of health in schools has been acknowledged for some time.[1] However, pressure on busy curricula has meant that health and well-being has not always been covered in as much detail as desirable. Yet, teachers are playing an increasingly important role in the wider public health workforce. A number of Government policy strategies have underlined the importance of the school in children's health in recent years. For example, 'Every Child Matters' (2004)[2] was a key policy for children's health, education and welfare, which stressed the importance of health and safety, and still underpins the current Qualified Teacher Status (QTS) standards for health. 'The Children's Plan: Building Brighter Futures' (2007)[3] emphasised the pivotal role of schools in ensuring children are healthy and safe. It introduced the concept of Extended Services with its focus on improving access to school activities for disadvantaged children and young people to reduce attainment gaps. It also set a goal for all schools to work with the National Healthy Schools Programme (NHSP) by 2009.

Also in 2009 the NHSP began rolling out its Enhancement Model, a universal and a targeted approach to pupil well-being offering schools the challenge of meeting specific needs-led healthier behaviour outcomes. Since April 2011 the organisation of the NHSP has changed to being a schools-led initiative rather than one that is Government-led. The resources to support schools are now in the form of the 'Healthy Schools Toolkit' which is available to schools via the Department for Education website.[4]

Effective health promotion with children and young people, particularly the early identification and prevention of health inequalities, was also a key aspect of the 'Choosing Health' strategy, launched in 2004.[5] The overall strategy was to develop and build capacity for health improvement at all levels of the system, and to better equip the wider workforce to promote health by ensuring basic skills and knowledge for more people. Furthermore, 'Healthy Weight, Healthy Lives: a cross-government strategy for England' (2008)[6] stated that all schools should be healthy schools, and recognised the need for improvements in staff skills and capabilities.

The 'Healthy Child Programme 5-19 years', published by the Department for Health and the Department for Children, Schools and Families in 2009,[7] set out the early intervention and prevention public health programme for children, young people and their families. It highlighted the need for schools to work together with parents, carers and health professionals and to have an understanding of how to promote health and well-being.

Importantly, the 2009 Macdonald Review of Personal, Social and Health Education (PSHE) recommended that it should be a statutory subject in the curriculum and that all ITT courses should include some focus on PSHE throughout the school life.[8] The Macdonald review also recommended that there should be in time, 'a cohort of specialist PSHE education teachers' (page 8). Since the recent change in government the Department for Education is currently conducting a review of the primary and secondary National Curriculum, which also includes an internal Government review of the non-statutory status of PSHE.

Since the election of the Coalition government in May 2010, the broad landscape and relationships both within and between health and education is changing. The Government published its White Paper 'The Importance of Teaching' in November 2010[9] which states:

"We will recognise that schools have always had good pastoral systems and understand well the connections between pupils' physical and mental health, their safety, and their educational achievement and that they are well placed to make sure additional support is offered to those who need it" (Page 9)

The White Paper for public health, 'Healthy Lives, Healthy People', published in November 2010, set out the proposed substantial changes to the public health system in England over the next two years.[10] It is planned that joint commissioning of health services will be carried out by local authorities in conjunction with a new body, 'Public Health England', and the current Directors of Public Health will be employed within these organisations. The Commons Select Health Committee has held an inquiry into the proposed changes (though the results of the enquiry have not yet been reported). These proposed changes will no doubt have a major impact on the way that public health and health promotion activities are managed, and implications for the support for improvement of health education in schools.

2.1.2 Teacher training in the UK

Initial Teacher training in the UK is currently predominantly provided by Higher Education Institutions (HEIs) at under-graduate (e.g. Bachelor of Education) or post-graduate level (e.g. Post-Graduate Certificate in Education, PGCE). Some post-graduates choose school-centred ITT courses (SCITTs) which provide a greater degree of practice based learning, whilst retaining their student status. An alternative route is through employment-based ITT (EBITT) whereby trainees are employed by schools and train via the Graduate Teacher Programme (GTP) or the Registered Teacher Programme (RTP). Teacher training is funded by the Training and Development Agency for schools (TDA) (to become a new body called 'The Teaching Agency' from April 2012), but additional health content may be funded from other agencies.

This nature of teacher training is likely to change in the future. In the 'Importance of Teaching'[9] the Government states that it will:

- Reform initial teacher training, to increase the proportion of time trainees spend in the classroom, focusing on core teaching skills.
- Develop a national network of Teaching Schools on the model of teaching hospitals to lead the training and professional development of teachers and head teachers, and increase the number of National and Local Leaders of Education – head teachers of excellent schools who commit to working to support other schools.

Training is also provided to qualified teachers as part of continuing professional development (CPD). Within the context of health CPD may address the provision of PSHE, or more specifically train teachers to deliver a specific health promotion intervention (e.g. around a drugs and alcohol initiative, or a sexual health campaign). Training may also encapsulate broader school-wide health promotion interventions ('whole school approaches'). A variety of people may train teachers around health issues, including Healthy Schools Co-ordinators, health professionals (e.g. health promotion practitioners, health advisers), youth workers, psychologists, educational professionals, and educational professionals. Training is provided in-service (i.e. organised by the school), or externally organised by the organisations responsible for developing specific interventions or teaching methods.

It is unclear how current policy changes will ensure continued support for schools in actively promoting health and well-being. A key question is to what extent do teacher training courses adequately prepare teachers for this pivotal role?

2.2.1 Initial teacher training

Since the mid 1980s research in England and Wales has indicated that teacher education and training in health-related areas is poor, and has mostly relied on in-service training which teachers may or may not receive.[1] Progress on including knowledge and skills regarding health and well-being in the initial training and education of teachers entering the profession has been slow, both in England and elsewhere.[11] There are unanswered questions about the provision and quality of health promotion within ITT courses across England. Our previous survey research has shown that coverage of health and well-being in teacher training curricula is limited and variable in the South East of England region.[12] We surveyed, via questionnaire, 35 organisations offering ITT in 2007 (10 HEIs, 25 employment-based schemes). Fifteen (43%) organisations responded, representing 50% of the total number of trainees in the region (83% from HEIs, and 17% from employment-based schemes). The results demonstrated the enormous variability of teacher training provision across the region and the lack of any consistent approach to educating student teachers about their potential roles in promoting children's health. Most organisations were found to be incorporating Every Child Matters (ECM) supported by Healthy Schools and other external specialists, but to varying extents. Provision of information about the NHSP was also extremely variable, from nothing at all to inclusion in PSHE or emotional health and well-being. Employment-based schemes were more likely to have connections with the NHSP. Reasons for lack of inclusion of health issues included insufficient time in a busy curriculum, and the extent to which placement schools were actively involved in the NHSP.

The extreme variability in the amount of time allocated to health topics in our survey demonstrates a lack of consistency in interpretation of the requirements of training leading to very little provision in many institutions, versus careful attention and innovative good practice in a few others. The survey was limited by the relatively low response rates, its timing (just before holiday period), the length of the questionnaire (on reflection relatively lengthy) and its confinement to the SE of England. There remains, therefore, a need to assess the adequacy of provision of health initiatives within ITT curricula across England, with a sampling strategy that ensures representation from different types of providers (HEI based, employment-based) types of course (primary, secondary teaching). Such a survey will illuminate variations in practice, identify barriers and facilitators, and will generate recommendations for effective training, and models of effective practice suitable for further evaluation.

2.2.2 Continuing professional development, and intervention-specific training

There is a sizable evidence base on the effectiveness of school-based health promotion interventions worldwide. Stewart-Brown (2006)[13] conducted a synthesis of systematic reviews of school-based health promotion interventions and health promoting schools (an update of the previous NIHR HTA funded systematic review published in 1999[14]). Fifteen

systematic reviews were included, between them comprising approximately 750 primary evaluations of school-based interventions on a variety of health issues (e.g. mental health, healthy eating, physical activity). There was little overlap between the reviews in terms of their constituent studies, suggesting that this figure has probably not been over-estimated by double counting and is therefore an accurate estimate of the size of the evidence.

2.2.3 The evidence base

Despite the volume of evidence for school-based health promotion interventions, little has been published, at least in terms of secondary research, on the effectiveness of training teachers to deliver such initiatives (either ITT or CPD), and of the barriers and facilitators to effective teacher training and their subsequent provision of health promotion. Scoping searching of electronic databases conducted for this protocol (e.g. Educational Resources Information Center (ERIC), Medline) and key websites (EPPI-Centre, National Foundation for Educational Research) did not identify any published systematic reviews of the evidence for the effectiveness of programmes to train teachers to promote health in schools. However, we did identify 18 potentially relevant primary studies (some of which were included in a broader published literature review of 26 studies investigating training of workers to implement adolescent prevention and positive youth development[15])

The majority of these studies evaluated teacher training to deliver specific health promotion interventions. They covered a range of topic areas including sexual health,[16-20] tobacco,[21-24] drugs and alcohol,[25-27] physical activity,[28-30] injury prevention,[31] and youth development / life skills training.[15;32] In terms of publication dates the studies spanned the last two decades with the most recent published in 2009[31], indicating that this remains a fertile area for research. The studies were conducted in a number of countries (e.g. Australia, Hong Kong, South Africa) though many were from the USA, with one notable example from the UK (see below).[17] A mixture of study designs were used, including process evaluations of teacher training as part of a randomised controlled trial (RCT) or other type of outcome evaluation of a school-based health promotion intervention, or process only evaluations of school-based interventions. At least three outcome evaluations compared the effectiveness of different types of teacher training (e.g. video instruction versus workshop training) on a range of teacher outcomes (e.g. implementation, morale, motivation, self-efficacy)[21;25;26] and one of these also assessed changes in pupil outcomes (e.g. use of drugs, tobacco and alcohol).[25]

In terms of theory, the interventions were based upon a range of well known theories of education, health and health-related behaviour change such as Social Learning Theory, Social Cognitive theory, and the Theory of Reasoned Action / Planned Behaviour, Diffusion of Innovations theory and the Social-Ecological Model.[15] Many of these theories predict the necessary mediators of effective health-related behaviour change. The training the teachers received was designed to equip them with the knowledge, motivation, confidence and skills, to facilitate, in turn, desirable improvements in mediators of pupils' behaviour, such as increasing their knowledge, their self-efficacy and their behavioural skills. For example Kealey et al (2000),[22] who evaluated the Hutchinson Smoking Prevention Project in the USA, conceptualized teacher training as a behaviour change process with a strong emphasis on teacher motivation to facilitate the intended behaviour (i.e. the teacher's effective implementation of the curriculum). Theories such as those mentioned above form part of the conceptual framework for this project (see Section 4.2.2.5).

All studies provided evaluation data on the implementation of the intervention, with varying detail given to the training received by teachers. One of the studies that provided detailed information on training was a Scottish trial of a sexual health education initiative called SHARE (Sexual Health Relationships Education).[17] An extensive process evaluation was carried out, comprising observation, questionnaires and interviews with teachers. The teachers reported that they valued and enjoyed the training very much and felt more

confident to teach sex education, but a number of barriers to effective delivery of the curriculum emerged, including a lack of understanding by the teachers of the guiding theory of behaviour change and a lack of confidence to teach behaviour change skills (the key element of the intervention). This was echoed by other studies identified by our scoping searches such as Ward et al (2006)[29] who, in a process evaluation of a physical activity promotion programme for high school girls, reported that the teachers found it difficult to understand and implement behavioural skills concepts to encourage physical activity.

These findings, though perhaps not necessarily representative of the wider literature, suggest that additional training and support may be necessary to enable teachers to facilitate health-related behaviour change, an outcome that is considered as a key marker of effectiveness by many decision makers.[34] For example, they may require professional input from health educators to deliver skills-building exercises in the classroom which may be essential for encouraging healthy behaviours. This will have resource, and therefore, cost implications and it underlines the need for a full systematic review of the evidence to identify common over-arching barriers and facilitators to effective and efficient teacher training across a range of health topics. Recommendations would be made for health and education professionals, policy makers, and researchers to ensure teachers fulfil their potential in promoting health and well-being in schools, ensuring children adopt and maintain healthy lifestyles into adulthood.

3. Methods

The project comprises two main components: a survey of teacher training providers; and a systematic review. They will run in parallel with each other, with a reciprocal relationship between the two. For example, emerging findings from the systematic review may influence the issues explored in the semi-structured interviews with teacher training providers.

3.1 Survey of teacher training providers

3.1.1 Setting

We will undertake a survey of a sample of ITT providers in England to map the ways in which they incorporate health and PSHE in their curricula to enable trainee teachers to develop knowledge and skills to promote health and well-being. The survey will focus on how ITT providers address the health issues embraced within policies such as, 'Healthy Lives, Brighter Futures: the strategy for children and young people's health'[35] and 'Your child, your schools, our future: building a 21st century schools system'[36] that are underpinned by the five outcomes of the 'Every Child Matters' strategy.[2] We will build on our previous survey experience of this topic in SE England (see Section 2.2.1) to ensure optimal response rates and high quality data are collected.[12]

3.1.2 Data collection

3.1.2.1 Sampling

We will use the 208 ITT providers in England listed in the TDA website as our sampling frame. This includes 74 Higher Education Institutions (HEIs), 57 School-centred Initial Teacher Training providers (SCITTs) and 77 Employment-Based Initial Teacher Training providers (EBITTS).

Courses vary in their duration from a one year PGCE to three or four year undergraduate degrees (BA/ BSc with QTS or BEd), as well as variations in the phase of education that they specialise in (i.e. primary, secondary, key stage 2/3) (Table 1). SCITT programmes are designed and delivered by groups of neighbouring schools and colleges. SCITT courses lead to qualified teacher status (QTS), and some will also lead to a PGCE validated by a HEI.

EBITTs are run by consortia of schools, colleges and local authorities (though note that some Universities also offer EBITTs courses). On the Graduate Teacher Programme (GTP), graduates can attain QTS while training and working in a paid teaching role. The GTP normally takes between three months and one school year, working full-time, to complete. The Registered Teacher Programme (RTP) combines work-based teacher training and academic study, allowing non-graduates with some experience of higher education to complete their degree and qualify as a teacher at the same time. This course normally takes two years to complete. The Overseas Teacher Training Programme (OTTP) is for qualified teachers from overseas who wish to attain qualified teaching status in England. Courses can last up to one year. Key stage 2/3 courses covers children in the age range 8-11 (Key stage 2) and 11 to 14 (Key stage 3). Early years generally covers the 3 to 7 age group.

Table 1 – Classification of ITT courses by provider

Type of provider	**Undergraduate**	**Post-graduate**
Higher Education Institution (HEI) (e.g. University)		
• Early years	BA / BSc; BEd	PGCE
• Primary	BA / BSc; BEd	PGCE, GTP, OTTP
• Secondary	BA / BSc; BEd	PGCE, GTP, OTTP
• Key Stage 2/3	BA / BSc; BEd	PGCE
• Post-compulsory	BA / BSc; BEd	PGCE
	RTP	
School Centred Initial Teacher Training (SCITT)		
• Primary		PGCE (with QTS) / QTS
• Secondary		PGCE (with QTS) / QTS
Employment Based Initial Teacher Training (EBITT)		
• Primary	RTP	GTP, OTTP
• Secondary	RTP	GTP, OTTP

PGCE = Post Graduate Certificate in Education; GTP = Graduate Teacher Programme; RTP = Registered Teacher Programme; OTTP = Overseas Teacher Training Programme. QTS = Qualified Teaching Status

The ITT providers in England have been classified according to the 9 Government administrative regions. Table 2 shows that the number of providers in each region varies from 14 (North East) to 36 (Eastern).

We aim to sample the ITT providers within each of the regions to ensure all areas of England are represented, given that there may be geographical variations in teacher training practice in relation to health and well-being. Our sampling strategy will vary according to the type of provider in each region, as follows:

1. We will randomly sample 50% of each of the HEIs within each of the 9 English regions. Our initial mapping work has shown that the number and range of courses on offer varies considerably by HEI. For example in the South East region of England, the University of Portsmouth currently offers just 2 courses, both at post-graduate level. In contrast, Canterbury Christchurch University offers 10 courses covering undergraduate and postgraduate level. To obtain balance we will take a random sample of 50% of HEIs classified as offering a low number of courses, and 50% of those classified as offering a high number of courses (low and high to be determined by the average number of courses per provider in a region). A questionnaire will be sent to each course offered by the sampled HEIs, and should result in sampling approximately 50% to 60% of available courses in each region.

2. We will also randomly sample 50% of EBITTs in each region. However, as EBITTs generally offer fewer numbers of courses we will not be classifying them as high or low. (NB. HEI-run EBITT courses, such as GTP, will be sampled as above in 1.)
3. We will survey all SCITTs rather than take a sample as there are relatively fewer of them, and because they offer only a limited range of courses (e.g. one to two courses per SCITT).

Table 2 – ITT providers (n=208) by Government Office Regions (GOR) in England, by type of provider

Eastern		**London**		**East Midlands**	
HEI	6	HEI	13	HEI	7
SCITT	15	SCITT	7	SCITT	4
EBITT	15	EBITT	12	EBITT	8
Total	*36*	*Total*	*32*	*Total*	*19*
North East		**South East**		**South West**	
HEI	4	HEI	10	HEI	8
SCITT	6	SCITT	5	SCITT	13
EBITT	4	EBITT	14	EBITT	5
Total	*14*	*Total*	*29*	*Total*	*26*
Yorks and the Humber		**West Midlands**		**North West**	
HEI	10	HEI	9	HEI	7
SCITT	1	SCITT	5	SCITT	1
EBITT	6	EBITT	7	EBITT	6
Total	*17*	*Total*	*21*	*Total*	*14*

Note that the number of EBITT providers excludes the HEIs that offer EBITT courses.

3.1.2.2 Recruitment

It is planned to recruit and survey ITT providers in the 2011 spring/summer term (see Table 5, Section 4). This is a time when many courses begin to review the current curriculum and think about planning for the subsequent academic year. We believe this would be an optimal time to gather data from ITT providers.

We will approach, by email, the head of the education department in each HEI in our sample to introduce the project and to ask them to provide us with the name and contact details of the tutor of each of their ITT courses. We will then contact, via email, the tutors of those courses that are in the sample directly and ask them to complete an online questionnaire (see below). The email will specify the purpose of the study, why they have been chosen, and a guarantee that their responses will be confidential and anonymised in the dissemination of the project. We will contact directly the course leader / manager in each randomly-sampled EBITT, and in each SCITT, again via email, and ask them to complete an online questionnaire.

3.1.2.3 Survey Instruments

An online questionnaire will be developed for ITT providers to complete, using SelectSurvey.NET software (www.som.soton.ac.uk/quest). The questionnaire will be piloted on a small random sub-sample of ITT providers in each region prior to full implementation.

We will request information about what ITT providers do to address health and well being, how much time they devote within their course to health issues, and how trainees gather evidence about health related matters. In particular we will ask about:

1. The type of course
2. Approximate amount of time spent on health issues - in institution based training and in school-based training.
3. Specific health issues addressed (education on sex and relationships, alcohol, smoking and drugs; healthy eating; physical activity and emotional well-being).
4. Who teaches the health aspects of the curriculum (e.g. use of external agencies)
5. Whether and how health and well-being training is assessed (e.g. portfolio; questionnaire)
6. Who funds the health and well-being activities undertaken (e.g. Primary Care Trusts; TDA).
7. Examples of successful initiatives around health and well-being.

Non-responders will be followed-up with a reminder email.

Following an initial analysis of the questionnaires a purposive sub-sample of around 20 to 25 providers will be selected for follow-up qualitative semi-structured qualitative interviews to gain detailed insights into the how health and well-being is addressed in their curricula. We will interview those providers that are currently covering health and well-being in some depth to identify contrasting models of what potentially might be considered good practice. We will also select providers who, from the questionnaire, do not appear to cover health and well-being to a great extent to identify and explore any particular barriers. Where appropriate we may also purposively select other ITT providers for interview (i.e. who were not included in the questionnaire survey), if it is considered that their health and well-being initiatives would be useful to investigate.

Specific issues that the interviews will focus on include:

- Coverage of specific aspects in the course and curriculum relevant to the Public Health Skills and Careers Framework including:
    - Awareness raising of health–related policies/practice (e.g. whole school health policies, PSHE, healthy eating, physical activity, anti-bullying, etc)
    - Awareness raising of the determinants of health and current health policies (e.g. reducing health inequalities)
    - Encouragement and awareness raising about the processes of monitoring and evaluating relevant health-related data
- Who teaches/facilitates the health aspects of the course, and whether there are links with external agencies available to support schools (e.g. sports partnerships, teenage pregnancy & family planning agencies, NHS public health agencies, youth workers, drug and alcohol teams, Healthy Schools Programme, school food trust/ nutritionists, etc).
- Description of specific initiatives or events that providers mount or engage in to raise awareness of health and well-being (e.g. in collaboration with external agencies, as above).
- Elucidation and exploration of barriers to addressing health and well-being in teacher training.

3.1.3 Data analysis

For analysis of the questionnaire data and some of the interview questions we will use standard descriptive statistics (e.g. proportions, median, or mean with standard deviation for continuous measures). We may undertake a limited number of comparisons using standard statistics (e.g. Chi-square tests for proportions, Mann-Whitney for non-normal continuous data) with results analysed in a suitable statistical package such as the Statistical Package for the Social Sciences (SPSS). Qualitative data yielded by the interviews will be analysed in a standard content analysis, with data coded and categorised into themes, using an appropriate programme such as NVivo (Version 9.0, QSR international).

4.2 Systematic review of teacher training interventions

Our proposed systematic review will use rigorous methods to identify, appraise and synthesise relevant evidence, drawing on established processes and procedures in evidence synthesis[37-39], with particular consideration given to wider determinants of health and health inequalities[40]. Figure 1 provides an overview of the key stages of the review.

4.2.1 Literature Searching

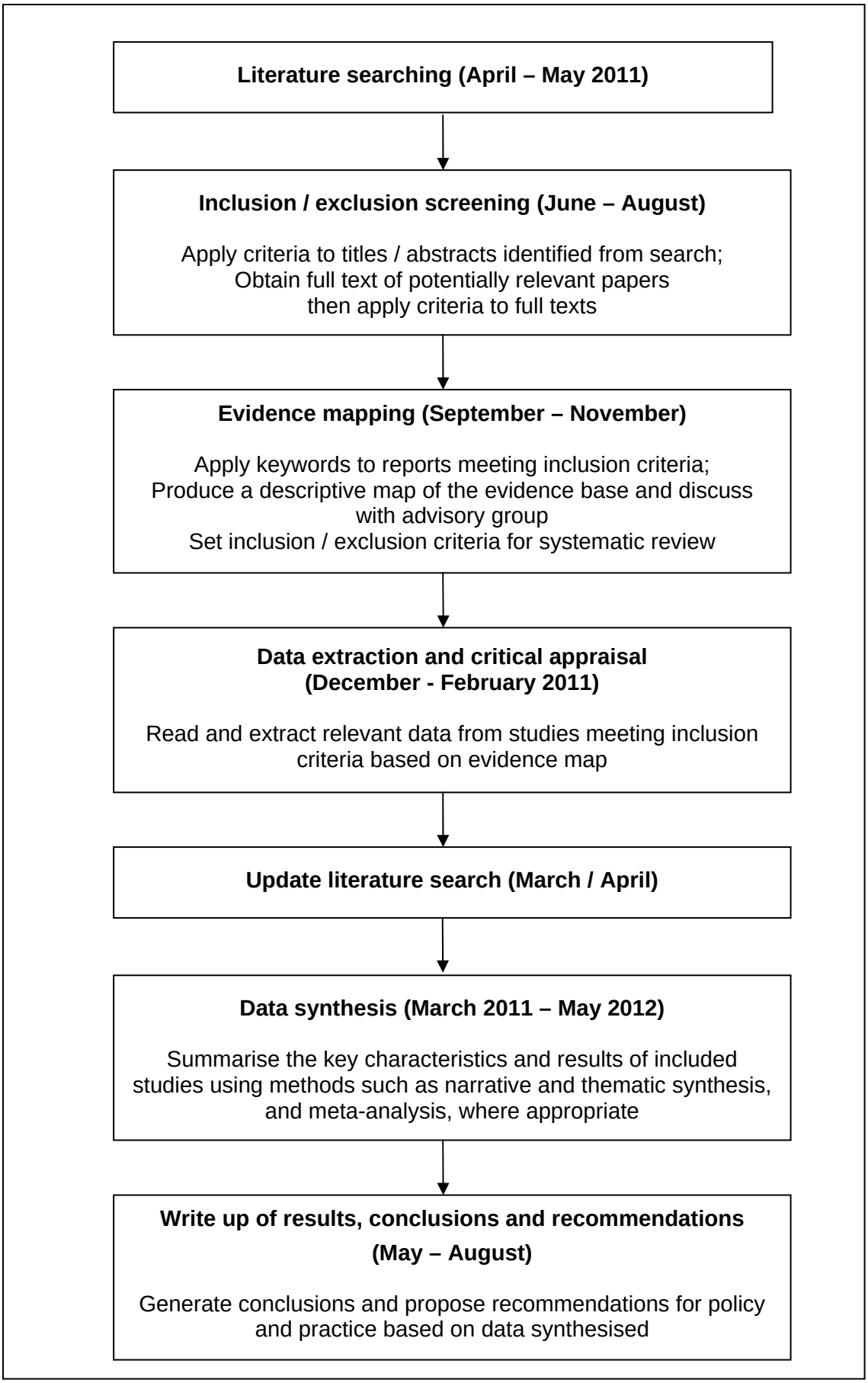
An extensive search will be conducted to identify relevant literature. A highly sensitive search strategy will be devised and tested by an experienced information scientist. The strategy will comprise a mixture of free-text words and controlled vocabulary terms (see Appendix 1).

The strategy will be applied to the following electronic bibliographic databases (database platform in parentheses)

- Medline (Ovid)
- Medline In-Process (Ovid)
- Embase (Ovid)
- The Cochrane Library (Cochrane Database of Systematic Reviews; Cochrane Central Register of Controlled Trials)
- Database of Abstracts of Reviews of Effectiveness (DARE)
- The Campbell Library
- C2 Spectr (The Campbell Collaboration's Social, Psychological, Educational, and Criminological Trials Register).
- CINAHL (Ebsco)
- Psychinfo (Ebsco)
- Social Science Citation Index (Web of Science)
- Conference Proceedings Citation Index- Social Science & Humanities (CPCI-SSH) (Web of Science)
- ERIC (Dialog Datastar)
- EPPI-Centre databases (TRoPHI / Evidence Library)
- British Educational Index (Datastar/Dialog Web)
- Australian Educational Index (Dialog Datastar)
- International Bibliography of the Social Sciences (CSA)
- Sociological Abstracts (CSA)

Databases will be searched from inception to the current date.

Figure 1 – Key stages of the systematic review



Key websites will be searched, including the National Foundation for Educational Research, the International Union for Health Promotion and Education and others. We will be particularly interested in locating relevant studies from the grey (unpublished) literature and will make contact with experts in the field, including our advisory group, to identify relevant studies. Bibliographies of relevant studies will be screened to identify further potentially relevant studies.

Studies published in the English language will be prioritised for inclusion in the review. Any non-English language studies will be included if translation is possible.

Relevant systematic reviews identified by the search will only be used as a source of additional relevant studies.

The search will be updated in March/April 2012 (approximately a year after the original search – see Table 5) to identify any new literature published since the initial search. Depending on the volume of literature identified it may be possible to integrate any new relevant studies into the systematic review. Where this is not feasible the newly identified studies will be listed in an appendix with brief details of their key characteristics.

4.2.2 Inclusion criteria

4.2.2.1 Population

1. Teachers
2. Pupils in primary, secondary and further education

Studies of children and young people with existing illness or conditions (e.g. physical illnesses such as asthma, or behavioural disorders such as attention-deficit hyperactivity disorder) are not eligible for inclusion.

4.2.2.2 Intervention

1. Health and well-being training component of the ITT curriculum
2. Teacher training either as part of CPD (e.g. for PSHE), or to facilitate a specific school-based health promotion intervention.

Interventions may delivered in the context of any area of health including general well-being and personal and social development (e.g. life skills training, youth development), as well as on specific topics such as substance abuse, healthy eating and physical activity, sexual health, bullying and mental and emotional health, etc. (NB. Differences in findings according to topic areas will be explored as part of the synthesis, see Section 4.2.6).

4.2.2.3 Comparator

For comparative outcome evaluations studies any type of comparison will be eligible. For example, a study may compare a new method of teacher training (e.g. interactive programme using computers and video) with standard methods of teacher training (e.g. facilitator-led workshop).

4.2.2.4 Study type

For both types of intervention the following study types are relevant:

1. **Outcome evaluations** (e.g. preferably randomised controlled trials (RCTs), but non-random or uncontrolled studies will be considered where there is a lack of RCTs). These studies aim to measure effects of teacher training interventions either on the teachers themselves, the pupils, or both. This excludes studies of school-based health promotion

interventions where the aim is only to assess the effectiveness of the school-based intervention itself, rather than the training the teachers received.

2. **Process evaluations** (e.g. integrated within an outcome evaluation, or a process only evaluation). These studies assess how the intervention was implemented (e.g. the resources used, acceptability of the intervention, unanticipated barriers and facilitators), and can provide insights into the outcomes achieved. They can use qualitative or quantitative methods or use both (e.g. surveys; questionnaires; interviews; focus groups). In this review we will include process evaluations that report on: the training teachers have received; their general experiences of teaching around health and well-being; any difficulties they experienced in teaching around health and well-being; the curriculum materials; their professional development in relation to health and well being; or their views on the health and well-being aspect of the curriculum.

4.2.2.5 Outcomes and processes

Table 3 summarises possible relevant outcome measures for both teachers and pupils, whilst Table 4 specifies some of the relevant processes which can inform our understanding of barriers and facilitators.

For studies which only evaluate processes (i.e. they do not necessarily aim to measure impact on pupils or teachers) some of the outcomes in Table 1 may be discussed within the context of delivery of the intervention. For example, a process evaluation may not formally measure changes in teachers' motivation to deliver a health promotion intervention, but nonetheless report that lack of motivation was an impediment to effective delivery.

These outcomes and processes reflect the conceptual framework of this study, which is effective teacher training for health as essentially, though not limited to, a behaviour change process (see Section 2.2.2). Our starting point is that equipping teachers with basic competencies in their initial training means they will be more motivated to address health and well-being and be better able to contribute to health promoting schools when teaching. The framework also recognises wider structural influences on health, including political, social and economic factors that constrain or enable individuals and groups to make informed decisions about their health (to be taken into account in the thematic analysis of barriers and facilitators – see Section 4.2.6).

Table 3 – Some of the relevant outcome measures

Outcomes	
Teachers	**Pupils**
Knowledge of health in general and the specific health topic to be addressed	Knowledge of relevant health topic (e.g. risk factors, prevention, well-being)
Skills (e.g. ability to teach health-related behaviour change skills)	Attitudes towards health-related behaviour
Confidence / self-efficacy to provide health promotion intervention	Intentions to adopt health-related behaviour
Attitudes towards health promotion intervention	Self-efficacy to adopt health-related behaviour
Motivation and intentions to provide health promotion intervention	Biological and physical outcomes (e.g. weight change)
Awareness and understanding of whole school approaches to health promotion, and wider determinants of health	Health-related behaviour (e.g. smoking)
Health literacy	Health literacy
Rates of delivery of the intervention	Educational attainment
Unintended / unanticipated outcomes (e.g. increasing health inequalities)	Unintended / unanticipated outcomes (e.g. differential health gain)

Table 4 – Some of the relevant processes

Processes
Acceptability to the teachers of the training, and of the health promotion intervention itself (e.g. appeal, enjoyment, relevance to professional goals and personal values)
Resources and costs used to train the teachers
Teachers' general reflexivity of their health promoting role and practice
Implementation of the teacher training programme / the teacher-led health promotion intervention

Inclusion criteria will be applied to each title and abstract (where available) independently by two reviewers. In cases where agreement cannot be reached a third reviewer will be consulted. Inclusion criteria will be applied to full texts by one reviewer and checked by a second. Again, a third reviewer will be consulted in cases of disagreement.

4.2.3 Descriptive mapping stage

As the evidence base is likely to be diverse (e.g. in terms of health issues, country, type of school, outcomes / processes etc), and uneven in terms of volume (e.g. there may potentially be more outcome evaluations from the United States), an intermediate descriptive mapping stage is proposed. Descriptive mapping has been successfully applied in a number of published systematic reviews of complex health and education interventions as a means of characterising the evidence base to facilitate a focused policy-relevant synthesis.[33;41-43] It is particularly useful in systematic reviews such as this, where sensitive literature searches are necessary. All studies meeting the inclusion criteria described above in Section 4.2.2 will be classified through the systematic application of pre-specified keywords. Each study will be keyworded by one reviewer and a random sample checked by a second for fairness in accuracy in interpretation. The keywords will cover a number of study characteristics including the:

- country the study was conducted in,
- level of education (e.g. primary / secondary),
- type of school (including whether mainstream or schools for children with special educational requirements),
- topic area (e.g. substance abuse, sexual health etc),
- outcomes measured (where applicable),
- processes evaluated (where applicable).

The keywording will not, however, characterise the results of studies.

The descriptive map will be presented to the project's advisory group for discussion (likely to be during meeting 2, see Table 5). Based on their guidance a policy-relevant focussed set of inclusion criteria will be set for the systematic review. For example, based on the evidence available it might be decided to focus on studies of teacher training in schools for minority children or those with special educational requirements who may be at particular risk of poor health outcomes. The mapping stage may also be used to ensure that the volume of evidence to be reviewed is manageable, ensuring the project is conducted within its resources and to its timetable. As well as helping to set the focus for the proposed systematic review the map will be a useful resource of its own as it will provide an outline of the key attributes literature over a fairly extensive area. It will be published as part of the final report to the NIHR PHR, and potentially also published separately in journal or in practice publications.

4.2.4 Data extraction of included studies

Following the mapping exercise each study meeting the inclusion criteria for the systematic review will be read by one researcher and will then have relevant data extracted from it into

a standardised template. A second researcher will check the data for accuracy and interpretation, and any disagreements resolved through discussion.

Data to be extracted include:

- Markers of health and health inequalities and SES (e.g. pupil educational attainment, parental income, residential status, ethnicity, locality)
- Type of teacher training (e.g. didactic education, skills training)
- Format of the training (e.g. length, duration, intensity, maintenance)
- Setting for the teacher training (e.g. school, or other venue)
- Details of any specific intervention for the teachers to provide (e.g. PSHE in general, or focus on particular health topic)
- Materials and media used (e.g. use of video, computers, course materials)
- Theory underpinning the teacher's training, and the health promotion intervention
- Training provider (e.g. type of provider, their own training / qualification)
- Costs and resources (e.g. training provider costs, cost of materials used)
- Results of the outcome and process evaluation (as specified in Section 4.2.2).

4.2.5 Critical appraisal

Each study will be data extracted and critically appraised by one researcher, and checked by a second with any disagreements resolved through discussion and recourse to a third researcher if necessary. The criteria will assess risk of bias and aspects of methodological quality of outcome evaluations using standard methodological criteria (e.g. selection bias, attrition bias, selective reporting) based on that used by the Cochrane Collaboration[38] and the Centre for Reviews and Dissemination[37]. Process evaluation studies will be appraised by criteria specifically applied in our recently published systematic review of school-based sexual health promotion,[33] in turn based on criteria proposed by experts in the field.[44-46] These criteria assess the rigour of methods for sampling, data extraction, data analysis, and whether adequate breadth and depth was achieved in the interpretation of the findings.

4.2.6 Synthesis

The results of the outcome evaluations will be tabulated and summarized textually in a narrative synthesis. Quantitative meta-analysis will be performed if the studies are not considered too heterogeneous (in terms of intervention characteristics, participants and methods) and where sufficient data are available to allow statistical pooling.[38] Cochrane Review Manager software will be used to perform any meta-analysis. Results will be analysed according to markers of health and health inequalities where reported in the primary studies.

The results from the process evaluations (in terms of the process markers described in Table 2) will also be tabulated and summarised. In addition they will undergo a more detailed thematic analysis using methods applied in our previous systematic review of sexual health promotion in schools[33], in turn devised by colleagues at the EPPI-Centre, London.[47;48] Two researchers will independently identify any reported or inferred barriers and facilitators to effective teacher training and delivery from each study, and compile them into higher order themes (e.g. teacher skills, school organization, school ethos, health inequalities). The two researchers will compare their themes and propose a draft agreed set. A brief description of each of the themes will be written up and the draft set will be discussed and finalized by the research team (and, if possible, the advisory group at meeting 3 – see Table 5). The analysis will explore differences in findings between health topic area (e.g. sexual health, physical activity) and look for common themes across all topic areas. Specialist NVivo software (Version 9.0, QSR international) for analysing qualitative data such as will be used to facilitate this synthesis. The thematic analysis will adhere to the principles of qualitative research in evidence synthesis.[47]

The analysis of both outcome and process evaluations will take into consideration the generalisability of the evidence from international studies to the UK, in terms of cultural and socio-economic relevance, and replicability of education and health services. Potential temporal changes will also be examined, given that the findings of older studies may not be wholly relevant to current practice.

5. Project Management

This project is a collaboration between a multi-disciplinary team of people with both academic and practice experience in this topic, drawn from the University of Southampton (Medicine, Education) and Anglia Ruskin University. Collectively the team has extensive expertise in evidence synthesis, surveys, and qualitative interviews. The project will be based within Southampton Health Technology Assessments Centre (SHTAC), part of the Faculty of Medicine, under the supervision of the Principal Investigator, Dr Jonathan Shepherd.

The co-investigators of the project are:

- Dr Marcus Grace (Senior Lecturer / Deputy Head of School of Education, University of Southampton)
- Dr Jenny Byrne (Learning and Teaching Co-ordinator, School of Education, University of Southampton)
- Professor Paul Roderick (Director of Public Health Sciences and Medical Statistics, School of Medicine, University of Southampton),
- Dr Viv Speller (Independent consultant in public health development)
- Ms Sue Dewhirst (Research Fellow, Public Health Sciences and Medical Statistics, School of Medicine, University of Southampton).
- Dr Palo Almond (Head of Primary and Public Health, Faculty of Health and Social Care, Anglia Ruskin University).

The co-investigators will have strategic input all aspects of the project, and participate directly in some project tasks.

The research team also comprises:

- Dr Debbie Hartwell, Research Fellow**,** Southampton Health Technology Assessments Centre (SHTAC).
- Dr Karen White, Research Fellow, Southampton Health Technology Assessments Centre (SHTAC).
- Karen Welch, Information Scientist, Southampton Health Technology Assessments Centre (SHTAC).
- Other research fellows from within SHTAC will work on the project as required.

The research team will carry out the key project tasks, including survey related activities (e.g. questionnaire design, sampling, data analysis, interviews) and systematic review activities (e.g. inclusion/exclusion screening; data extraction; data synthesis).

Table 5 outlines the timelines for the project. Although the specific stages of the survey and systematic review are sequential there is likely to be overlap between them (e.g. studies meeting the inclusion criteria for the systematic review can be keyworded for the descriptive map whilst other studies are still being screened for inclusion).

Table 5 - Timetable for the project

Month	Component of the study	
	Survey	**Systematic review**
1. March 2010	Devise + pilot survey questionnaire	Write protocol Devise and test search strategy
2. April 2011		Run literature searches
3. May **(AG 1)**	Sample + recruit ITT providers Survey ITT providers	
4. June		Apply inclusion criteria
5. July		
6. August	Analysis of survey results	
7. September		Evidence mapping
8. October **(AG 2)**		
9. November	Devise + pilot interview schedule	
10. December		Data extraction + critical appraisal
11. January 2012	Conduct follow-up interview with sub-sample of 20-25 providers	
12. February		Update literature searches
13. March	Analyse interview results	Synthesis of outcome and process evaluations
14. April 2012 **(AG 3)**		
15. May	Write-up of results (final report + journal articles)	
16. June	External review of draft final report by Advisory Group, and other selected experts	
17. July	Finalise report and submit to funder Finalise journal articles and submit to relevant journals	
18. August		

(AG) = Advisory Group meeting. Three meetings are planned at strategic points in the timetable, with a fourth meeting to be held on an ad hoc basis if necessary.

6. Service users/public involvement

The project will be supported by a multi-disciplinary advisory group comprising: academics in the area of health and education; health and educational professionals (e.g. from the National Healthy Schools Programme); and methodologists (e.g. with experience of qualitative evidence synthesis). We will also endeavour to seek public participation by inviting teachers (e.g. with a responsibility for PSHE) and lay people with an interest in education and child health to join the group.

The aims of the group include: to provide advice and guidance to the research team on the scope and the conduct of the study; to notify the research team of any relevant research literature for the systematic review; to advise on dissemination of the findings.

As mentioned earlier, the advisory group will meet (at the University of Southampton) up to three times during the course of the project at strategic milestones. Advisory group members will be consulted where necessary between meetings (e.g. via email or phone) regarding specific issues.

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Appendix 1 – Search strategy for systematic review (Medline, via Ovid)

1. (train* adj2 (teacher* or schoolteacher* or educator*)).tw.
2. (teacher* adj2 (learn* or course* or development* or self?development* or program* or materials or seminar* or workshop* or conference* or inset or package* or video* or leaflet* or self?study or study)).tw.
3. 1 or 2
4. teaching/
5. (teacher* or schoolteacher or educator* or pedagogy).tw.
6. 4 or 5
7. education continuing/
8. inservice training/
9. continu* professional development.tw.
10. (curricul* adj5 (train* or development)).tw.
11. (inservice adj2 (train* or educat* or development)).tw.
12. (pre?service adj2 (train or educat* or development*)).tw.
13. (PGCE or ITT or SCITT or EBITT or "certificate in education").tw.
14. "train* the trainer*".tw.
15. "provider training".tw.
16. "practice based learning".tw.
17. "professional development".tw.
18. (skill* adj2 (develop* or updat* or train* or gain*)).tw.
19. (implement* adj5 (intervention* or strateg* or program* or initiative* or pilot* or scheme*)).tw.
20. (program* adj2 (deliver* or implement*)).tw.
21. 6 and (7 or 8 or 9 or 10 or 11 or 12 or 14 or 15 or 18 or 19 or 20)
22. ("teach the teacher*" or teaching the teacher*).tw.
23. 3 or 21 or 22
24. Schools/ or (Curriculum/ and school*.tw.)
25. (school* or classroom* or "class room*" or pupil* or student* or adolescen* or teen* or child* or yout* or "young person" or "young people").tw.
26. ("primary education" or "secondary education" or "elementary education" or "educational system*" or "educational setting*").tw.
27. ("key stage 1" or "key stage 2" or "key stage 3" or "key stage 4").tw.
28. (school* and (curriculum* or curricula*)).tw.
29. 24 or 25 or 26 or 27 or 28
30. 23 and 29
31. exp health promotion/ or exp health education/ or exp health behavior/
32. exp risk reduction behavior/
33. exp public health/
34. exp primary prevention/
35. exp preventive health services/
36. exp preventive medicine/
37. attitude to health/ or health knowledge, attitudes, practice/
38. (health adj2 (educat* or information or awareness or issue* or pilot* or program* or promot* or improv* or intervention* or initiative* or empower* or strateg* or prevent* or project* or campaign* or skill*)).tw.
39. ("good health" or "better health" or "healthy life" or "healthy lives" or "healthy lifestyle" or "healthy life style" or "healthy living" or "balanced life*").tw.
40. ((health adj2 child*) or adolesc*).tw.
41. ("healthy child*" or healthy adolesc*).tw.
42. (wellbeing or "well being" or safe*).tw.

43. exp sex education/ or exp sexual behavior/ or exp sexology/ or exp safe sex/ or exp unsafe sex/ or exp sexual abstinence/ or exp sexually transmitted diseases/ or exp sexually transmitted diseases, bacterial/
44. ((prevent* or reduc* or educat* or promot* or increas* or decreas* or facilitat* or barrier* or encourag* or discourag*) adj2 (sex* or HIV or STI or STIs or STD* or chlamydia)).tw.
45. (sexual* transmit* adj3 (infect* or disease*)).tw.
46. (sexual adj2 (health or knowledge or behavio?r*)).tw.
47. "safe* sex".tw.
48. (pregnancy adj2 prevent*).tw.
49. Contraception, Barrier/ or Contraception, Postcoital/ or Contraception/ or Contraception, Immunologic/ or Contraception Behavior/ or Pregnancy in Adolescence/
50. (contraception or contraceptive*).tw.
51. (STI or STIs or STD or STDs).tw.
52. herpes genitalis/ or exp acquired immunodeficiency syndrome/ or exp HIV infection/ or exp gonorrhea/ or exp syphilis/ or chlamydia/
53. condom*.tw.
54. Condoms, Female/ or Condoms/
55. Sexual Abstinence/
56. Coitus/
57. "sexual intercourse".tw.
58. reproductive medicine/
59. puberty.mp.
60. Marijuana Abuse/ or Marijuana Smoking/
61. Substance-Related Disorders/
62. ((prevent* or reduc* or educat* or promot*) adj2 (drug* or smoke or smoking or cigarette* or tobacco or substance* or glue or anti?smoking or alcohol or marijuana)).tw.
63. Smoking/ or Behavior, Addictive/ or Alcoholism/
64. ((drug* or substance* or alcohol or cigarette* or marijuana) adj2 ("use" or misuse or abuse or abusing)).tw.
65. exp Exercise/
66. "Physical Education and Training"/
67. ("physical activit*" or "physical education" or exercise).tw.
68. ((walk* or cycle or cycling or "active commut*") adj3 school).tw.
69. "walking bus".tw.
70. (games adj3 school*).tw.
71. "healthy lifestyle*".tw.
72. (health* adj2 (diet* or food or eat*)).tw.
73. nutriti*.tw.
74. food habits/
75. (obes* or anti?obes*).tw.
76. exp Obesity/
77. exp Eating Disorders/
78. bulimia/ or bulimia nervosa/
79. (bulimia or bulimic).tw.
80. (unhealthy adj2 (diet* or food or eat*)).tw.
81. exp Mental Health/
82. exp Depression/
83. (depression or depressed or sucide or suicidal).tw.
84. Emotions/
85. ("emotional health" or "emotional wellbeing" or "emotional well-being" or "emotional inhibition*").tw.
86. (bereav* or death or grief or grieving or sorrow).tw.
87. ("health and safety" or "road safety").tw.
88. Accident Prevention/

89. (prevent* adj2 (injury or injuries)).tw.
90. exp First Aid/
91. Cardiopulmonary Resuscitation/
92. ("first aid" or CPR).tw.
93. Bullying/
94. (bullying or anti?bullying or cyberbullying or violence).tw.
95. exp Hygiene/ or Oral Hygiene/
96. Handwashing/
97. ("oral health" or "oral hygiene" or dentist*).tw.
98. Adaptation, Psychological/ or Social Adjustment/
99. (skill* adj2 (life or lives or living)).tw.
100. environment/ or social environment/
101. cancer*.tw.
102. unhealthy.tw.
103. (safe* adj2 sun).tw.
104. Skin Neoplasms/
105. ("keeping safe" or citizenship or "youth development").tw.
106. exp cardiovascular diseases/
107. exp heart diseases/
108. child abuse/ or child abuse sexual/
109. ((abuse or abusing) adj2 (physical* or mental*)).tw.
110. child advocacy/ or child welfare/
111. ("self image" or "self respect" or "self confidence" or "self esteem").tw.
112. or/31-111
113. 30 and 112
114. School Health Services/
115. School Nursing/
116. "national child measurement program*".tw.
117. (school* adj2 health*).tw.
118. (PSHE or PSHEE).mp.
119. "whole school".tw.
120. "personal social health".tw.
121. "health promoti* school*".tw.
122. (school* adj2 prevention).tw.
123. or/114-122
124. 23 and 123
125. 113 or 124
126. (editorial or comment or letter).pt.
127. 125 not 126
128. ("medical student*" or "student doctor*" or "student nurs*" or "nurs* student*").tw.
129. 127 not 128