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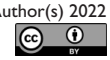
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Whole-school interventions promoting student commitment to school to prevent substance use and violence: Synthesis of theories of change

Ruth Ponsford[a], Jane Falconer[b], GJ Melendez-Torres[c] and Chris Bonell[a]

[a]Department of Public Health, Environments and Society, London School of Hygiene & Tropical Medicine, London, UK
[b]Library and Archives Services, Department of Medical Statistics, London School of Hygiene & Tropical Medicine, London, UK
[c]College of Medicine and Health, South Cloisters, University of Exeter, Exeter, UK

Abstract

Objectives: Whole-school interventions and programmes aim to change school environments to promote health. Previous reviews suggest these are often inappropriately informed by individualistic psychological theories. We undertook a systematic review of whole-school interventions to prevent substance use and violence. This paper reports on a synthesis of theories of change, assessing whether these aligned with, and suggested refinements to, the theory of human functioning and school organisation, a more encompassing, sociological theory. This theory proposes that schools improve health by promoting student commitment, achieved by eroding various 'boundaries' (e.g. between staff and students) and reframing provision based on student needs so that students commit more fully to school 'instructional' (learning) and 'regulatory' (behaviour) orders.

Setting: International.

Design: Systematic review.

Methods: The study involved systematic searches, data extraction and quality assessment. Theories of change were synthesised using a best-fit framework.

Results: Despite only one intervention being explicitly informed by the theory of human functioning and school organisation, the theories of change of most interventions aligned (at least in part) with aspects of this theory. Synthesis suggested various refinements to the theory. First, it suggested specific activities that can modify boundaries and reframing to increase student commitment. Second, it refined the concept of reframing to include building learning on existing student knowledge using a 'constructivist' approach. Third, it suggested future intervention might usefully seek to erode boundaries between the 'instructional' and 'regulatory' orders of the school to create a single 'developmental' order. Finally, it recognised that whole-school interventions might prevent violence and substance use among students in ways other than by building student commitment.

Conclusion: Our refined theory of change provides a firmer basis for interventions. Future work is needed to examine empirical support for the refined theory.

Keywords

Alcohol, substance use, systematic review, theories of change, tobacco, violence, whole-school interventions

Corresponding author:
Chris Bonell, Department of Public Health, Environments and Society, London School of Hygiene & Tropical Medicine, 15-17 Tavistock Place, London WC1H 9SH, UK.
Email: chris.bonell@lshtm.ac.uk

Introduction

Whole-school interventions aim to change schools' organisation and environments to promote health (Bonell et al., 2013a) and are influential, for example, on the World Health Organization's Health Promoting School model. A decade ago, a systematic review of such interventions found that these interventions were only rarely informed by broad-based social theory, instead relying on psychological theories, such as attachment theory or the theory of reasoned action (Bonell et al., 2013b). Such theories focus on changes in individual behaviour or social interactions but not on changes to institutions or environment.

This lack of appropriate theorisation has been flagged as a more general problem whereby public health interventions involving change to organisations or environments tend to be informed by psychological theory (Campbell and Bonell, 2014). This means that some interventions work from inappropriate theories of change and that some mid-range sociological theories (i.e. those aiming to explain specific empirical phenomena (Merton, 1968) as well as structural theory are not being empirically tested via evaluation research.

The theory of human functioning and school organisation is a case in point (Markham and Aveyard, 2003). A previous systematic review of whole-school interventions assessed theories of how schools might influence student health, concluding that this theory provided the most specific and comprehensive sociological theorisation (Figure 1). This theory is supported by some evidence from observational studies as to the school-level factors that are associated with specific health outcomes (Bonell et al., 2013a) but not by evaluations of interventions underpinned by such theory.

The theory of human functioning and school organisation proposes that students are more likely to be healthy if they feel committed to the 'instructional order' (teaching knowledge and skills) and the 'regulatory order' (conduct, and inculcating values and beliefs) of the school. Students thus committed are more able to develop forms of practical reasoning and affiliation, both of which enable healthier decisions and actions. 'Practical reasoning' concerns the ability to imagine, reason and think critically, enabling a person to make choices. Capacity for 'affiliation' involves a concern for other humans and having attachments to others.

Informed by Bernstein's (1975) educational sociology, the theory suggests that schools can promote student commitment by weakening 'classification' between contents. This may be done by weakening boundaries between the school and community (e.g. by enhancing alignment between school and local community culture); between teachers and students, or between students (e.g. by improved relationships and cooperation); or between academic subjects (e.g. by project-based learning). Schools can also increase commitment by weakening the 'framing' of pedagogic discourse by reducing didactic teaching and involving students in managing their own learning. The theory of human functioning and school organisation proposes that, because lack of commitment to school is more likely among socio-economically disadvantaged students, weakening the classification and framing of educational knowledge is most likely to benefit these students.

Since the previous review, there has been a growth in evaluations of whole-school interventions to promote health. We therefore undertook a new systematic review, focusing on whole-school interventions to promote student commitment to school to prevent violence and substance (tobacco, alcohol and other drugs) use. The review aimed not merely to assess the effects of this type of intervention but also to examine the usefulness of the theory of human functioning and school organisation in explaining how these interventions work, given the apparent alignment between this theory and the aims of such interventions but incomplete evidence base for this theory.

In this paper, we report on findings from a recent review of theories of change. We aimed to examine whether the theories of change underpinning recent interventions were informed by the

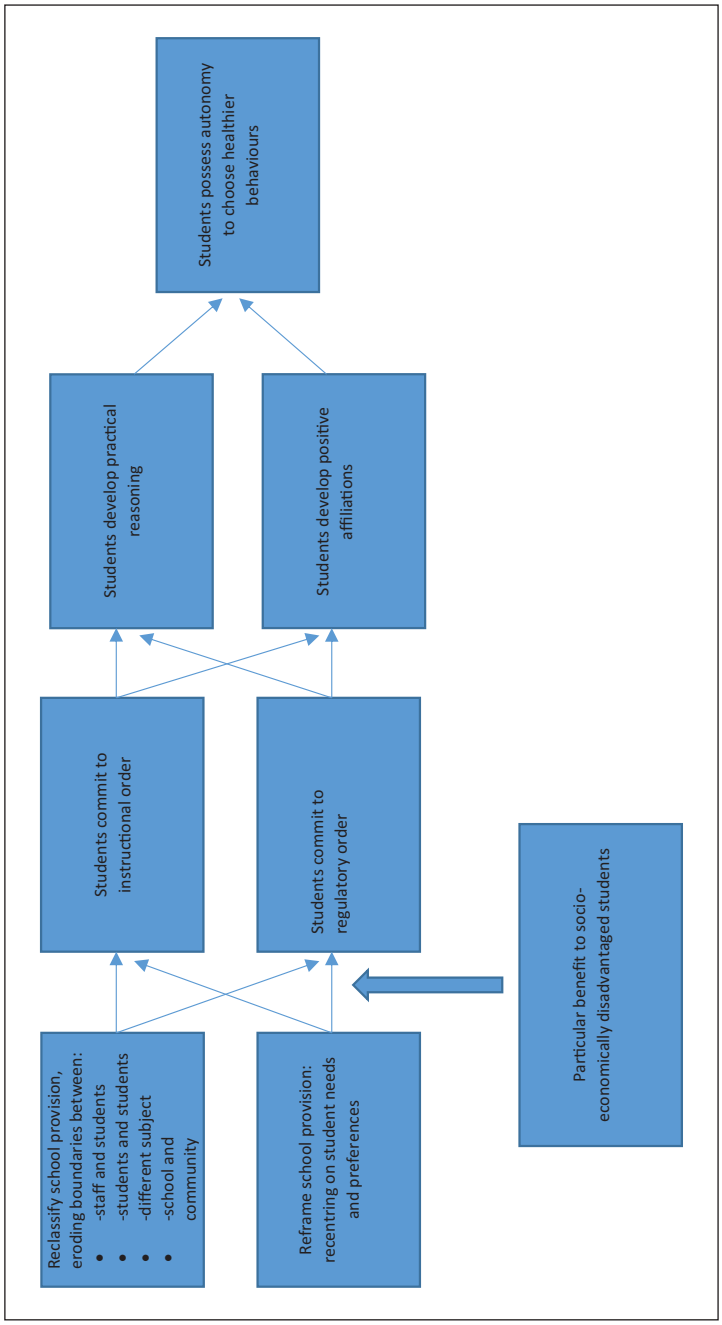

Figure 1. Theory of human functioning and school organisation.

theory of human functioning and school organisation; whether these interventions' theories of change aligned with the theory of human functioning and school organisation; and whether the theories of change might suggest ways in which the theory of human functioning and school organisation might be refined to inform a theory of change for whole-school interventions aiming to prevent violence and substance use via promoting student commitment to school.

This refinement would inform both the testing and the theory against empirical evidence of intervention effectiveness as revealed by our overall review, and improve the extent to which the theory of human functioning and school organisation might be operationalised to inform future whole-school interventions.

Methods

The larger review, of which the present analysis forms one part, was a multi-method systematic review examining theories of change, influences on implementation, and outcomes and cost-effectiveness of whole-school interventions promoting student commitment to school to prevent substance use and violence. The review followed existing guidelines for the conduct and reporting of systematic reviews including those developed by the Centre for Reviews and Dissemination (Centre for Reviews and Dissemination, 2009) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses [PRISMA]. The protocol was registered as follows: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=154334.

Rather than requiring interventions to be informed by theories of change with similar constructs to the theory of human functioning and school organisation (which would have been difficult because of inconsistencies in description and reporting), we defined inclusion in terms of intervention activities that broadly aligned with the theory of human functioning and school organisation. We thus included studies of whole-school interventions aiming to reduce violence or substance use by means of modifying teaching to increase student engagement; enhancing student–staff relationships; revising school policies to involve students and/or go beyond health or behaviour-management policies; encouraging all students to volunteer in the community; or increasing parental involvement in school life. To be included, evaluations were also required to focus on children and young people aged 5–18 years and the prevention of violence and substance (tobacco, alcohol or other drug) use. Our synthesis of theories of change drew on the descriptions of theories of change reported in included process evaluations or experimental or quasi-experimental outcome evaluations.

The search strategy included terms for population, intervention and evaluation design. We initially searched 21 databases, three trial registries and 32 websites in January 2020, and conducted an update of the search in May 2021 across 14 databases, two trial registries and 32 websites. The update was of reduced scope because of limits to access imposed by the COVID-19 pandemic. We also searched reference lists of included studies and contacted a range of subject experts. Citations identified by searches were checked for duplicates and uploaded to EPPI-Reviewer 4.0 software. Two reviewers (C.B. and R.P.) double-screened batches of the same 50 references by title and abstract. Disagreements were resolved by discussion. After reviewers had reached 90%+ agreement, the remaining references were single-screened on title/abstract. Retained references were then reviewed on the basis of the full report via an analogous process.

Two reviewers (C.B. and R.P.) independently extracted descriptions of the theories of change underpinning described interventions. Where reviewers disagreed on the details of data extraction, they met virtually to reach consensus. Descriptions of theories of change were quality-assessed by two independent reviewers (C.B. and R.P.) using a modified version of pre-existing criteria concerning whether the theory(ies) (1) described pathways from intervention to outcome, (2) included clear concepts/constructs, (3) described inter-relations between concepts, (4) explained programme

mechanisms of action, and (5) explained how mechanisms might differ by place/person(Bonell et al., 2016; Meiksin et al., 2021; Tancred et al., 2018). High-quality reports were given greater narrative weight in syntheses.

To bring together the theories of change, we used a form of best-fit framework synthesis (Carroll et al., 2013), an approach used to understand the applicability of an existing conceptual model to a body of literature and which enables refinement through the elaboration and the incorporation of additional concepts from other sources. The method begins by defining a series of a priori themes based on an existing model or theory and then coding data from included studies against these. Where concepts from the included studies cannot be coded with existing codes, they are coded using inductive thematic analysis. This is then used to refine the existing model.

In this synthesis, we reduced the theory of human functioning and school organisation to a set of a priori themes for use in coding (Table 1). Two reviewers undertook a pilot analysis of two reports deemed high quality. The reviewers independently coded these reports using the a priori codes, creating inductive codes where needed (Miles and Huberman, 1994). The same reviewers then compared their coding, developing a refined set of codes before coding the remaining reports. At the end of this process, the two reviewers compared and modified their codes, agreeing on a final framework comprising a priori, modified and new themes.

Then, drawing on concepts from meta-ethnography (Noblit and Hare, 1988), the reviewers synthesised themes. They identified instances of 'reciprocal translation', whereby similar concepts were expressed in the theories of change underpinning other interventions, and 'refutational synthesis', where concepts expressed in the descriptions of intervention theories of change opposed or conflicted with one another. This enabled the development of an overall 'line of argument synthesis'. This outlines a refined theory of change which, although based on the theory of human functioning and school organisation, was elaborating by piecing together multiple insights from our synthesis of intervention theories of change.

Findings

Included reports

The original searches identified 62,742 unique references and 56 reports eligible for inclusion in the review. The updated search retrieved 9,709 unique references and nine eligible reports. Sixty-three reports on 27 studies of 22 interventions were included in the synthesis of theories of change. All provided some description of a theory of change covering the interventions described in the review. Two reports were not analysed further because they replicated descriptive text provided in other reports (Greco et al., 2018; Legood et al., 2021). We summarised the theory of change for each intervention (Table 2) and the results of the quality appraisal for each report (see Supplemental Online File). The theory of human functioning and school organisation was only identified in the theory of change in the Learning Together programme. Others cited other theories that engaged with organisations and context, not merely individuals, such as ecological systems theory, social ecological theory and the theory of triadic influence.

Synthesis of theories of change

Almost all the interventions, other than the Positive Action intervention and the Going Places intervention, had theories of change which could be brought together and aligned with aspects of the theory of human functioning and school organisation.

Table 1. A priori themes and sub-themes derived from the theory of human functioning and school organisation.

Themes and sub-themes (with definitions)			
Building capacity for practical reasoning (to imagine, think and reason, enabling a person to critically perceive reality and view problems and solutions from different perspectives to make proactive choices)			
Building capacity for affiliation (to have concern for other humans, to live for others, to have familial and other interactions and attachments, and to experience mutually satisfying reciprocal interactions and attachments with others, consequently experiencing a sense of belonging and feeling socially supported)			
Addressing the school instructional order (school processes which relay knowledge and skills, and influence pupils' orientations to meaning)			
Addressing the school regulatory order (school processes concerned with the conduct, character and manner of pupils, focusing on the relaying of values and beliefs)			
Building commitment to school (feeling connected to school instructional and regulatory orders, enabling the realisation of capacities for practical reasoning and affiliation)	*Increasing 'commitment' among pupils* (understanding the methods of the instructional order and being able to meet its demands; understanding and sharing the aims and values of the regulatory order; easier for middle-class pupils)	*Promoting the health consequences of commitment* (facilitating the realisation of the capacities for practical reasoning and affiliation, allowing choice of healthy behaviours)	
	Reducing 'alienation' among pupils (not understanding or rejecting the instructional and regulatory orders; hostility to school commonly among working class)	*Preventing the health consequences of alienation* (the lack of shared values will hinder the realisation of the capacity for practical reasoning and affiliation and may force adults to focus on basic needs at the expense of choosing healthier behaviours)	
	Reducing 'detachment' among pupils (can meet demands of the instructional order but do not understand or share the values of the regulatory order of the school among middle-or working-class pupils)	*Preventing the health consequences of detachment* (the lack of shared values will hinder the realisation of the capacity for affiliation, which may hinder their ability to develop social support)	
	Reducing 'estrangement' between pupils (cannot meet instructional order's demands but share the values of the regulatory order commonly among middle-class pupils)	*Preventing the health consequences of estrangement* (challenges capacity for affiliation and practical reasoning and choice of healthy behaviours)	
Addressing factors affecting how students relate to the school instructional and regulatory order	*Acknowledging or targeting student influences on relation to school orders* (family and sociocultural origins of the pupil, the pupil's friendship groups, the pupil's perceived or expected future occupation, the pupil's hopes and interests, and the pupil's view of the purpose of the institution)		
	Modifying school classification (the boundaries between the school and the outside world, and the boundaries within the school between teachers and pupils, between pupils and between subjects)	*Ensuring the consequences of weakening classification* (promoting commitment among more pupils)	*Weakening boundaries between schools and the outside world* (through acknowledging and addressing local cultures, facilitating greater alignment between school culture and community/family culture
			Weakening boundaries between teachers and pupils (through cooperation which will promote greater insights of both pupils and staff into each other's realities, facilitating the realisation of the capacity for practical reasoning and affiliation for more students)
			Weakening boundaries between students (through cooperation which will facilitate the capacity for practical reasoning and affiliation)
			Weakening boundaries between subjects (through cross-subject learning which will facilitate the development of the capacity for practical reasoning)
	Modifying school framing (reducing teaching that is primarily didactic and teacher-led, and increasing pupil input to the management of her or his own learning)	*Ensuring the consequences of weakened framing* (promoting commitment among more pupils to facilitate the realisation of the capacity for practical reasoning and affiliation)	

Table 2. Theory of change – intervention descriptions.

Intervention	Summary of theory of change	Summary of contextual contingencies	Existing theory(ies) drawn from
Aban Aya Youth Project School/Community Intervention (Flay et al., 2004; Jagers et al., 2009)	The curriculum aimed to teach cognitive-behavioural skills to build self-esteem and empathy, manage stress and anxiety, develop interpersonal relationships, resist peer pressure, and develop decision-making, problem-solving, conflict resolution, self-efficacy and goal-setting skills, and application of these skills to resist peer pressure and negotiate interpersonal relationships to avoid violence, provocative behaviour, school delinquency, drug use and unsafe sexual behaviours. The interventions aimed to promote unity, self-determination and responsibility using culturally based teaching methods. The homework assignments involve parents to encourage parent–child communication and reinforcement of skills learnt and to expand the target of the intervention to parents. The climate element aimed to generalise learnt skills into the broader school environment, while the community element aimed to develop linkages among parents, schools and local businesses. The school climate and community components aimed to 'rebuild the village' and create a 'sense of ownership' by all stakeholders	The intervention theory of change was intended to align with African American cultural values of unity, self-determination and collective responsibility and so be particularly effective for this population	The theory of triadic influence
Child Development Project (Battistich et al., 1996, 2000, 2004; Solomon et al., 2000)	The intervention aimed to build a caring school environment by building stable, warm and supportive relationships; an explicit shared commitment to values of caring, justice, responsibility and learning; ensuring student autonomy, influence and self-direction; using collaborative learning and shared decision-making; providing an accessible, relevant and engaging curriculum; and using a 'constructivist approach' to teaching and learning. This provides: attention to social, ethical and intellectual learning; teaching for understanding (connecting to existing student knowledge via exploration and problem-solving); meaningful, challenging, learner-centred curriculum in which students experience success academically and socially; and fostering intrinsic motivation and cooperative learning. These are achieved through pedagogical strategies and curriculum materials. In addition, home activities aim to promote communication and understanding between child and parent. Through these elements, the intervention was theorised to facilitate students' academic, intellectual and socio-moral development, including knowledge of subject matter, conceptual understanding, reasoning and thinking skills, social competencies and interpersonal understanding, as well as to satisfy students' basic psychological needs for autonomy, competence and belonging to a social group whose members are mutually supportive and concerned. Satisfaction of students' basic needs was theorised to increase their attachment or bonding to the school community, which in turn promotes commitment to and internalisation of the community's salient norms and values, and behaviour consistent with them, and therefore reduced involvement in drug use and other behaviours	Constructivist learning, connecting new to existing knowledge, and learner-centred teaching are both theorised to be particularly appropriate to diverse student groups	Attachment theory
Cooperative Learning (Van Ryzin and Roseth, 2018a, 2018a, 2019a, 2019b)	Cooperative Learning uses group-based peer learning activities that encourage interpersonal contact and mutual support between diverse groups of students. The approach is underpinned by the principles of *positive interdependence* where individual goals are aligned with the goals of the group such that individual success can only be realised via group success. Under positive interdependence, peers come to promote the success of one and other through mutual assistance and support and the sharing of information and resources. Mutual disclosure to assist in discovering areas of commonality is encouraged and teachers are expected to discourage any hints of ingroup or outgroup bias or prejudice and reinforce positive, helpful behaviour. Interaction in such collaborative, group/peer-based learning activities is theorised to lead to the reduction of competition, bias, prejudices and exclusion among students. These processes are theorised to promote improvements in social integration and interpersonal relationships leading to enhanced empathy among peers, thus preventing bullying behaviour. The positive feelings that arise from collaborative and supportive interactions to achieve goals also result in a 'benign spiral' that further increases positive social interactions and enhances peer relations. Bringing a broad cross-section of students together in these group-based peer learning activities also provides opportunities to breakdown the process of homophily among bullies and for socially marginalised at-risk youth to develop relationships and socially integrate with more pro-social peers, thus also interrupting the process of deviant peer clustering and reducing bullying behaviour and substance use	Theorised to be particularly effective for more marginalised youth at risk of substance use	Contact theory

(Continued)

Table 2. (Continued)

Intervention	Summary of theory of change	Summary of contextual contingencies	Existing theory(ies) drawn from
Cyber-Friendly Schools (Cross et al., 2016, 2018a)	The intervention emphasised raising awareness among students, parents and educators of the harms associated with the misuse of technology, providing strategies to minimise this harm and delivering opportunities for students to experience, learn and benefit from new communications technology. The intervention aimed to reduce cyberbullying by fostering positive behaviour in adolescents using a harm-minimisation approach, recognising that being online is a ubiquitous phenomenon in adolescents, focusing on educating young people about the potential risks and thereby reducing the potential hazards associated with such technology. The intervention enabled staff to implement strategies relating to their school's organisational context to build a consistent understanding of cyberbullying, with strategies to develop: students' social relationships and peer support; policy and its implementation involving the school community; school ethos; student social and emotional development; positive behaviour management with fewer punitive solutions; and more school–home–community links. Classroom teaching aimed to enhance online social skills, with strong emphasis on positive communication, resilience, self-management, conflict resolution and social responsibility. The intervention addressed student-level mediators such as involvement in offline bullying perpetration, empathic responsiveness, moral disengagement, attitudes, normative beliefs, attachment to school and friends, peer support, emotional regulation, social competence and perceived efficacy to deal with cyberbullying. It also addressed school organisational factors, school ethos and social climate, policy and practice, as well as parent–child–staff relationships and parental monitoring and responses to cyberbullying	–	Ecological systems theory
DASI intervention (Kyriakides et al., 2013, 2014)	The whole-school aimed to reduce bullying by developing a school policy for teaching, building a safe and positive school learning environment and developing school self-evaluation. These are theorised to improve learning outcomes and reduce bullying. School policy may encourage teachers to be visible and vigilant in common areas. Increased monitoring of student behaviour during recesses and before the beginning of lessons can help school stakeholders to identify and intervene when bullying occurs. Including staff, students and parents in the creation and implementation of anti-bullying policies, the school management team may receive valuable input from all those directly affected, and the active involvement of these stakeholders in defining the policy and the strategies and action plans to face bullying may encourage their active participation in implementing these action plans for improvement purposes. Improving the school learning environment may impact the development of positive and desirable behaviour, which can be characterised as respectful, reliable and responsible, which are negatively associated with bullying. Rewarding good behaviour inside and outside the classroom can improve the school's social environment by emphasising maintenance of the behaviour code and the promotion of positive behaviours outside the classroom, thus reducing bullying. Classroom teaching may involve teachers introducing relevant cognitive and affective aims targeted at reducing bullying. Effective schools develop evaluation mechanisms to investigate whether their strategies and actions for reducing bullying are effective	–	–
DARE Plus programme (Bosma et al., 2005; Komro et al., 2004; Perry et al., 2003)	Violence-specific goals of the DARE Plus intervention included decreasing intentions to be violent, providing positive role models to create and support school and community violence-free norms, supporting reasons for being violence-free (outcome expectancies) and negative outcome expectations related to violence, developing a safe and supportive home environment for young adolescents by increasing family rules and communication about violence, and increasing social skills such as communication and decision-making. The community-organising element aimed to develop and implement community-determined strategies to address environmental conditions that impact students' access and exposure to alcohol, tobacco, marijuana and violence. The youth-organising component aimed to plan and implement drug- and violence-free extracurricular activities. These organising elements aimed to develop empowerment and ownership of the intervention within communities	–	Theory of triadic influence and Perry's conceptual model of adolescent health promotion

(Continued)

Table 2. (Continued)

Intervention	Summary of theory of change	Summary of contextual contingencies	Existing theory(ies) drawn from
Friendly Schools (Cross et al., 2011; Rapee et al., 2020)	The intervention is theorised to modify student attitudes (ensuring that these are pro-victim and anti-bully with a negative outcome expectancy of bullying), perceptions of social support, knowledge of bullying, and school connectedness and adjustment. In turn, these are theorised to reduce experienced and observed bullying behaviours and improve psychological health. The intervention aims to do this by taking a multi-component, systems-based approach, involving the development of the whole-school strategies addressing the school's social climate, group mechanisms of bullying, normative social influence, social support, empathy and outcome expectancies. Home activities aimed to reinforce and practise classroom learning and raise parents' awareness, utility knowledge, skills and self-efficacy to talk with their children about bullying, and help their children prevent and manage bullying. Parent involvement was also encouraged via review and dissemination of the school bullying policy. Classroom learning activities aimed to build pro-social skills and build empathy for individuals being bullied. They also aimed to enhance students' understanding of what constitutes bullying and how to respond to bullying, and why bullying is an unacceptable behaviour. The activities also targeted students' ability to talk about bullying with each other and adults; how to respond adaptively to bullying, including reporting bullying; seeking support; and responding assertively	–	Social cognitive theory; ecological theory; and social control theory
Friendly Schools and Cool Kids Taking Control (Rapee et al., 2020)	This intervention combined Friendly Schools described above with Cool Kids Taking Control, which was designed for children experiencing victimisation and anxiety. Cool Kids Taking Control aimed to teach social and emotional skills that would reduce the likelihood that potential victims will be targeted by bullies and improve their mechanisms for coping with victimisation. As a combined intervention, it aims to address both external (e.g. school normative environment) and internal (e.g. social isolation) risk factors for bullying.		Social cognitive theory; ecological theory; and social control theory
Friendly Schools, Friendly Families (Cross et al., 2012, 2018b)	The intervention used a whole-school, systems-based approach addressing ecological, cognitive and psychosocial risk and protective factors potentially amenable to change to reduce bullying. The whole-school level activities aimed to: build a positive social climate, positive relations and connectedness between students, school staff and parents; provide effective policies and common understanding and practices to prevent and effectively manage and reduce current bullying; and build school capacity support for implementation through assessment of organisational structures, resources, skills and commitment levels. These outcomes were addressed using detailed whole-school support materials and assessment tools and staff training that suggested modifications to the school's social, organisational and physical environment (e.g. enhancing supervision levels) and through the involvement of students' families. School-level mediators are theorised to be school leadership, school policy and associated practices, school capacity to implement strategies to reduce bullying, physical environment, social environment, staff management of incidents and school contact with parents. Classroom activities aimed to complement students' other social and emotional learning. The learning activities addressed empathy and social skill building. The activities helped teachers to enhance the positive interactions they have with students. Student -level mediators are theorised to be understanding about bullying, attitudes to bullying, self-efficacy to deal with bullying, social competence, peer support, reciprocated friendships, social norms, and normative expectations and connectedness to school. Classroom-level mediators are theorised to be behaviour management, interactive group-based teaching methods, and teaching and learning content about bullying. Family-level activities worked in partnership with parents by building their awareness, attitudes and self-efficacy to role-model and help their children to develop social competence and to prevent or respond to bullying. These activities also encouraged school and parent communication and parents' engagement with the school to reduce student bullying	–	–

(Continued)

Table 2. (Continued)

Intervention	Summary of theory of change	Summary of contextual contingencies	Existing theory(ies) drawn from
Friendly Schools Transition Programme (Cross et al., 2018c)	The intervention aimed to build student capacity to advocate for themselves and others, cope with bullying, regulate their emotions, react assertively rather than aggressively to bullying and seek help and provide support to others. The whole-school component aimed to help schools to enhance students' social relationships and peer support, review bullying-related policies and procedures and their implementation (involving the school community), enhance their school culture and physical environment, provide positive behaviour-management strategies and less punitive-based responses to bullying and strengthen school–home–community links. The parent component aimed to provide parenting tips to build children's social competence and minimise harm from bullying, to help parents understand their children's new secondary school, to prepare their children for these changes and to help them to maintain friendships and make new friends	–	Ecological systems theory; attachment theory; problem behaviour theory; and social cognitive theory
Gatehouse Project (Bond et al., 2001, 2004a, 2004b; Patton et al., 2006)	The intervention aimed to promote change in the social and learning environments of the school to promote a sense of social inclusion and connection as well as promoting change at an individual level to build students' sense of attachment, security and trust; increase student skills and opportunities for good communication; and build students' sense of positive regard through valued participation in aspects of school life. The conceptual framework of the project emphasises the importance of healthy attachments or a sense of positive connection with teachers and peers. The strategy seeks to make changes in the schools' social and learning environments, to introduce important skills through the curriculum and to strengthen the structures within the school that promote links between the school and its community. The individual component focused on cognitive and interpersonal skills underlying emotional well-being relevant to normal developmental experiences of teenagers, such as dealing with common challenges and stressors	–	Attachment theory
Going Places Programme (Simons-Morton et al., 2005a, 2005b)	The programme sought to provide positive and reciprocal person-environment influences during the adolescent transition. The focus of the curriculum was problem-solving, self-control, communication, and conflict resolution skills. It aimed to influence perceptions, attitudes and expectations about substance use and anti-social behaviour, and improve self-efficacy and social skills and competence. Adolescents with well-developed social skills may be better able to select friends, negotiate difficult social situations, balance social demands with social responsibilities and maintain control over their behaviour. The school environment component aimed to improve school climate, establish realistic, prosocial norms, establish a positive image for the school, reinforce student achievement and extend curriculum concepts to the larger school environment. The parent component aimed to increase parental monitoring, involvement and expectations regarding academic engagement and problem behaviour	–	Social cognitive theory and problem behaviour theory
Good School Toolkit (Devries et al., 2015, 2017; Knight et al., 2018)	The intervention took a whole-school approach to violence prevention, aiming to change culture at the school level to promote respect, participation and reflection on concepts and exercise of power. The intervention encouraged staff and students to develop empathy by facilitating reflection on experiences of violence, provided staff with new knowledge on alternative non-violent discipline and improved teaching techniques and provided opportunities to staff and students to practise new behavioural skills. Social support for behavioural change occurred through the intervention engaging multiple groups within a school to change ideas and attitudes	–	Trans-theoretical model of behavioural change
Healthy School Ethos (Bonell et al., 2010a, 2010b)	The intervention aimed to increase student and parent engagement and pride in school to reduce the number of disengaged students who use substances as alternative status markers. The intervention aimed to render schools safer to reduce the number of students using substances to facilitate protective friendships with substance-using peers. The intervention aimed to ensure schools promote student communication and self-regard and provide more support to students to reduce the number of students who use substances to self-medicate for anxiety	The theory of change implies the intervention mechanisms will particularly benefit schools where more students report disengagement, lack of safety and anxiety	-

(Continued)

Table 2. (Continued)

Intervention	Summary of theory of change	Summary of contextual contingencies	Existing theory(ies) drawn from
Learning Together/ INCLUSIVE (Bonell et al., 2015, 2018, 2019a, 2019b, 2020; Fletcher et al., 2015; Warren et al., 2019)	These intervention components were theorised to work synergistically to: distribute decision-making authority across the school; strengthen communication and trusting, empathetic and warm relationships between and among staff and students; reorient learning and teaching, discipline, social support and management, and organisation to centre on student needs and provide life skills (and for discipline to focus on opportunities for learning through restorative practices); and integrate students' academic learning and broader development including social and emotional learning. These were theorised to transform the whole-school climate and improve staff–student relationships, student engagement with the instructional order and regulatory order, and reduce engagement with anti-school peer groups. Along with improved social and emotional skills, these would enable young people to choose healthier behaviours by promoting their autonomy, motivation and reasoning ability	The mechanisms will generate more impact among students of low socio-economic status or engagement with schools who are less likely to engage with school as a default	Theory of human functioning and school organisation
Portland Peers Project (Mitchell, 1991)	The intervention aimed to build: positive peer influence, peer helper and communication strategies; cross-age teaching activities on drug-specific and other topics; and increased parent involvement. Peer management involving mediation, conflict management and social skills tutoring is expected to have a positive influence on social behaviour. Cross-age tutoring is expected to have a positive influence on academic engagement. Intervention activities aim to promote student empowerment through involvement in meaningful activities, acquisition of information and skills, and recognition of student responsibilities. By utilising multiple peer influences, communication strategies and cross-age peer teaching, the project addressed a number of mediators of substance abuse such as academic failure, lack of bonding to school, alienation, impaired confidence and self-esteem	–	–
Positive Action (Bavarian et al., 2013; Beets et al., 2008, 2009; Flay and Allred, 2003; Flay et al., 2001; Lewis et al., 2012, 2013, 2016; Li et al., 2011; Malloy et al., 2015; O'Hare et al., 2018; Snyder et al., 2010, 2013)	The intervention encourages youth to engage in prosocial behaviours, to think in a positive manner and to appreciate themselves for their positive actions. Youth who have high self-esteem are theorised to continue behaving in a positive and prosocial manner and to refrain from engaging in negative behaviours. The curriculum was designed to first introduce the overarching goal of positive self-appraisal and then increase specific skills needed to achieve this goal. The intervention also addresses more upstream influences on behaviour with a holistic approach to school reorganisation, teacher–student relations, parent involvement, instructional practices and development of the self-concept of students, teachers and parents	–	Social ecological theory; theory of self-concept; theory of triadic influence; self-esteem enhancement theory; social learning theory
Project PATHE ('Positive Action Through Holistic Education') (Gottfredson, 1986)	The intervention targeted several aspects of the school environment, attempting to ameliorate academic and social deficits of delinquency-prone students and to alter environmental cues, rewards and punishments, and structural arrangements in the school in ways intended to make undesired behaviour less likely to occur. The intervention aimed to develop student involvement in constructive learning activities and provide consistent rewards for successful participation. It sought to create a climate of mutual respect and cooperation and a sense of belonging among teachers, administrators and students; to increase effective communication; to increase student and faculty involvement in planning for and implementing school change efforts; to increase the clarity, fairness and consistency of school rule enforcement; and to increase teachers' classroom management skills. The programme sought to reduce school disorder by: decreasing academic failure experiences among students in the participating schools; increasing social bonding, including attachment to the people in the school and caring about what others think about oneself; increasing involvement in conventional activities and commitment of time and energy to the enterprise of schooling; and improving students' self-concepts. It was theorised that this would foster attachment to and sense of belonging in school and pro-social peers, increasing social competence and sense of usefulness, and giving students something to lose if they misbehave. This is theorised to restrain youth from engaging in delinquent activities and increase academic achievement	Mechanism works particularly for delinquency-prone students.	Social development model and social control theory

(Continued)

Table 2. (Continued)

Intervention	Summary of theory of change	Summary of contextual contingencies	Existing theory(ies) drawn from
Responsive Classroom (Anyon et al., 2016)	The intervention aimed to manage student problem behaviours using student-centred strategies. Morning Meetings aim to build a sense of community and academic skills. Modifying teacher language aimed to reinforce positive behaviours. Teachers used questions and modelling to reinforce behavioural norms. Discipline was reoriented from punitive to restorative approaches focused on reflecting on harms and reparations	–	–
Restorative Practices Intervention (Acosta et al., 2019)	The intervention is theorised to work through three psychological mechanisms: maximising positive affect through proactive practices; minimising negative affect by providing responsive practices that ensure that offenders can take public responsibility for their behaviour and reintegrate into normal community life; and encouraging expression of emotion through practices such as affective statements. The intervention primarily focuses on the peer and school systems. At the student level, it helps to build relationships with peers and teachers and for students to have a more active voice in responding to specific school incidents. The intervention is theorised to sustain relationships with adults by creating positive and sustained adult–youth relationships through teacher–student dialogue. At the school level, when students have positive interactions with their peers, this improves their peer relationships and can lead to more active participation in school, which in turn promotes the positive environment of their school. These changes in the peer and school environments can have a reciprocal positive influence on student development. This results in continually reinforcing and reciprocal positive individual, peer and school cultures that effectively regulate and consistently build and repair social bonds, connectedness and relationships. These are key mechanisms to prevent high-risk and harmful behaviours	–	Ecological systems theory and psychology of affect theory
Strengthening Evidence base on scHool-based intErventions for pRomoting adolescent health (SEHER) programme (Singla et al., 2021; Shinde et al., 2018, 2020)	The intervention aims to build a positive school climate. The school climate is theorised to comprise student perceptions or experiences of the school's social environment, which encompasses safety, teaching and learning and relationships. Relationships refer to the quality of interactions within a school (between teachers, students and administrators) and includes sense of school connectedness, participation and belonging, respect for diversity and partnership with other members of the community. The intervention addresses the following areas to achieve this: promoting social skills among adolescents; engaging adolescents, teachers and parents in school-level decision-making processes; providing access to factual knowledge about health and risk behaviours to the school community; and enhancing problem-solving skills among adolescents. The intervention strategies were organised at three levels: whole school, group, and individual levels	–	–
Whole-of- school intervention (Hodder et al., 2017, 2018)	The intervention involved strategies across the domains of: school ethos and environment (e.g. rewards and recognition, peer support, empowerment/leadership programmes); curriculum, teaching and learning; and community partnerships and services (e.g. engagement with community organisations and services, increased parental information and involvement). Strategies addressed individual factors (e.g. cooperation/communication, empathy) or school environmental factors (school support, school meaningful participation) or community factors (community support, community meaningful participation, home support, home meaningful participation) and factors in multiple domains (peer caring relationships, prosocial peers). Addressing such factors was theorised to reduce adolescent substance use and increase resilience	–	–

We identified various recurrent themes across theories of change which aligned with, and in some cases augmented or refined, the *a priori* themes. In the narrative below, we present our themes ordered by different elements of intervention and the mechanisms these were claimed to generate, and emphasising new or refined themes.

Inductive coding suggested a number of refinements to our a priori theory, which are discussed later.

Reframing school organisation and management

The reframing of school organisation and management so as to involve students, parents and/or other members of the community more fully in decision-making emerged as an overarching theme across many theories of change. Several interventions had surveyed or consulted with students to identify priorities for action. In some cases, students participated directly in groups with staff to make decisions. Such approaches were theorised as making school policies and provision more student-centred, supporting the implementation of intervention activities and strengthening relationships between or among staff and students. This aligned with our a priori theme of eroding boundaries among and between these groups. The high-quality description of the theory of change for the Strengthening Evidence base on School-based interventions for Promoting Adolescent Health Programme (SEHER) intervention, which included such groups, described the process thus (Shinde et al., 2018):

> The intervention's conceptual framework . . . emphasises the importance of a positive school climate – i.e., supportive relationships between school community members, a sense of belonging to the school, a participative school environment, and student commitment to academic values . . . The community aspect of school climate refers to the quality of relationships within a school (i.e., relationships between teachers, students, and administrators) and includes sense of school connectedness, respect for diversity, and partnership with other members of the community. (p. 2469)

Interventions that recruited parents or community members into the groups leading implementation described efforts to involve the wider school community in organisational management. This closely aligned with our a priori theme of weakening classification by eroding boundaries between the school and parents and/or community members. Such a process was exemplified in a high-quality description of the theory of change for the Aban Aya Youth Project School/Community intervention (Flay et al., 2004):

> The community program forged linkages among parents, schools, and local businesses. Each . . . school formed a local school task-force consisting of school personnel, students, parents, community advocates, and project staff to implement the program components [. . .] propose changes in school policy, develop other school-community liaisons supportive of school-based efforts, and solicit community organisations to conduct activities to support the [group's] efforts. A goal of these linkages was to 'rebuild the village'. (p. 3)

Reframing the instructional order

Interventions that included this approach commonly included changes to teaching to increase student engagement in learning. Theories of change differed as to whether this was limited to ensuring the quality or cultural inclusivity of teaching methods, or more radically reframing learning to provide students with a more active role. Below we consider these different approaches and how

they aligned with our a priori theme of reframing the instructional order to weaken boundaries within and beyond the school.

Some theories of change described enhancing the cultural inclusivity of teaching, describing this as a means of re-centring provision on the needs of students. The evaluation of the Aban Aya intervention (Flay et al., 2004) explained the following:

> Studies suggest that programs for African American youth should incorporate components that . . . enhance growth of sense of self and cultural pride and. . . strengthen family and community ties. Hence, the interventions included the Nguzo Saba principles . . . which promote African American cultural values such as unity, self-determination, and responsibility; culturally based teaching methods . . . (e.g., storytelling and proverbs) and African and African American history and literature. (p. 3)

Some interventions aimed to improve pedagogic practices across a school, for example, by organising teachers into teams to share and support good practice. This reciprocally translated with our a priori theme of eroding boundaries between teachers who previously worked independently. The high-quality theory of change for the Dynamic Approach to School Improvement (DASI) intervention described the process as follows (Kyriakides et al., 2014):

> . . . teachers interact on issues associated with learning and teaching in order to create a business-like school and classroom environment. . . Interaction and collaboration among teachers can only be beneficial, and could boost [school learning environment] quality. . . the school management team may encourage their teaching staff to learn from each other by exchanging ideas and experiences on facing and reducing bullying. (p. 4)

In one intervention (Gottfredson, 1986), providing careers information and teaching job-seeking skills were seen as introducing students to the world of work and reframing education so as to be more meaningful to students. These processes also reciprocally translated with our a priori theme of weakening boundaries between schools and local communities. This process was described by a medium-quality account of the theory of change for the Positive Action Through Holistic Education intervention (Gottfredson, 1986) as follows.

> The Career Exploration Programs, cosponsored by the program and a local technical college, provided high school students opportunities to participate in activities designed to introduce them to technical careers such as engineering, computer science, and industrial technology. (p. 711)

Turning to the more radical reframings of the instructional order, the authors of one account referred to the value of ‘constructivist’ approaches to learning, whereby new knowledge was co-produced with students, in ways informed by existing knowledge and ideas. The medium-quality description of the theory of change for the Child Development Project (CDP) (Battistich et al., 2000) stated,

> Learning is inherently an active process in which students interpret new information in light of previous understandings and experiences, work through discrepancies, and construct new understandings . . . CDP’s instructional practices are consistent with this ‘constructivist’ approach to learning . . . (p. 4)

Various forms of cooperative learning reoriented learning methods from individualistic tasks, assessments and rewards towards learning undertaken collaboratively by groups of students. In the Cooperative Learning intervention, this involved a commitment to principles of positive interdependence, whereby individual goals are aligned with those of the group so that individual success can only be achieved via group success (Van Ryzin and Roseth, 2019a).

Activities such as these aimed to erode boundaries between students and boundaries between academic education and students' broader social and emotional development. As described for the CDP (Battistich et al., 2000),

> The specific learning goals or challenges and the particular social skills and behaviors required for successful collaboration are introduced and discussed with students at the beginning of each activity, and students reflect on and discuss their group interaction at the conclusion of the task. Thus, in addition to being an effective approach to learning, the cooperative activities also help students to build interpersonal bonds and develop social and ethical understanding and skills. (p. 6)

By bringing diverse groups of students together, such approaches were theorised as likely to foster insight and understanding of others' perspectives; encourage positive relationships across a broad cross-section of peers; and erode boundaries between school and diverse local cultures, and between students.

Some interventions, such as the Portland Peers Project (Mitchell, 1991), also included peer tutoring or mentoring, in an effort to erode boundaries between students but also boundaries of status between teachers and students. Other interventions engaged parents in homework, as part of an effort to develop parents' role in educating their children in support of the school (in effect eroding boundaries between the role of teachers and that of parents) or to draw on diverse family cultures so as to reframe learning (eroding school/home boundaries). As described for the CDP (Battistich et al., 2000), such activities

> . . . are designed to promote extended conversations and communication between students and their parents, connect the home to students' experiences in school, and help students gain knowledge and understanding of their family's beliefs, experiences, culture and heritage. (p. 7)

The approaches to reframing the instructional order outlined above were theorised as likely to engender school commitment, as well as promote attributes reciprocally translated with by the concepts of practical reasoning and affiliation. Several theories of change suggested such changes may be of particular benefit to students from diverse or marginalised cultural communities or students who are disengaged from learning (Battistich et al., 1996).

Reframing the regulatory order

Theories of change also engaged with the concept of a school regulatory order and its reframing to engender greater student commitment. The concept of a regulatory order was apparent, for example, in the theory of change for the CDP (Battistich et al., 2000):

> Although often not explicitly recognised, schooling conveys important *moral* messages about how we should live our lives and how we should live together as people. . . The CDP program makes this 'hidden curriculum' . . . overt and supportive. (p. 4)

Theories of change differed as to whether this reframing of the regulatory order was limited to improvements in, or a radical reframing of, disciplinary practices. The former might involve, for example, enhanced classroom management, increased staff visibility at break-times, consistent enforcement of rules and/or the use of non-violent punishment, and actions to address students' need for a safe and orderly environment. More radical reframing could provide students with a more active role in school life via strategies such as re-writing school rules; the use of

learning-based discipline or restorative practice (whereby teachers held meetings between the party to conflict to identify harm, consider reparation and restore relationships); or teaching students social and emotional skills.

Radical reframing of the regulatory order was theorised to achieve its impacts via mechanisms aligned with our *a priori* theme of eroding boundaries within the school. Several theories of change suggested that students' contribution to re-writing school rules or discipline policies worked to erode boundaries between staff and students as well as between students, and would increase overall student commitment to the reframed regulatory order. For example, the DASI intervention described the process thus (Kyriakides et al., 2014):

> The active involvement of teachers, students, and parents in defining the school policy on bullying and the strategies and action plans to face bullying may encourage their active participation in implementing these action plans for improvement purposes, since school stakeholders are very likely to adopt a more positive attitude toward improvement projects when they are involved in developing the interventions. (p. 4)

Through such actions, students become not merely the subjects of the regulatory order but its co-creators in ways aligned with students' own values and cultures. This approach reciprocally translated with our concept of eroding boundaries between schools and local community cultures. There was also a suggestion that it might particularly benefit what were termed 'delinquent' students (Gottfredson, 1986).

Other theories of change suggested an even more fundamental reframing of policy and practice to erode the boundary between the regulatory and instructional orders so that discipline becomes a focus of teaching and conflict becomes an opportunity for learning. Such theories informed programmes that aimed to promote positive behaviour via approaches such as 'learning-based discipline', 'restorative practice' or teaching 'social and emotional skills' which saw discipline as a learning rather than a controlling activity. As described for the CDP (Battistich et al., 1996),

> . . .. developmental discipline emphasises a proactive 'teaching' approach to discipline rather than a coercive approach. (p. 18)

Similarly, social and emotional learning curricula, such as those within the Friendly Schools, Friendly Families (FSFF) intervention (Cross et al., 2012), aimed to teach students how to build relationships with peers, practise self-management skills to maintain engagement in academic learning and make healthy decisions, for example, about violence and substance use.

Restorative practice interventions such as the Learning Together and Restorative Practice interventions focused on building strong relationships between staff and students and among students to prevent misbehaviour and repair relationships after conflict. As explained in the high-quality description of the Restorative Practices intervention's theory of change (Acosta et al., 2019),

> restorative practices (e.g., circles, conferences) help to proactively build relationships with their peer and teachers and to have a more active voice in responding to specific school incidents. When students have positive interactions with their peers, this improves their peer relationships and can lead to more active participation in school, which in turn promotes the positive environment of their school. (p. 878)

Such approaches aim to erode boundaries between school members and between schools' regulatory and instructional orders. They aim to prevent violence and other risk behaviours by ensuring that perpetrators do not become disconnected from the school community. As was reported for the Restorative Practices intervention (Acosta et al., 2019),

> responsive practices . . . ensure that offenders can take public responsibility for their behavior and reintegrate into normal community life. (p. 878)

Other theories also suggested the value of eroding boundaries between the instructional and regulatory orders by transforming teachers' relationships with students from being merely instrumental towards being affective, rooting learning in caring relationships. As described for the CDP (Battistich et al., 1996), for example,

> Teachers and administrators are encouraged to build warm, nurturing relationships with their students, and encourage students to develop warm, supportive, inclusive relationships with each other. (pp. 14–16)

Some interventions sought to involve parents in discipline by encouraging them to more closely monitor students' behaviour. The aims of such work reciprocally translated with our a priori themes of eroding boundaries between the teacher and the community. As illustrated in the description of the FSFF programme's theory of change (Cross et al., 2018b),

> The intervention was designed to systematically target parenting factors. . . identified as being protective of bullying behavior (and other problem behaviors) including parent modeling, parenting style, parent bullying attitudes and beliefs, normative standards about bullying, family management techniques, connectedness and cohesion, and–particularly–parent–child communication about bullying . . . These activities also aimed to encourage school and parent communication, and parents' engagement with the school to reduce student bullying. (p. 5)

Reframing relationships with the community

The involvement of parents and community members in school decision-making is described above as a means of reframing organisational management and eroding boundaries between schools and the world beyond. Several projects also aimed to build relationships between schools and local communities through community and voluntary work: by students volunteering in the community, by community members volunteering in schools or by schools building alliances with community organisations. All these reciprocally translated to our prior concept of school-community boundary erosion.

For example, the Aban Aya intervention sought to build relationships between schools and local businesses and community groups so that these might provide funding for school activities, or advice and support to students (Flay et al., 2004).

Engendering positive development and student commitment to reduce risk-taking behaviours

A recurring theme across theories of change was that the processes described were theorised not only as likely to reduce risk behaviours but also as helping build students' positive development:

> CDP's emphasis is on the promotion of positive development . . . [to] promote children's positive social, ethical, emotional, and intellectual development. (Battistich et al., 2000: 76–77)

Some interventions sought to achieve this by engendering student commitment to school. Different theories used different terminology to describe what was involved. Some of the key concepts used were school attachment, bonding, school adjustment, inclusion, and engagement and connection.

An example of refutational synthesis occurred when some theories of change viewed student commitment as reflecting a real investment and commitment to shared values, but others saw this more as outward compliance with rules. For example, the medium-quality description of the CDP's theory of change (Solomon et al., 2000) explained how the intervention aimed to transform schools so that students were fully committed to its ethos and values:

> We expect that students who have these needs met by experiencing a caring school community will feel strongly attached to the community, and that this attachment will lead them to feel personally committed to the values and goals the community promotes, particularly if those values and goals are clear and jointly held by the community members. (p. 5)

In contrast, the DASI Intervention (Kyriakides et al., 2014) emphasised the importance of student compliance in adhering to school rules and policies:

> . . . schools could set up a motivation system to improve the school's social environment by taking action to emphasise maintenance of the behavior code and the promotion of appropriate and positive behaviors outside the classroom. (p. 3)

Theories of change described other ways in which intervention activities could benefit students' positive development. These descriptions aligned with our a priori themes of promoting practical reasoning and affiliation, but elaborated upon these concepts. Several theories of change listed different aspects of practical reasoning such as student skills in conceptual thinking, ethical and moral reasoning, and emotional learning. Affiliation-related impacts included enhanced empathy and greater orientation to others, pro-social norms, as well as better social conflict resolution and communication skills.

Theories of change suggested that interventions would ultimately benefit students in terms of autonomy and competence to make good decisions. One example of this was present in the evaluation of the CDP (Solomon et al., 2000):

> . . . autonomy/influence refers to the individual's opportunities to contribute to the group and the group's decisions as well as to direct his/her own activities; competence refers to the effectiveness and acceptance of the individual's contributions to the group as well as his/her own academic and social efforts; and belonging is feeling that one is personally accepted by others and also part of a larger cohesive entity. (p. 4)

Across theories of change, attributes aligning with practical reasoning and affiliation were theorised as enabling students to choose healthier behaviours. Some theories of change suggested that an increase in student commitment to school might impact reducing risk behaviours via changes in student affiliations. This was described as follows for the CDP (Battistich et al., 2000):

> . . .. the experience of being a valued member of a caring school community also should reduce the likelihood that students will seek to satisfy their need for social connection through association with gangs or other counter-cultural peer groups. (p. 4)

Summary of key findings

Despite only one whole-school intervention in our review being explicitly informed by the theory of human functioning and school organisation, the theories of change associated with most interventions aligned closely with this elements or aspects of this theory. In the light of our findings, we were able to develop the revised theory of change shown in Figure 2.

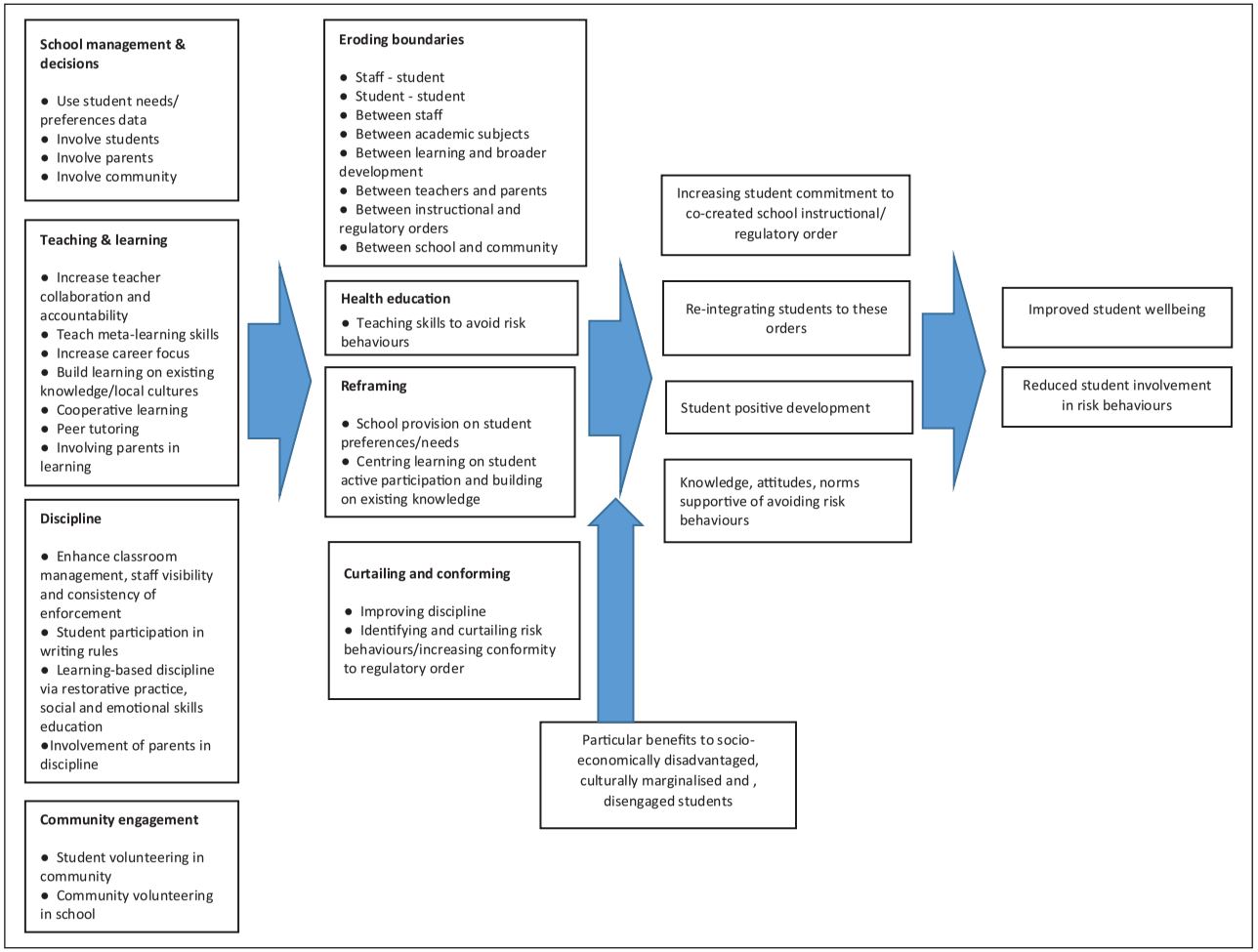

Figure 2. Logic model for refined theory of change for whole-school interventions aiming to prevent violence and substance use via promoting student commitment.

The refined theory of change suggests a list of specific activities that can modify school classification and reframing to increase student commitment to school. In terms of school management and organisation, these include using data on student needs and preferences to inform policy, as well as involving students, parents or other community members more directly in decision-making. With respect to teaching and learning, these include increasing teacher collaboration and accountability, teaching students meta-learning skills, increasing the career focus within teaching, building academic learning on existing knowledge informed by local cultures, instituting cooperative learning methods, using peer tutoring and involving parents in learning. In terms of discipline, these include enhancing classroom management, staff visibility and consistency of enforcement of rules; student participation in developing and re-writing writing rules; and instituting learning-based discipline, restorative practice, or social and emotional skills education. In terms of community engagement, these include students volunteering in the community or community members volunteering in school.

The refined theory of change detailed above extends the concept of reframing so as to include the process of building learning on existing student knowledge through 'constructivist' approaches to education. It also proposes additional ways in which the school order might be reclassified via the erosion of existing boundaries. Boundaries that might be eroded include those between staff (via more collaboration and accountability among teachers); learning and the broader development (e.g. via teaching social and emotional skills); the roles of teachers, students and parents (via peer tutoring and involving parents in learning and discipline); and the instructional and regulatory orders of the school (via learning-based discipline methods).

The refined theory of change also recognises how whole-school interventions may prevent violence and substance use among students in direct ways not just by building student commitment. These might include the enhanced monitoring of such behaviours in school, the provision of health education which teaches students the skills needed to avoid risk behaviours and the use of co-constructed discipline systems to identify and curtail risk behaviours.

The refined theory of change suggests that together the above actions may enable students to commit either to separate instructional and regulatory orders or to a joint 'developmental' (instructional/regulatory) order, co-created by students and staff. The refined theory also suggests that activities such as restorative practice can help reintegrate students with instructional/regulatory orders. Activities aimed at increasing commitment to school are theorised to reduce involvement in violence and substance use by students developing the practical reasoning and positive affiliation to avoid this and by discouraging students from engaging in peer groups where such risk behaviours are normative. Whereas the theory of human functioning and school organisation suggested that the described mechanisms might be of benefit to socio-economically disadvantaged students in particular, our refined theory broadens this to include students from marginalised or diverse cultural groups, as well as academically disengaged students.

Limitations

Our first review searches involved multiple sources and methods and aimed to maximise the inclusion of relevant reports. However, the updated searches were necessarily narrower because of pandemic-related limits on access. That said, the sources that yielded all of the included study reports found as a result of the original electronic searches were included in the updated search, so we think it unlikely that any studies were missed because of the reduced scope of the update search. Our synthesis of theories of change was limited by the quality of the existing reports, which sometimes did not describe clearly the pathways from intervention activities to intended outcomes. We did not aim to assess the quality of the evidence base for each of the theories of change underpinning the intervention, because this was outside the scope of the current review.

Implications for further research and policy

It is hoped that the refined theory of change, informed by and building upon the theory of human functioning and school organisation, will provide a robust basis for developing future whole-school programmes to prevent violence and substance use. The theory identifies some of the key activities that such interventions might involve and suggests mechanisms by which these might prevent violence and substance use by strengthening students' commitment to school. Our refined theory of change might also inform future evaluation designs, for example, in terms of choice of mediator and moderator variables. This may enhance future efforts to reduce substance use and violence through work in schools.

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Research materials

All research materials are available on request.

ORCID iD

Chris Bonell https://orcid.org/0000-0002-6253-6498

Supplemental material

Supplemental material for this article is available online.

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