



Understanding Effective Implementation of Prevention Education Programmes: Perspective from Singapore Schools

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Abstract Schools devote considerable attention in identifying and implementing evidence-based prevention programmes to enhance student development and functioning. A major challenge faced is with organising the theory, research and practice of the implementation and dissemination process. This poses even greater challenges to schools because these are complex systems and rarely implement programmes singly to meet the varied needs of their students. Beyond establishing efficacy, there is little documentation about how these programmes have been adapted for diverse student populations. We utilised the Prevention System Support component of Wandersman et al.'s (Am J Community Psychol 41:171–181, 2008) Interactive Systems Framework for Dissemination and Implementation to systematically elicit key general and programme-specific capacity builders that promote the implementation of school prevention programmes in Singapore schools. SWOT analysis completed by 308 school programme leaders yielded five organisational-level general capacity builders and two programme-specific factors related to teacher training and technical support. Fewer opportunities and threats present as challenges to strengthening school capacity to deliver programmes effectively. Implications arising from the analysis were discussed.

Keywords School prevention programmes · Programme implementation · Interactive systems framework for dissemination and implementation · SWOT · Singapore

Introduction

Schools devote considerable attention in identifying and implementing evidence-based prevention programmes, outside the academic domain, to enhance student social and emotional well-being. These programmes include character education, Values-in-Action (VIA), cyber wellness and sexuality education. However, research shows that many effective interventions often fail to translate into meaningful programmes and/or bring about the desired outcomes in different contexts (Sklad et al. 2012). Flaspohler et al. (2008) reasoned that the scientific evidence supporting these interventions are largely innovative undertakings, and resources and needs of the implementation settings heavily influence their efficacy. In contrast, school-based prevention programmes are shaped by changing demands and resources of school contexts, and concerns are more to do with improving existing programmes. Indeed, beyond establishing efficacy, there is little documentation about how these programmes have been adapted for diverse student populations. For a better 'contextual fit' (Forman et al. 2013, p. 89) between research and practice, there is need to understand the facilitative conditions that strengthen their delivery and implementation. This paper seeks to address this gap by examining capacity-building factors that operate in schools in shaping these prevention programmes.

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Understanding School Contexts

Programme implementation is the process by which an intervention is put into practice (Lendrum and Humphrey 2012). Fidelity to implementation is often cited as a major reason for programme failure, but the processes of implementation can also punctuate its progress (Durlak and DuPre 2008). Implementation science highlights the importance of adopting an ecological perspective in understanding programme implementation challenges and failure (Forman et al. 2013). To appreciate the complexities in school-based prevention programme delivery, the effectiveness of any individual programme should be understood from this perspective to ‘bring coherence to elements of the system’ (Century and Cassata 2016, p. 180).

A major challenge with evaluating prevention programmes is that schools are complex, diverse and haphazard systems, and rarely implement programmes singly to meet the varied needs, abilities and motivations for learning of their diverse student populations. Although programmes do differ in characteristics, many share similar features and common practice elements and complementary and/or overlapping objectives (Skad et al. 2012). Multiple programmes can be running at the same time, usually during curriculum time, thereby competing for both teacher and student time over the formal curriculum. They are, as such, uniquely different from universities or mental health care centres where interventions are more amenable to evaluation. These practical realities of schools suggest that deviations from implementing the standard intervention protocol can both hinder and facilitate its outcomes (Albers and Pattuwege 2017). As such, empirically-based evidence of programme impact can no longer guarantee that they can be implemented with intended results.

Implementation Framework

Research has highlighted various enabling and hindering factors that contribute to the development of successful interventions but mere identification of such factors may not be sufficient to help strengthen programmes. A number of models and frameworks has emerged to provide a more systematic approach to understanding pertinent factors, conditions and processes to transport evidence-based programmes to more complex settings (Flaspohler et al. 2008). To advance understanding of challenges to prevention programmes, the Interactive Systems Framework for Dissemination and Implementation (ISF) (Wandersman et al. 2008) has been identified to most approximate for use with school systems. Instead of focusing on factors to effective implementation, it highlights the importance of prevention

support systems in building schools’ capacity to deliver quality programmes (Flaspohler et al. 2012). Specifically, ISF identified three key interactive systems that shape quality implementation: The Prevention Synthesis and Translation System (PSTS), Prevention Support System (PSS) and Prevention Delivery System (PDS). The PSTS distills technical information about the innovation and translate these for practice. The PSS seeks to optimise programme knowledge utilisation by focusing on building capacity among the individuals who implement the innovation through two primary capacity-building functions—innovation-specific and general capacity building. Broadly defined, capacity refers to the skills and motivation necessary to implement innovations. Successful building capacity of the PSS would enable effective carrying out of various implementation activities at the individual and organisational levels in the PDS.

The ISF is a heuristic framework that is particularly useful in guiding interventions in contexts where there are unique and varied organisation structures, and has gained considerable traction in research to uncover complexities in school-based interventions. Lesesne et al. (2008) used the three systems to guide the development of an infrastructure for a large-scale teen pregnancy prevention programme. Rhoades et al. (2012) specifically used the PSS to appraise the quality of implementation and sustainability of evidence-based programmes at a state-level and expanded the framework to incorporate state-level stakeholders. Given that many potentially important factors can affect implementation, it offers a highly adaptable framework by focusing on dimensions of a programme that relates to its potential capacity-building qualities.

To the best of our knowledge, there is yet research that describes the conditions under which the plethora of prevention programmes implemented in Singapore schools operate. A systematic approach to this understanding would synthesise the state of knowledge on the adaptation of evidence-based practices in these schools. We utilised the PSS component of the framework to guide the exploration of factors related to both general and innovation-specific capacity of schools to deliver programmes effectively. Considering that the framework has been developed and predominately used in western contexts, an examination of its cross-cultural utility would strengthen its empirical validity.

Prevention Programmes in Singapore Schools

Singapore schools adopt a systematic overarching whole-school approach in the identification, assessment, and provision of prevention programme in promoting the learning experiences of students outside the academic domain. The Social–Emotional Learning (SEL) framework

provides the ‘organising structure’ to guide programme design and planning for universal school prevention programmes since its adoption by the Ministry of Education from 2005 (Chong and Lee 2015; MOE 2017). Well-documented in research, SEL builds student instruction and learning around the development of five critical competencies—self-awareness, social awareness, self-management, relationship management and responsible decision-making (Durlak and Weissberg 2011). The character and citizenship education (CCE) framework forms the other essential school-wide vehicle through which students can develop good character and citizenship. These two programmes provide complementary approaches to the holistic development of students from which other school prevention programmes build on. Teachers are the primary facilitators and/or instructors carrying out these programmes.

Emerging research from ISF highlights that promoting implementation and overcoming barriers to sustainability require attention to both building general organisational and programme-specific capacities (Rhoades et al. 2012). This is because the level of organisational functioning provides the context to develop and implement new programmes. The following section examines the state of research on implementation of these key school factors.

General Capacity-building Factors Influencing Implementation

A myriad of key organisational characteristics critical to successful implementation has been identified: effective and supportive leadership; shared vision; school climate; supportive administrative structure; expertise; staff, technical and financial resources; presence of a process advocate; and collaborative relationships among staff (e.g. Albers and Pattuwege 2017; McIsaac et al. 2015). However, ISF suggests that factors influencing organisation-level practices are not straightforward and the outcomes of effective practice are not solely shaped by a host of factors alone. The framework postulated employing the PSS to identify factors that builds the capacity of an organisation to deliver and these consist of those factors intended to enhance its infrastructure, skills and motivation (Wandersman et al. 2008). Halgunseth et al. (2012), for instance, utilised the PSS to understand how general capacity influenced the implementation of prevention programs in 8 after school settings on the Good Behaviour Game (GBG) intervention designed to foster supportive behavioural management and positive youth behaviour. It was found that afterschool sites that were more organised, maintained adequate facilities and developed strong linkages to individuals or organisations in the community scored highest in implementation fidelity and quality. The study highlighted

the importance of considering interactions among these multiple levels of general capacity in efforts to promote evidence-based practices in afterschool settings. Indeed, programme implementation and sustainability in school practice have been found to be strongly influenced by a myriad of state and school policies and reforms. Such realities in turn shape what teachers teach in the classroom. As such, for programmes to deliver effectively, they must fit within or adapt to existing school operation and infrastructure systems and be practical and feasible to implement in the school setting (Little 2010). Distilling elements of these school infrastructures would sharpen focus on the direction of general capacity-building efforts.

Specific Capacity-building Factors Influencing Implementation

Innovation-specific capacity-building pays attention to quality training and technical assistance for effective preventive implementation (Wandersman et al. 2008). Specifically, PSS identified training and technical support as the primary medium through which innovations are implemented and are therefore instrumental in capacity building (Flaspohler et al. 2012). In Singapore schools, teachers are not only responsible for teaching core academic areas but also for carrying out prevention programmes (Chong and Lee 2015). Implementation research has highlighted various teacher factors important to quality prevention implementation but these are largely tied to specific interventions. Guided by the PSS component, a systematic treatment can bring greater coherence and synthesis in eliciting pertinent teacher factors that impinge on their capacity to deliver multiple prevention programmes (Long et al. 2016).

Study Intent

In sum, this study seeks a finer analysis, through the PSS component of the ISF, of the operational forces that potentially influence the capacity of schools to support student development through various prevention programmes.

Materials and Methods

This study utilised a qualitative methodology by drawing on SWOT analyses completed by middle managers such as school heads of department and senior teachers (termed programme leaders in this paper) of various school prevention programmes that are largely designed and driven at the state and school levels. These leaders plan, oversee and coordinate their implementation. SWOT analysis is an

acronym for strengths, weaknesses, opportunities and threats, and is a structured planning method commonly used in organisations to evaluate the four common elements that constitute internal and external factors that facilitate or hinder them from achieving their objectives. Strengths are characteristics of the organisation or project that give it an advantage; weaknesses are factors that place it at a disadvantage; opportunities are elements in the environment that the organisation can exploit to its advantage; and threats consist of environmental elements that present challenges and problems.

The SWOT offers a systematic approach that considers more than the identification of the presence or absence of key factors that shape programme practice. It is particularly useful to illuminate simultaneously the capacities of an organisation in orchestrating implementation and is therefore suited to elicit capacity-building factors that are of interest in this study. It recognises that forces are not static but dynamic in that different facets of a force can present both as an asset and challenge at the same time, thereby highlighting current and potential capacity for program building (Westhues et al. 2001). It therefore provides a unique window of understanding the interplay between forces of a similar nature to inform later steps in programme development.

Participants

The data was collected between 2008 and 2016, from 309 teachers from elementary, middle and high schools holding leadership portfolios in their schools. They attended a 6-month in-service leadership-training programme at Singapore's national teacher training institute. Forty percent were teaching in elementary schools, 55% in middle and high schools and the remaining 5% from special needs schools. They elected to attend an optional module taught by the first author. The 6-week 3 h sessions aimed to help these educators appreciate the dynamic underpinning factors that shape programme implementation. They were required as part of their course assignment to use the SWOT to appraise the state of a prevention programme that they oversee. Research ethics approval was obtained from the University for use of this archival data.

Data Analysis

The analysis used a thematic approach (Braun and Clarke 2006) to identify and analyse patterns within the SWOT dataset. Three research assistants independently coded 10% of the data set, and then met with the first author to discuss on their agreement of the codes. They then proceeded to code the data independently, and met fortnightly to check out differences and sought agreement with new and

unfamiliar statements. The team worked toward consensus in deriving the coding scheme and in resolving all disagreements over the categorisation. The procedure in obtaining categories and themes were undertaken using the same process.

Analyses were carried out separately with each SWOT factor. We looked for implementation factors, conditions and practices in building capacity for implementation. The analysis was guided by the prevalent ISF literature, specifically as these related to PSS, but we also allowed relevant data to emerge inductively. For each factor of the SWOT, data was first coded and then analyzed into categories based on their similarities in responses or meaning. As the array of codes made specific references to the contexts, they were sorted according to the context to which each statement was made. Relevant codes were placed into either school- or teacher-related factors. Following coding, categories pertaining to similar themes were elicited. Theming the categories was difficult because there were often common elements across categories of the different SWOT factors. A factor that represent strength or opportunity to one teacher may be weakness or threat to another. For example, 'open communication between teachers and school management' was identified as a strength and 'poor and unclear expectations with the programme coordinator' a weakness. In order to keep the structure and themes of this review as coherent as possible, strands on Strengths and Opportunities were placed side by side with Weaknesses and Threats, respectively, to allow us to contrast patterns between the corresponding internal or external factors.

The analysis yielded 7505 codes, indicating a range of 2–8 statements and a mean of 26 SWOT statements made by each participant. In sum, 43% strengths, 46% weaknesses, 8% opportunities and 3% threats were identified (See Table 1).

Results

General capacity building factors

Five factors emerged as critical enablers and barriers to capacity building.

A commonly repeated theme is with the usefulness of the SEL framework as an overarching organising structure to guide the development of prevention programme education in schools. This framework spells out underpinning assumptions, principles and critical ideas in prevention education initiatives, ensures their alignment with the school philosophy, and national and school policies; and determines learning outcomes. It enables the implementation of a procedural structure and protocol to guide human

Table 1 Commonly identified themes of the SWOT analysis

Interpretative factors	School-level	Teacher-level
Strengths	Overarching organising structure (e.g. “CCE (Character and Citizen Education) programme is positioned as the key programme in school in inculcating values, teaching social-emotional competencies and developing citizenship traits in students. School has structured CCE lessons for all levels. CCE periods are protected time; mandatory for CCE lessons”) Supportive leadership and school culture (e.g. “Strong support from school leaders. They tap on various platforms, such as pre-assembly, to share values and send a strong signal that affective education is important”; “School has a strong ethos of openness, sharing and commitment in making the approach works for all”) Broad range of programmes to meet diverse student needs (e.g. “Planned various programmes with Pupil Management Committee ... and school counsellor to cater to the different aspects and needs of pupils at different levels”; “The school offers a comprehensive before-and-after school, and pull-out academic support programmes to help a large group of students”) Programme resource availability and accessibility (e.g. “School has comprehensive repository of in-house developed lesson plans for affective education”; “Comprehensive SEL and Civil and Moral Education packages were provided by the Ministry”) Systematic monitoring procedures and protocols (e.g. “Monitoring & evaluation: walkabouts, lesson observations, student survey”; “Structured time set aside for values inculcation and teacher–pupil interactions, school-wide sharing & classroom sharing”)	Positive teacher beliefs (e.g. “Strong belief in wanting to mould students. Students can learn and are generally good at heart”; “Teachers who believe in imparting values keen to touch base with their students enjoy the more up-close and personal interaction”)
Weaknesses	Lack of an overarching organising structure (e.g. “‘departmentalised’ programs in school-based modules: silos versus alignment”; “Some Heads of Departments compartmentalised academic and CCE programmes into two separate areas”) Lack of monitoring procedures and protocols (e.g. “There is lack of monitoring to ensure the consistency or effectiveness of these programmes that are carried out in the classroom”; “Analysis of data may not have been as rigorous as intended, thereby not identifying students for appropriate intervention programmes; reliability of results too dependent on pupils’ ability in answering the questions”) Too many programmes (e.g. “Too many programmes for students. Need to synergise”; “Although the school is working on numerous programmes and processes to support these pupils, the overall approach is still not sufficiently structured, resulting on sometimes dis-jointed areas of interventions ... too many activities with different individual focus”)	Lack of teacher buy-in (e.g. “At some quarters, though not all, these teachers have the mindset that affective education has no place amidst the rigorous curriculum. They also hold the assumption that their success is measured by tangible results, such as academic progress of their pupils”; “Teachers’ roles are segregated. Seeing themselves first as subject teachers first and foremost before CCE teachers”) Competency skills to teach affective education (e.g. “Teachers’ buy-in and competency—some teachers do not believe in teaching affective education while some are not equipped with facilitation skills to conduct an effective lesson. Frontal teaching is the predominant teaching approach adopted by many teachers; they teach affective education like the way they teach their subject...”; “Teachers still conduct lessons in piece-meal fashions, unable to link effectively with other lessons”)
Opportunities	Collaboration and partnership with external stakeholders (e.g. “partnerships with tertiary institutions are forged and they are invited to give career guidance talks to students and set up booths in the school for Career Day”; “Parents and institutional partners are enrolled to assist in certain CCE programmes”)	Interdisciplinary collaborations (e.g. “The discipline committee works closely with the CCE Department and Cyber Wellness Co-ordinator to address issues that arise among students”)
Threats	Achievement-oriented school culture (e.g. “Teachers are too academic focused... They use time allocated for affective education to conduct academic subject lessons instead”; “Loss of focus in schools on vying for excellence in co-curricular activities. Still see character education as secondary, next-in-priority to academic excellence, rather than twin pillars of excellence”)	Parental pressure (e.g. “Parents’ perception of measuring success solely based on the academic results”; “Parents who are unsupportive of the schools’ affective programmes. Either their mindsets are deeply entrenched in academic achievement or they are lacking knowledge on the impact of affective programmes on the overall well-being of the child’s development”)

resource and curriculum planning. Correspondingly, this enabler also constituted a weakness in schools where such frameworks were not adequately developed or adhered. In these schools, programmes were developed in silo by different subject departments, creating tension as they competed for limited school resources to mount respective initiatives.

A second enabling factor highlights the importance of an appropriate mindset towards prevention education and support of the school leaders. These leaders tended to view prevention education as an integral part of the curriculum and school life, and as a vehicle for developing critical competencies of students. Leadership endorsement was perceived to be of over-riding importance as it shapes the school culture, re-prioritise various programme initiatives and release school resources for the implementation of such programmes. In these schools, leadership attitudes transcend to a caring school culture and ethos in which both teachers and students are expected to reflect these values in school life. No entries on this aspect was identified as a weakness.

The third enabler that emerged is the diverse range of programmes aimed at meeting various students' needs. The broad range of activities afforded numerous opportunities for students, from differing socio-demographic and academic backgrounds, to build their capacities. The deluge of programmes also highlighted a problem with overlapping objectives and activities across some programmes, thus overstressing teaching resources to support them. On the other hand, where schools chose to adopt a 'one-size-fits-all' approach in programme delivery, divergent student needs were insufficiently recognised. Programmes may also be one-off events, conducted after the examination period when there is less press for academics, or delegated to external vendors.

The analysis indicated that supportive school leadership may not be sufficient to ensure quality programme delivery. Programme leaders highlighted that the most significant challenge they faced with teachers is the difficulties in obtaining the latter's buy-in. Indeed, this constitutes 42% of the weaknesses identified through SWOT. School prevention programmes, such as SEL and CCE, are top-down initiatives and while teachers may not necessarily have a shared understanding of their roles in prevention education. Essentially, student academic achievement and performance remain a core focus in teaching. Indeed, some teachers perceive two distinctively different and separate entities in teaching—subject-specific and extra-curricular teaching. Poor student buy-in further accentuated teachers' commitment. As such, school-wide implementation of any school prevention programmes can be distributed unevenly across classes and grade level even when implementation structures and resources are in place. Programme leaders

think that underpinning assumptions, beliefs, expectations and views teachers hold about prevention education and their lack of ownership are the major driving forces affecting programme quality.

One other major challenge identified was with the programme leaders' problem of not knowing how to review multiple programmes that have been in place for a number of years. Although various monitoring procedures were in place, they remained procedural and are protocols. Feedback data were not often utilised systematically to inform decision-making about improving or terminating programmes. Time constraint was identified as a major barrier to their ability to provide closer vigilance and ensure fidelity to implementation processes, and to use the wealth of data to project planning. Time constraint was also a frequent teacher complaint of the overwhelming layers of work associated with programme implementation besides their heavy academic workload.

Programme-Specific Capacity Building Factors

Two teacher-related factors emerged as enablers to capacity building but paradoxically, these also presented as challenges.

An important contributor to teachers' capacity building is the availability and ease of access to comprehensive resource packages developed by the government ministry and schools to guide practice. These well-designed resource materials consisted of developmentally appropriate activities and lesson plans for different grade levels, drawn from the wealth of international research. This availability was perceived as important in facilitating uptake and roll out of various programmes across all schools within a short space of time. Additionally, the analysis noted a plethora of teaching training and professional development activities aimed at equipping teacher competencies. These ranged from training organised by the ministry and the national teaching institute, to regular school-based workshops and professional learning communities to support their continuing development.

Although the availability of technical support and resources were widely noted, the SWOT analysis revealed that many teachers continue to lack the core soft skills necessary for the effective instruction and delivery. This is because prevention education teaching requires a different set of competencies that include facilitation, strong communication skills and the ability to connect with students empathetically and many may lack the experience and/or confidence in handling socio-emotional issues, such as problem solving and conflict management. As such, programme leaders found that teacher competency skills in teaching school prevention programmes tended to vary across grade levels and schools.

One other enabler repeatedly highlighted is the presence of a systematic structure set up to ensure some degree of programme fidelity. Programme leaders meet with teachers regularly on a weekly or monthly basis, or at the end of each term for different purposes. Weekly meetings were for discussions and feedback of teachers, aimed at supporting their classroom implementation and may occur at grade levels. Monthly and term meetings were mainly aimed at problem solving or charting programme progress to date. Monitoring of students' programme responses were carried out half-yearly or yearly through national or school self-report surveys, and writing journals or reflective exercises.

The importance of a systematic organising and procedural structure for programme implementation cannot be over-emphasised. The analysis revealed that where a lack of protocols exists, programme leaders experienced significant difficulties with monitoring programme fidelity between teachers and across grade levels. Additionally, monitoring of teacher instruction through observations was particularly difficult when activities occurred during lesson hours at different times of the school day.

Opportunities and Threats

The analysis yielded few general capacity building opportunities and even fewer perceived threats to such efforts.

Programme leaders identified school collaboration and partnership with various stakeholders as the most significant opportunity that schools can harness to strengthen their capacity for quality programme delivery. Within schools, encouragement to infuse elements of beliefs and values in teaching has forged stronger interdisciplinary collaborations between teachers from different subject departments. Indeed, they identified this as an avenue to strengthen buy-in between teachers with varying convictions about prevention education. In elementary schools, parent support groups were actively engaged with various prevention education initiatives. Connections with external organisations (such as community service agencies) were established to expand students' exposure to learning beyond the classroom. Additionally, schools in the same neighborhood also sought opportunities to share best practices and resources. A recognised challenge is with competition generated between schools for the same community resources and an over-utilisation of the same agencies rendered support. Of note too, is that parent engagement is difficult to solicit at the middle and high school levels.

A strong achievement-oriented school culture prevails even in the area of prevention education. In seeking to demonstrate excellence in student participation and development of programme niches, schools face

continuous threats from external pressure to offer value-added programmes and facilities to attract good student quality. Parents want to send their children to schools that offer a wide range of education-related activities to unleash their child's potentials. As such, teachers—the vehicle to translate prevention education in the classroom—face significant amount of performance pressure, and this already have repercussions on the priority they accord to such programmes.

Conclusion

In bridging the gap in the translation of empirically-based programmes to school practice, the PSS component of the ISF has been shown to most approximate this need to elicit key activities and processes critical for effective prevention programme delivery (Flaspohler et al. 2012). It posits that a capacity building approach to understanding programme delivery has more applicability in complex school settings than programme-specific approaches. Towards this end, this paper attempted to identify and describe key elements of the prevention support system that facilitate or hinder to the implementation of whole school prevention initiatives in Singapore schools.

The analyses revealed that a key structural factor in ensuring quality delivery is the presence of an overarching programming framework. To the best of our knowledge, this infrastructure is not extensively examined in the general literature but there is some emerging evidence to suggest that this overarching framework is a key precursor for programming processes involving planning, implementation, evaluation and sustainability (Livet et al. 2008). The realities of implementation in diverse settings with heterogeneous student populations indicate that this organisational infrastructure is critical for programme planning and execution, and resource management, and in providing a context in which capacities to implement new programmes are evaluated to ensure a good contextual fit (Aarons et al. 2011).

Other specific programme structural characteristics unveiled included the availability and use of standardised materials; clear protocols; supervision over the programmes; development of a monitoring system; and integration of programmes into school hours. The range of supports were broad, encompassing operational planning, resource provision, strategic planning and evaluative processes. These findings are not dissimilar from those already established in the research that have largely focused on specific innovations (e.g. Durlak and Weissberg 2011) but the analysis indicates that they are equally vital to capacity building efforts in complex settings like schools. The programme leaders also alluded to the availability of a

wealth of student and teacher information collected but that this is not been fully exploited in programme evaluation. This finding suggests the potential evaluative capacity of schools. What seems lacking, though, is for schools to develop a data-focused school culture in which continuous quality improvement becomes a valued routine with educators.

The study also revealed strong endorsement from school leadership to be instrumental for successful programme translation to school practice. This resonates with the body of research that this form of support and buy-in constitutes one of the key elements of organisational capacity (Century and Cassata 2016). However, leadership across different school levels, while necessary, is not a sufficient condition to facilitate programme implementation (Aarons et al. 2011). The analysis indicated that leadership, combined with strong organisational support, to be key general capacity builders in the PSS and these give shape to teacher beliefs and attitudes that ultimately affect programme delivery and, therefore, fidelity in the Prevention Delivery System (Malloy et al. 2015).

The Prevention Support System highlights the importance of quality technical support. Chinman et al. (2008), in reviewing the sparse technical assistance literature, concluded that technical assistance to support an innovation requires at least a minimum level of general capacity and is likely to encounter resistance even when offered freely. Indeed, the analysis pointed to teacher buy-in as a significant barrier to quality implementation. Teachers' pre-existing beliefs about teaching and learning, and the utility of these programmes were perceived to affect their adherence to implementation (Biggs et al. 2008). Teachers' general philosophies and beliefs about educational innovations are often built around conceptions of subject matter, teaching and learning. Given strong entrenched ideas about the nature of teaching and learning and the constraints of time, it is not difficult to appreciate how 'new' practices that are incompatible with teacher beliefs shape prevention education practices in the classroom. Developing teacher competence may be insufficient for quality delivery. ISF highlights that attending to teacher expectations, motivation and sense of teacher efficacy can affect future performance in carrying out the programme. More deliberate and planned support on strengthening teachers' efficacy for practice may be better focused (e.g. Durlak and DuPre 2008). As such, technical support that involves facilitation, interactive problem-solving, peer-assisted learning and practice-specific supervision (Cook et al. 2019) may be instrumental to bring about deep change by disrupting such beliefs and promote teachers' efficacy for implementation practice.

The analysis unveiled few opportunities and fewer common threats to successful programme implementation.

Not evident in the general literature is the finding that specific contextual opportunities such as interdisciplinary collaborations between teachers that can provide an avenue to foster teacher buy-in. The analysis also highlighted that parental pressure can be an impeding factor in fostering teacher buy-in, when focus is placed more on their children's academic achievement and performance. Various implementation research indicated that the contextual fit of an intervention can be maximised when stakeholders are appropriately engaged (Forman et al. 2013; Halgunselth et al. 2012). However, the analysis indicated a need to strike a balance in attempts to solicit these key stakeholders to meet programme objectives without an over-utilisation of the same resources in the community. Little empirical work on how to garner such support is available, indicating a need for future research to uncover potential mechanisms to provide better support leverage.

Implications

First, the study demonstrated the utility of unpacking several aspects of the prevention support system critical to quality programme delivery in schools. Unlike research efforts that identify factors contributing to or hindering programme development and delivery, the focus on the PSS afforded important insights by revealing that capacity-building factors influence organisational- and programme-specific practices reciprocally and that outcomes of effective practice are not solely shaped by specific-level influences alone.

Second, the findings can help schools focus attention on those aspects of the organisation shown to be critical for programme maintenance and in new implementations (Livet et al. 2008). They can inform the strengthening of a standard, capacity-building support model to assist with future efforts for widespread implementation within and across schools (Chinman et al. 2008). Third, this study highlighted the perspectives of middle managers using the SWOT as an analytical tool to deepen understanding of the characteristics of prevention programme implementation. Its emergent utility as an evaluation tool has the potential to augment commonly used measures and the findings derived from this method of investigation provided further convergent validity to those established in the literature (Romero-Gutierrez et al. 2016). Finally, the analysis suggested that these programme leaders to be in a strategic position to ensure avoidance of sporadic and inconsistent programme implementation. Having this manager as a champion to advocate for a more systematic programming process can lead to more complete and refined use of planning steps by the boards, and to more complete and refined use of implementation guidelines by provider agencies (Durlak and DuPre 2008). Further research to

understand how this intermediary position operate to mobilise organisational resources would be important to identify its instrumentality in change implementation.

Limitations

This study is not without limitations. First, we surveyed a broad range of programmes that can differ in core characteristics, theoretical grounding, delivery approaches and student characteristics. It is unlikely that a common overarching programme is implemented uniformly across schools without modifications to adapt to local conditions. Although schools may share a common set of conditions and barriers to programme implementation, the SWOT analysis presented a ‘snap-shot’ but may be unable to provide nuances specific to schools. As a methodological tool, it faced similar limitations as other categorisations that attempt to reduce a complex construct into specific components. It was, however, able to identify and extract meaningful components of capacity useful to support dissemination and implementation of prevention innovations. Second, the findings were derived from a group of participants attending a specific course and may not reflect the viewpoints of all programme leaders in Singapore schools. Finally, the generalisability of the findings may be constrained by the fact that data for analysis covered an 8-year period and there is a possibility of changes to practices and processes although the SEL and CCE remain as key frameworks guiding programme development.

These limitations notwithstanding, we believe this study further enhanced understanding of quality indicators in the delivery of prevention programmes and provided researchers and practitioners on the next immediate steps in future investigations. Furthermore, it extends the state of implementation research mostly carried out in the West, to suggest that the challenges and issues faced in programme adoption has similar empirical significance beyond the cultural contexts where the issues were examined.

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