

Sustaining reform implementation: a systematic literature review

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ABSTRACT

This systematic literature review analysed research related to education reform published between 2000 and 2020. Empirical evidence from 249 studies identified factors hindering or facilitating the long-term success of reform implementation. Eight overarching, actionable themes were found to influence success. Six themes describe requirements at the school level: the need for shared leadership focused on supporting reform; budgeting and resourcing considerations; the critical role of continuing, high-quality professional learning that is consistent with the reform effort; the need for data collection and evaluation to examine the success of the reform initiative and guide further changes; the importance of engaging stakeholders in the reform process on an ongoing basis; and ensuring staffing stability. At the classroom level, teachers require support in developing a clear understanding of the reform in practice and actionable steps for implementation. Finally, ways in which external entities and advisory teams can help to sustain reform are presented.

KEYWORDS

Sustaining change; reform; systematic literature review

Introduction

There have been a multitude of system-wide initiatives to improve education throughout the world (e.g. Cheng 2009; Ekholm 1988; Potter, Reynolds, and Chapman 2002). However, even if changes are initially implemented across schools, many reform programmes fail to last the distance and changes are either superficial or teachers quickly revert to prior practices (e.g. Cheng 2009). The school change literature, describing and evaluating system-wide school change efforts is vast. However, a systematic synthesis of what that literature can tell school leaders about factors which act as barriers or supports to sustaining change across schools has not been attempted, possibly because

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of the sheer volume of the research. This systematic literature review seeks to provide a comprehensive and rigorous summary of findings which answer the following research questions: 1) following introduction of reforms or school improvement plans to schools, what factors are described in empirical studies which support or act as barriers *at the school level* in sustaining that change? 2) What do empirical studies say about how to ensure that reforms are systematically implemented *at the classroom/teacher level*, and that this implementation is sustained?

Previous reviews of reform implementation that include barriers and supports to sustaining reform have generally focused on educational reform in one country (e.g. China, Thailand, USA) or region (e.g. Scandinavia). For instance, (Cheng 2009), writing about 15 years of reform in the Asia-Pacific region, discussed the tendency to rush reform implementation to preserve national competitiveness. This tendency has led to overburdening teachers through excessive monitoring, bureaucratic requirements, and limited support in translating the reforms into long-term classroom practice. The result is that competent teachers often leave the profession.

Datnow's (2005) summary of systemic integration of educational reform focused on racially and linguistically diverse contexts within the USA between 1983 and 2003 and described several findings relevant to sustaining reform. First, ongoing district support plays a vital role in sustaining change. Such support includes providing professional development and learning partnerships, external experts, and design teams to work directly with schools, equitably resourcing schools, and establishing accountability systems. Second, community engagement and consideration of their economic and social capacity should be integrated into reform strategies. However, they note a lack of high-quality research literature about the challenges and supports for implementing education reform, particularly amongst linguistically and racially diverse students.

A selective review of system-wide school improvement initiatives in three Scandinavian countries by Ekholm (1988) discussed the benefits of reform implementation of shared leadership responsibility for teachers. Sadly, their findings indicated that institutions often remain resistant to innovation, mainly due to a lack of long-term planning and confusion about decision-making processes. Teachers' feelings of autonomy were also crucial for the successful long-term implementation of change. They also suggest that change should not be rushed as institutionalising change can take years.

Although these past literature reviews report various factors related to different stages of the reform process, to our knowledge, there are no systematic literature reviews that include studies from around the world and include a range of reform efforts. In addition, there are many theoretical models for sustaining change (e.g. Fullan 2006). However, our systematic literature review provides a more complete picture of the factors that facilitate or impede long-term reform success, derived from empirical studies of change efforts.

Conceptual framework

While recognising that change in education is dynamic, complex, and non-linear (Garcia-Huidobro et al. 2017), we also suggest that introducing reform at the systemic level may go through several phases. Ekholm (1988) reports on a six-stage maturation process that schools go through (quoting the work of Nielsen 1983). The first four stages move from status quo systems where stakeholders see no need for change to disequilibrium where the need for change is recognised, and then changes are proposed and accepted. Our earlier systematic literature review investigated barriers and supports related to the design and preparation for implementing a reform (McLure and Aldridge 2022). A fifth stage is one where the change is introduced into the system. Empirical studies which describe barriers and supports connected with this stage were analysed in Aldridge and McLure (2023). The final stage is where the systems become self-renewing, and mechanisms have been established for self-reflection and ongoing implementation and change. This systematic literature review focuses on this final stage, identifying supports and barriers to sustained reform implementation at the school and classroom level.

Fullan (2006) highlights the importance of system-thinking for sustaining change throughout schools. He suggests that there are eight areas which should be the focus of system-thinking including initiating and sustaining change at all levels, focus on capacity-building through networks and collaboration which is both horizontal and vertical, collective problem-solving through deep learning, and sustaining leadership at all levels. Our theoretical framework also drew on Datnow and colleagues' (Datnow, Hubbard, and Mehan 1998; Mehan, Hubbard, and Datnow 2010) co-constructed nature of school reform. Using this framework allowed us to examine the influence of factors affected by different protagonists within the reform process. Actions occur simultaneously in different contexts within the system (e.g. at the classroom and at the whole school level) and these shape, and are shaped by each other.

Methods

Search strategy

Searches were made in the ProQuest ERIC, Scopus, Sage Journals and Web of Science databases for peer reviewed articles which contained the following terms in the title, abstract and keywords, agreed upon between the authors: *school change; school reform; school improvement; educational change; or educational improvement* as well as *factors affect*; affect*; impact; inhibit; barrier; support; affordance; or effective* as well as *primary school; secondary school; middle school; or school*. The scope of the study was limited to publications from January 2000 due to the large number of studies obtained through these searches.

It should be noted that many types of change are mandated at a system level, and rather than focusing on the type of change, we sought to understand the barriers and supports to implementing any mandated system-wide change. We included change efforts designated as reform, school improvement strategies, and specific changes such as introducing a system-wide science education strategy or strategies to support students with special needs. This search yielded 2560 studies (Figure 1).

Data screening and extraction

This systematic review followed the steps outlined in the Preferred Items for Systematic Reviews and Meta-Analysis (PRISMA) (Moher et al. 2009). Data screening and extraction was carried out in five stages. Studies were entered into Covidence™ (2019) software which controls for agreement of all authors at each stage

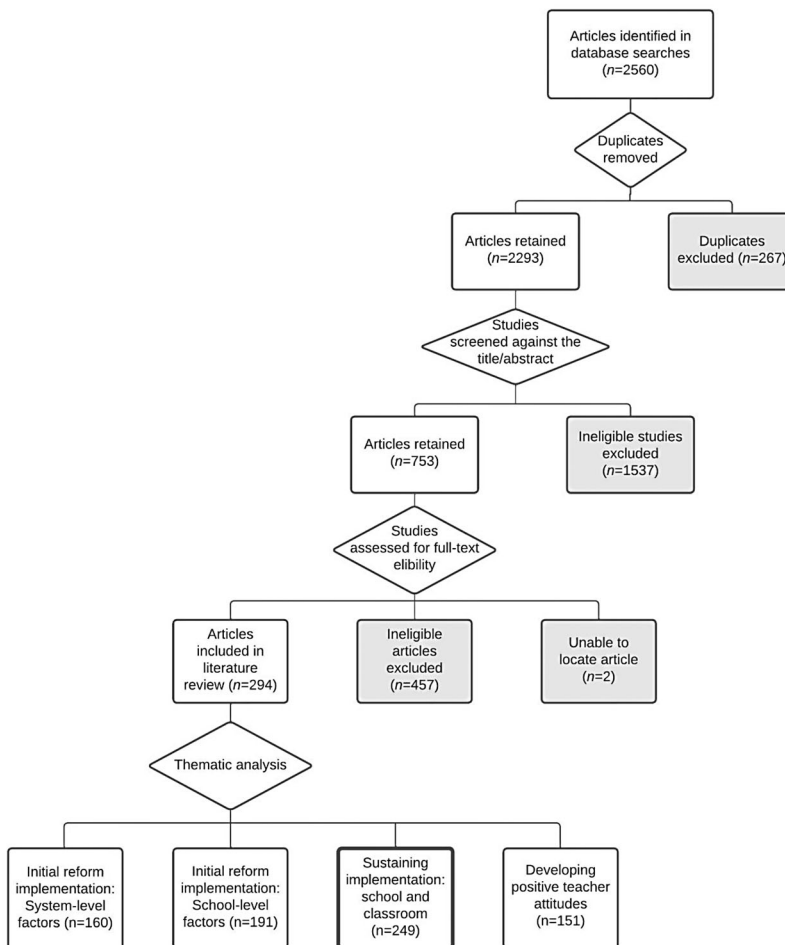


Figure 1. PRISMA flow diagram of study selection for the systematic review.

of the selection process and provides a process for resolving conflicting decisions. Duplicates were then removed ($n = 267$). Each author independently checked titles and abstracts against the inclusion/exclusion criteria (see [Table 1](#)). Covidence™ (2019) then highlighted those articles where for which the authors had classified differently. They then met to discuss decisions and reach consensus, based on the inclusion/exclusion criteria. When insufficient information was provided in the title/abstract the article was moved to the full-text stage for further examination. The remaining 753 articles then underwent full-text review by both authors resulting in the retention of 294 articles ([Figure 1](#)). At this stage, more stringent reading of the full-text resulted in articles that did not meet the inclusion/exclusion criteria agreed upon by the authors or which did not meet the criteria set for sufficient quality (see [Table 1](#)) were excluded. The authors once again worked independently and met to discuss the articles where there were differences in classification in order to reach consensus.

Finally, data was extracted from each paper by summarising findings related to barriers and supports for sustaining reform.

Analysis

Data was extracted describing factors that acted as barriers or supports in these empirical studies of reform implementation. Barriers and supporting factors from each article were analysed separately for themes by the authors (Nowell et al. 2017). First, major themes were identified by the authors, such as

Table 1. Inclusion/Exclusion criteria used throughout the PRISMA review process.

Review Phase	No.	Criteria for Inclusion	Criteria for Exclusion
Title and Abstract Review	2293	studies published from January 2000 to October 2020; published in English; empirical studies describing factors that are barriers or supports to the introduction of system-wide reforms or changes; reforms were introduced after 1970; carried out in a K-12 school setting	purely theoretical discussions; book chapters, conference proceedings, reviews, theses; discussions primarily of political factors influencing reform
Full-text Review	753	studies describing theory, methodology, and data on which conclusions were based; sufficient data presented for findings to be valid/reliable (quality)	studies focusing on descriptions of reform rather than barriers and supports to implementation
Data extraction	293	Factors that act as barriers or supports extracted from each article accepted at full-text review stage	
Thematic analysis	249	Factors that influenced the continued successful implementation of the reform; factors that affected teachers' ability to implement the reforms within their classrooms; factors related to external/internal advisory groups that supported or acted as barriers to continued implementation of the reform	Factors that are important in planning for implementation or initial implementation only.

leadership practices. Second, sub-themes were identified as they arose until saturation of themes was achieved (Bryman 2012). Coding of themes/sub-themes were cross-checked by each author. Barriers and supports within each theme were then collated and compared.

Further inclusion criteria were then developed to identify articles which addressed sustaining implementation of reform at the school and classroom level (see Table 1), namely the article included: factors that influenced the continued successful implementation of the reform (RQ1), OR, factors that affected teachers' ability to implement the reforms within their classrooms (RQ2), OR factors related to external/internal advisory groups that supported or acted as barriers to continued implementation of the reform (RQ1&2). Two hundred forty-nine articles published between 2000 and October 2020 met these eligibility criteria (Figure 1). However, it should be noted that many of these studies also reported results that were relevant to other stages of reform implementation since reform is non-linear.

Characteristics of included studies

The articles included in this study (n = 249) were published in 129 journals. Descriptions of the years of publication and levels of schooling are presented in Figures 2 and 3. More than 51 countries were represented in this review, and six studies included more than one country. More than half of the studies were carried out in North America (USA = 117, Canada = 10) (Figure 4), and almost three-quarters of the studies were qualitative (Figure 5).

Results

Our findings identified eight overarching themes that impacted reform success at this stage. In response to research question 1, the following themes were identified for a school-wide focus: leadership; ongoing resourcing/funding of the reform; ongoing professional development of staff relevant to the changes taking place; data collection and analysis to understand how reform

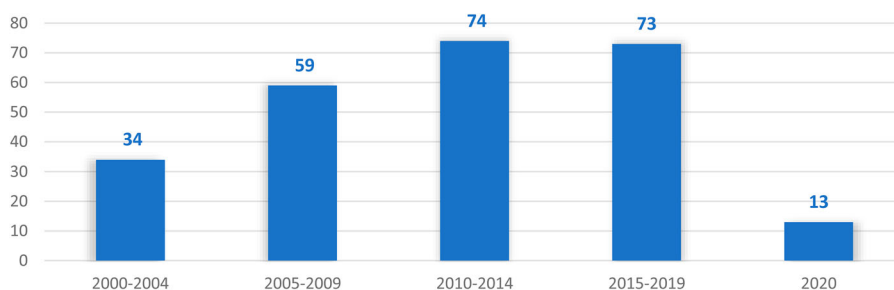


Figure 2. Studies by year published.

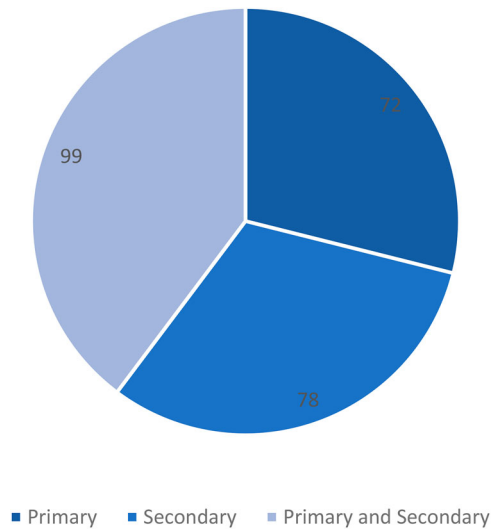


Figure 3. Study setting.

implementation is progressing; ensuring staff stability; encouraging agency of all stakeholders in ongoing change. In response to research question 2, one major theme for sustaining change at the teacher level was found: targeted support for teachers as they implement the reform/change strategies within their classrooms. Finally, the importance of the continued support from external bodies and internal advisory teams for sustaining change at both the school and classroom level is described. A list of articles forming the basis of each theme is found in the supplementary material.

Leadership for sustained reform

In a previous paper (Author, under review) we identified the importance of leadership for initiating reform within a school. As expected, leadership was also a

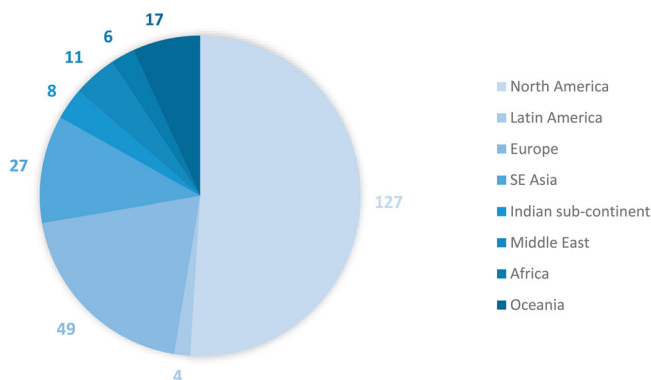


Figure 4. Studies by region of focus.

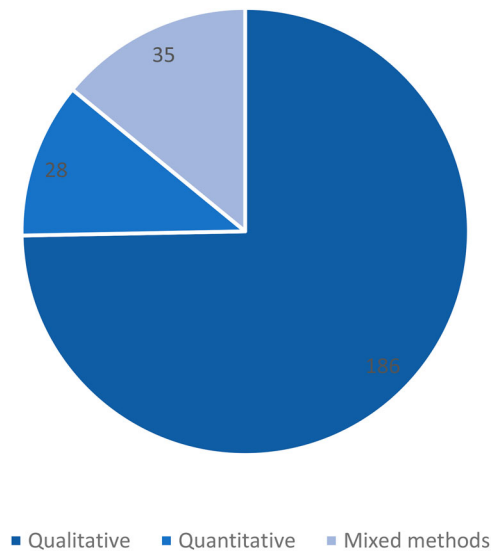


Figure 5. Study design.

prominent theme when considering the factors that support ongoing reform implementation.

Shared or distributed leadership

Thirty-four studies focused on the benefits of shared or distributed leadership for sustaining reform/change initiatives. These studies report that schools with deep and broad distributed leadership underwent the most significant change (Copland 2003). Shared or distributed leadership improved the school culture by cultivating a collaborative environment with improved morale, job satisfaction, relational trust between teachers and leaders, and shared responsibility. Shared or distributed leadership helped sustain initiatives by building consensus about what changes were needed, increasing confidence in the possibility of solving school-wide problems, promoting school-wide practices and vision, and supporting for innovation. For instance, dispersed leadership, focused on collaborative inquiry, was found to be more responsive to problems, flexible and context specific (Jackson 2000). Change initiatives were sustained when the principal was very purposeful in fostering leadership capabilities for distributed leadership (e.g. Klar et al. 2016). The articles reported different forms of shared leadership including the delegation of leadership to middle management (e.g. Klar 2013) and establishing new leadership groups, focused on reform implementation that involved teachers who were educational strategists and who could coach others (e.g. Sanchez, Usinger, and Thornton 2019). In other articles, leadership involved a highly democratic organisational structure (e.g. Little 2002) that included teachers, students, parents and community members (Epstein 2005), and innovative leadership styles such as rotating leadership, co-principals and inter-school leaderships (Copland 2003).

On the other hand, 12 studies showed that a lack of authentic distributed leadership undermined reform implementation and buy-in, suggesting a lack of trust in staff for making decisions (e.g. Kershner and McQuillan 2016).

Leadership practices for sustaining reform

Other facets of leadership which sustained the implementation of change were described in 11 studies. These facets, essential for the sustainability of change efforts, include ongoing training in leadership, commitment to the reform principles (e.g. Alazmi and Al-Mahdy), identification of barriers and persistence in the face of difficulties (Robinson et al. 2017). Principals should also appreciate and encourage staff by preserving teacher agency and supporting sustained investment in repeated cycles of goal-setting and planning (e.g. Butler, Schnellert, and MacNeil 2014); and by using data to identify and celebrate successful aspects of the change initiative (e.g. Dueppen and Hughes 2018). Change efforts were also sustained when the principal gave opportunities for deep learning about the reform principals and made both short and long-term practical goals (e.g. Dueppen and Hughes 2018).

Ongoing resourcing or funding of the reform

A significant factor that led to stalling of reform implementation over time was a lack of adequate resourcing or funding.

Budget/funding is sustainable

Reforms were unsuccessful when budgeting to support the change process was not sustained, was inadequate for the school's needs, or inflexible (16 studies). For instance, the reform was not sustained when the role of the facilitator was no longer funded (Bishop et al. 2012). On the other hand, when the ongoing needs for reform implementation were considered and budgeted for over the long-term (3 studies), such as ongoing funding for a reform facilitator or coordinator, the longevity of the reform was sustained (Bishop et al. 2012).

Funding available for resources and Professional Development (PD)

Similarly, changes were sustained when available resources matched the needs of the reform (e.g. instructional resources, technology, technical assistance, and human resources) (19 studies). In particular, reforms were supported when funding was made available for targeted PD for teachers and leaders and where funding was provided to allow for time to be set aside for group planning and development activities (e.g. Hallinger and Kantamara 2000). However, reforms were not sustained when under-resourced (17 studies) through inadequate facilities, instructional materials, or insufficiently trained teachers and through not funding a sustained PD learning cycle that allowed teachers to internalise the required changes (e.g. Bishop et al. 2012).

Budgeting decisions controlled by the school

Locating control of grant funds designated to support reform initiatives at the school level (6 studies) rather than the district/state level allowed for greater flexibility to respond to needs as they arose throughout reform implementation and supported longevity of implementation (Epstein 2005). Conversely, centralised decision-making at the district/state level or dependence on external leaders or others to obtain funding resulted in unmet needs or funding being used for unintended purposes (9 studies). For instance, reform initiatives stalled when resources were co-opted for different interest groups over time, or technical support for the reform was withdrawn due to changes in district superintendents whose focus was on other programmes (e.g. Jennings et al. 2007).

Ongoing and targeted professional development of staff

Another common theme was the need to support staff in their professional growth, primarily through formal professional development programmes that directly addressed their learning needs concerning the changes asked of them.

Leaders support the professional growth of teachers and engagement in implementation decisions

Thirty-six studies described how reform efforts were sustained when leaders supported teachers through building capacity (professional growth) and commitment at all levels. These studies described leaders directly supporting teachers: in understanding or implementing the reform (e.g. by taking on the role of the collaborative facilitator), by ensuring coherency and consistency of implementation, and helping underperforming teachers to make improvement plans (Bonda 2018). Successful leaders also supported teachers by taking time to understand their views, providing differential support, and allowing flexibility within the reform to suit individual needs (e.g. Brezicha, Bergmark, and Mitra 2015). These leaders developed horizontal support structures, for example, through social networks, collaboration, and mentoring programmes (e.g. Bubb and Earley 2009). They also facilitated teacher voice and participation in the reform process by providing time and space for feedback and inquiry and teaching them to self-reflect (e.g. Copland 2003).

Conversely, reform efforts were short-lived when leaders did not give time/space for staff development related to the reform effort or did not support failing members (e.g. Brown, Rutherford, and Boyle 2000). Reform efforts were also unsustainable when leadership provided only short-term coaching or support (e.g. Bishop et al. 2012), did not take time to understand the needs of teachers, or limited the financial support for training (25 studies). This lack of sustainability was particularly evident when the focus was on transactional rather than transformational leadership (Zhao and Liang 2018).

Targeted and ongoing PD provided to teachers

A significant factor in developing a supportive culture for teachers throughout the reform implementation process is the ongoing provision of targeted PD that supports teachers and leaders in their reform efforts. Successful PD provided guidance in changing instructional practices and was specific to the needs of the school for the reform (44 studies). PD was most effective when it was based on best teaching practices. For example, the most effective PD with long-lasting effects was embedded in the school and involved experiential learning that supported and challenged teachers at appropriate levels and allowed for active learning specific to the reform (e.g. Bana 2010; Barakat and Maslin-Ostrowski 2019). Teachers were given agency in PD, allowing them to take the initiative and choose what would meet their needs (e.g. Borko, Elliott, and Uchiyama 2002). The effectiveness of the PD was increased when space was given for self-realisation through reflection, encouraging teachers to identify problems, take action and then give feedback (Bana 2010), and both short and long-term staff development plans were made (Edamo and Netshitangani 2018). A study in Bangladesh comparing the effectiveness of different types of PD for supporting school change showed that developing and sustaining collaborative networks for enquiry that included classroom observation strategies were more effective than individual action research (Hoque, Alam, and Abdullah 2011).

On the other hand, unsustained or poorly supported PD that was unfairly distributed limited the longevity of reform efforts (39 studies). PD that was superficial (El-Bilawi and Nasser 2017), not responsive to the context or the changing school landscape, and did not address the needs or ambiguities of the reform was ineffective (e.g. Choi and Walker 2018). When PD did not consider teachers' individual needs and experience and lacked teacher voice to address concerns about the reform, its effectiveness was also limited (e.g. Arco-Tirado and Fernandez-Balboa 2003). This lack of consideration was evident when staff new to a school were not provided induction that promoted strategies supporting the reform (Bishop et al. 2012). PD strategies also failed when teachers were resistant to view peers as instructional leaders (Klar 2013).

Data collection and analysis

Another factor that supported and sustained successful reform implementation was the thoughtful collection and analysis of data.

Systematic data collection

Twenty-three studies described the importance of developing strategies for systematically collecting data and developing data-driven problem analysis and decision-making habits for sustained change (e.g. Ancess, Barnett, and Allen 2007). Where leaders and teachers recognised the significance of data collection and worked to improve data literacy, including externally collected data, this

allowed for a more informed approach to reform strategies (Copland 2003). Structured data collection, for instance through surveying teachers and students, helped improve distributed leadership (Hamilton 2014). Data collection should also be used to inform stakeholders and improve the transparency of the reform (Koyama and Kania 2016).

On the other hand, 16 studies highlighted that limited data collection was a barrier to sustained change. In these studies there was often inconsistent or ad hoc collection of data due to a lack of understanding about what data should be collected or the purposes of the data (Ah-Teck and Starr 2014). In these cases, there was a lack of expertise in making data-integrated decisions and a reluctance to use 'negative' data (e.g. Ah-Teck and Starr 2014). The reluctance to collect and use data was often due to a fear of what the data might show (Copland 2003) and that it could be used for surveillance or criticism (Koyama and Kania 2016).

Processes for evaluating change and giving feedback based on data collection

To effectively use the data collected within schools for refining actions, systems are needed to evaluate the reform, including data that identifies what changes have occurred and feedback about the reform processes from teaching staff and other stakeholders, including the impact of PD (27 studies). For instance, committees of stakeholders can be set up to frequently monitor and evaluate strategies, keep an inventory of best practices at the school, and suggest ways to calibrate strategies based on observations (e.g. Robinson et al. 2017). Strategies that involved self-assessment (both individual and collective) were the most successful for change (e.g. Madhlangobe and Madhlangobe 2014).

Accountability processes to support engagement with change

Twenty-two studies reported the value of positive, supportive systems that hold teachers and schools accountable for the consistent implementation of change strategies. School accountability systems with clear internal and external expectations and based on evidence influenced teachers' views about the reform, especially if teachers were aware that there could be negative (or positive) consequences for poor or excellent implementation (e.g. Bonda 2018). However, three studies indicated that when teachers did not believe they would be held accountable, for example, for lesson plan development or other aspects of the reform implementation, change was limited. One concern about accountability measures was that, without genuine teacher buy-in, teachers might go through the motions without commitment to change (Bridich 2016).

Ensuring staff stability

A major barrier to sustaining change initiatives was a high level of staff turnover (18 studies), which eroded morale, intellectual capital (i.e. teacher knowledge of

reform processes), understanding of the norms and goals of the reform, and hence overall engagement with the reform (e.g. Copland 2003). In addition, teacher absenteeism meant that substitute teachers unfamiliar with the reform goals and processes were left to deliver programmes (Bruno 2002). Some of the leading causes of staff instability were weak organisational support and short-term contracts (e.g. Gunter et al. 2007).

However, in three studies, where care was taken to limit the movement of teachers out of the district or school after they received training for reform implementation, reforms were longer-lived (e.g. Epstein 2005).

Involving all stakeholders

In addition to the benefits of teachers being involved in planning and leading the reform effort, the involvement of other stakeholders such as students, parents/caregivers, and the wider community has long-term benefits for implementing reform.

Teachers included in decision making and given agency for reform implementation

In addition to sharing leadership within the school, teachers should feel empowered to be part of decision-making as they take ownership over strategies/innovations during the institutionalisation of reform at the classroom level (39 articles). Reforms sustained over time were those where the principal collaborated and negotiated with teachers before making decisions (e.g. Epstein 2005). Further, teachers were empowered to critique/modify the vision and given autonomy regarding the resources they use (e.g. Geijsel et al. 2003). Acceptance of the reform depended on how meaningfully teacher feedback was incorporated (e.g. Nguyen and Hunter 2018). Additionally, self-initiated change/teacher-driven initiatives increased internal agency and buy-in to the reforms and increased the development of skill flexibility (e.g. Clement 2014).

On the other hand, in 28 studies when teachers were not part of the decision-making process, this resulted in a lack of ownership of the reform as 'the reform was done to them rather than with them' (Arco-Tirado and Fernandez-Balboa 2003). Lack of teacher voice in aspects of the reform such as PD also reduced willingness to engage in the reform process fully (e.g. Johnson 2007).

Students engagement with reform processes and decision making

Likewise, in 11 studies, when students were included in the decision-making in a shared leadership model, reflecting on changes and giving feedback, there were benefits for reform implementation in the long-term (e.g. Bana 2010). However, in 9 studies, lack of student involvement, democratic participation, and clearly defined roles for students in giving feedback about the reform led to beliefs among students that the reform was not helpful (e.g. Scanlon 2012).

Parental engagement with reform processes and decision making

Thirteen studies described the benefits of including parental voice to overcome resistance to school improvement initiatives. These studies found that resistance was overcome through consultation, providing multiple opportunities for contact between parents and teachers, communicating the vision for the changes, and giving parents opportunities to act as advocates for students (e.g. special needs students) (e.g. Chen 2008).

However, when parental involvement in decision-making was tokenistic due to limited communication and lack of policies to engage marginalised families (e.g. with limited English), there were missed opportunities for gaining alternative views and support for the reform (19 studies). This lack of engagement was particularly evident for fragile families (e.g. those with problems getting their children to attend) when prior negative experiences resulted in a lack of trust in the school or belief that the reform was beneficial (e.g. Polyzoi and Cerna 2001).

Encouraging wider community engagement and support for reform

Similarly, 14 studies described the ways in which collaborating with community members through purposeful networking structures helped identify barriers to implementing change and strengthens programmes to address barriers (e.g. Anderson-Butcher et al. 2010). Community engagement improved public accountability and equity, school climate, and instruction (Gold et al. 2004). However, when community members felt that their input was ignored or disrespected, there was low buy-in to support change initiatives (11 studies). Low buy-in or community opposition to the reform resulted when there were power struggles, vested interests, misunderstandings (between community leaders (e.g. local government agencies) and school leadership), or when community members selected to work with schools were not representative (e.g. highly educated/wealthy) (e.g. Jones 2008).

Supporting teachers for change in their classrooms

The majority of reforms or improvement strategies described in these studies required the adoption of significant changes at the classroom level for changes to become institutionalised (c.f., Fullan 2001). Following are themes that arose from empirical studies that describe how teachers can be supported to implement change successfully.

Specific guidance on how to implement the reform

The importance of giving teachers specific guidance about applying the reform to their teaching practice was identified in 20 studies. This guidance can be provided by translating the goals of the reform into actionable steps (e.g. Fernandez 2011), providing explicit teaching strategies relevant to the context and

expectations (e.g. Anderson et al. 2012), or modelling practical strategies (Furman and de Podestá 2013). One effective strategy was to organise collaborative lesson preparation times to encourage peer support and guidance (Lai Wah 2007). In 25 studies, where teachers were left unsure of how to apply the reform to their teaching or the guidance was not coherent (Adoniou 2016), were not given specific strategies and practical examples or guidance on how to address practical issues that arise in the classroom as a result of the changes, adoption of changes at the classroom level remained limited (e.g. Huang and Asghar 2018).

Building teacher self-belief for successful reform implementation

Teachers' negative beliefs about their ability to implement the reform were a common barrier to bringing about and sustaining change (e.g. Cave 2011) (15 studies). This barrier was exacerbated when targeted PD was not provided (Choi and Walker 2018) or when there were anxieties about being coached and observed (e.g. Mohamad et al. 2016). However, 13 studies described how teachers' self-efficacy could be supported through appropriate PD, collaboration and coaching, which boosted confidence to pursue reform (e.g. Furman and de Podestá 2013).

Ensuring there is enough time for reform tasks

A major area of concern for school staff was time constraints for reform implementation (46 studies). Teachers had limited time to plan, meet with other teachers, collaborate, be mentored or mentor, or attend PD workshops and this resulted in initial enthusiasm, followed by failure to sustain the change (e.g. Aness, Barnett, and Allen 2007; Collinson and Cook 2001). Time constraints were often related to the rapid pace of implementation, overcrowded classes and schedules, crowded curriculum content, and dealing with the myriad of everyday issues that arise in classrooms and schools (e.g. Arco-tirado and Fernández-balboa 2003). Time was often not set aside to plan at the school level, let alone the classroom level (e.g. Aness, Barnett, and Allen 2007). Teachers also said that reform implementation resulted in an increased workload involving extra planning, including increased paperwork, which may be inequitably applied (e.g. Graczewski et al. 2007; Liljenberg and Nordholm 2018). The time it takes to see the benefits of the reform also led to teachers becoming impatient and giving up on the reform (e.g. Tang, Lu, and Hallinger 2014).

On the other hand, 28 studies described how the reform was sustained when the time was purposefully set aside for inquiry processes, data collection, data-driven decision making, planning, sufficient PD and staff development, collaboration, and other meetings for teachers and leaders (e.g. Copland 2003). Evaluation of time usage was essential to find ways in which time could be used more productively and efficiently (e.g. Karagiorgi et al. 2015). One way to save time for

teachers was to provide them with pre-prepared materials (Thomson and Gregory 2013). However, it was noted that change takes time, often years, and time must be allowed for coordinators to understand the reforms and the literature and for the changes to be implemented fully (e.g. Hollingworth et al. 2018).

Teachers encouraged in developing innovative approaches

Changes at the classroom level due to a mandated reform will not be 'one size fits all'. Instead, teachers need to be encouraged to be flexible and experiment to overcome problems with implementation (19 studies). For instance, where the principal supported innovative responses to the reform as an initiator of innovation rather than a responder and made it known that it was acceptable to fail, there was greater teacher buy-in (Hollingworth et al. 2018). Other ways in which principals encouraged innovation was through supporting collegial interactions, for instance using ICT (Wong and Li 2011), and setting up learning communities where teachers felt safe to experiment (e.g. Little 2002). Further, increasing teacher autonomy and decision-making leads to a more innovative climate, whereas a top-down prescriptive reform is a barrier to innovation (Park 2012).

Establishing peer-support mechanisms

Teacher peer support encouraged teachers to continue to participate in reform (13 studies). Peer support mechanisms can be via teachers observing each other's classes and more experienced teachers supporting less experienced teachers, including establishing a pilot programme for modelling practices for other teachers (e.g. Lai Wah 2007).

Advisory teams to support ongoing change

Finally, many articles discussed the importance of continuing support from external bodies or internal advisory teams in order to institutionalise the changes.

Appointing internal change agents/facilitators to coordinate reform

Seven studies highlighted the benefits of setting up funded positions for facilitators, coordinators, or a reform management team within each school to oversee the ongoing change process. Successful change agents were hand-picked by the leadership to work with stakeholders within a school (Datnow and Castellano 2001).

Ongoing support from the school district during reform implementation

Thirteen studies identified that ongoing support from the school district for schools was important for sustaining change. Factors included solving

problems, facilitating networking between schools, and communicating high expectations of schools to implement changes and new programmes with fidelity (e.g. Anderson et al. 2012). Conversely, 38 studies described barriers presented by lack of ongoing support from the school district to schools due to: a change of focus or priorities, staff turnover in the district/education department, poor communication between policymakers and school leaders, or inequitable distribution of resources (e.g. Tucker et al. 2014). Additionally, bureaucratic requirements imposed on schools limited the time school leaders and teachers could spend developing programmes related to the reforms and increased teacher stress since teachers felt their needs were ignored (e.g. Micanovic 2019).

Support from external advisory teams/consultants/change agents, including university/school partnerships

In addition to the need for internal change agents within each school, 39 studies highlighted the benefits of appointing external advisory teams or consultants to support change initiatives. These groups included university researchers working in collaboration with schools to implement change (e.g. Ancess, Barnett, and Allen 2007). The roles of such a group included: a focus on research to prepare action plans, providing support and training for school leaders and teachers, supporting school leadership in collecting data for making data-driven decisions and contextualising plans, demonstrating best practice, and providing PD. When working with external support teams, it was important for trust relationships to be built so that teachers could express their ideas freely without punitive action and for principals to have autonomy over the consultant's input (e.g. Craig 2012). Maintaining a high reputation in front of external parties can also be a motivating factor for introducing reforms (Saito, Khong, and Tsukui 2012).

Twenty-nine studies identified barriers to effectively working with external consultants or other agencies brought in to support the reform implementation. For instance, effective partnerships failed when the consultant's role within the school was ambiguous, lacked organisation, was infrequent, did not consider the context, or gave conflicting advice (e.g. Cameron 2010; Datnow 2005). The result was strained relationships between the teachers/principal and the external group, lack of trust, scepticism about the reform and feelings of powerlessness and being judged (e.g. Craig 2012).

Establishing supportive networks between schools implementing changes

Another supportive factor for schools undergoing reform was the establishment of networks of schools also implementing the same changes (12 studies). Networks allowed the sharing of strategies between schools and collaboration between leaders in a district (e.g. Anderson et al. 2012). However, in three studies, the benefits were limited when schools felt coerced into collaboration

or superficial decisions were made due to the collaboration (Wohlstetter et al. 2003).

Discussion, limitations and recommendation

Barriers and supporting factors for sustaining reform were described in 249 articles examined. This large number of articles highlights that most studies, related to reform, focus on the ongoing implementation of reform. This stage of the reform process involves the systems set up earlier, as the change initiatives were introduced into schools, become self-renewing, and establishing mechanisms for self-reflection and ongoing implementation and change (Ekholm 1988; Nielsen 1983).

These studies examined a range of reform efforts from different perspectives and in different countries. Analysis of the results reported in these 249 empirical studies described factors that should be focused on at the school level and at the classroom/teacher level. Eight overarching themes were found that should be considered by school leaders as they attempt to sustain reforms over the long-term: supported and developing distributed or shared leadership in schools to increase capacity and buy-in for reform; the adequacy, flexibility, and sustainability of funding and resources; factors that support teachers in adopting change in teaching practice; the need for ongoing, targeted, quality professional development of staff; cycles of evaluation of the reform implementation and use of data to further modify and inform change; ensuring staff stability to preserve and develop skills and knowledge of the reform; ongoing engagement of stakeholders to feedback about the impact of reform and as champions of the reform; and support from external groups as pedagogy and change management experts.

A system-thinking approach to sustaining change at all levels (Fullan 2006), supported by co-construction of successful, long-term change initiatives as proposed by Datnow and colleagues (Datnow, Hubbard, and Mehan 1998; Mehan, Hubbard, and Datnow 2010), is clearly an important feature of sustained change. In order to understand the factors that sustain (or act as barriers to) long-term change, the school ecology must be viewed as a system where change is sustained at all levels (Fullan 2006). In order to sustain that change, the focus must be on capacity-building over the long-term through developing networks and collaborations which are both horizontal and vertical, collective problem-solving through deep learning, and sustaining leadership at all levels (Fullan 2006). This systematic review confirms and elaborates Fullan's and Datnow and colleagues' views of the importance of system-thinking for sustaining change. Each of the following factors must be viewed as part of a whole where actions occur simultaneously in different contexts within the system (e.g. at the leadership, middle management and classroom levels) and these shape, and are shaped by each other.

First, research evidence suggests that shared or distributed leadership leads to greater school change. In schools where principals facilitated distributed leadership by incorporating middle leaders into the administrative structure, this encouraged a culture of shared responsibility. The importance of shared leadership for greater engagement and collaboration when enacting reforms supports the findings of past reviews (Ekholm 1988; Goldenberg 2003; Leithwood 2016). These findings suggest that a careful balance between top-down and bottom-up principles is needed by combining shared leadership with clear guidelines and support for teachers in managing change (Goldenberg 2003; Ekholm 1988). A review of the role of department-head leadership for reform implementation (Leithwood 2016) found that distributed leadership was generally underutilised but that its effects were positive and possibly larger than other school effects on whole-school improvement initiatives.

Second, the importance of engaging stakeholders to enhance reform success was highlighted. In schools where stakeholders were part of the decision-making and asked to reflect on changes and give feedback, the reform initiatives were more likely to succeed. For teachers, findings suggest that having ownership over strategies or innovations, having a voice in professional learning, and critiquing or modifying the vision will make a difference in the success of reform initiatives. The importance of continued engagement of all stakeholders for reform was consistent with the general findings from some reviews. For instance, Ekholm (1988) reviews that all staff members should share in critiquing, designing, and managing change, and Levin (2010) reports that teachers' input needs to be recognised as necessary. Likewise, productive relationships with families and the community should be sought to support long-term change (Leithwood 2016; Potter, Reynolds, and Chapman 2002; Shirley 2009; Datnow et al. 2005), and students' voice within the reform effort should be empowered (Ekholm 1988; Potter, Reynolds, and Chapman 2002; Guhn 2009). Ongoing communication about the goals and expected outcomes of the reform is essential to overcome resistance, for instance, from parents who are unsure whether there will be negative consequences for their children's learning (Pérez Gómez and Sacristan 1994).

One way of encouraging a higher level of engagement with the co-construction process is to engage the help of external facilitators. However, care should be taken to delimit the parameters of their involvement as external facilitators that try to mandate inflexible changes, do not listen to local experts or develop collaboration and support agency can act as barriers to change. For example, in cases where there is strong support for reform implementation from district to schools, instability, or changeover at this level can act as a barrier. Other barriers included a lack of communication between policymakers and school leaders, and teachers and a lack of a clear policy for the flow of information. Bureaucratic requirements, particularly if they were complicated or required too much paperwork, have also been a barrier to sustaining reform.

In the case of external consultancies, advisory teams and university-school partnerships, evidence suggests that the key to success was a shared understanding of the focus of these agencies. The most useful support involved providing: support for preparing plans; feedback to leaders (about the change needed), and teachers (for training or support) (c.f. Honig and Rainey 2012; Tang, Lu, and Hallinger 2014; Hallinger and Bryant 2013; Leithwood 2016; Datnow et al. 2005). In addition, the benefits of schools within a system having opportunities to collaborate with other schools were also a feature of several studies examined.

Three major considerations for leaders throughout the co-construction process in order to support ongoing and long-lasting change are: sustainable funding models; establishment of a cycle of targeted data collection and analysis informing ways in which the reform should evolve; and targeted professional development to build capacity and respond to the needs for capacity building.

The evidence suggested that funding considerations are important to reform success. Inadequate or inflexible funding will impact the success of reform. When insufficient training, support, opportunities for reflection, and budgeting for appropriate teaching materials are provided, schools are less likely to successfully implement reform over the long term (c.f. Hallinger and Bryant 2013; Leithwood 2016; Potter, Reynolds, and Chapman 2002). In particular, inadequate funding for professional development will impact the success of the reform. Conversely, the success of reform initiatives is supported when adequate and sustainable funding is controlled at the school level.

The critical role of the professional development of staff in the reform process is highlighted in many studies. First, research evidence highlights the pivotal role that leaders play in supporting and building capacity in teachers as they grapple with understanding or implementing the reform. Second, much research evidence suggests that professional learning needs to be: consistent with the reform effort; emphasise changing instructional practice; based on best teaching practice; and tailored to meet the needs of schools and teachers. The complexity of many reforms means that teacher skills need to be developed (Hallinger and Bryant 2013), time given, and distractions removed for teachers to implement change (Leithwood 2016), including time and resources for reflection and research (Potter, Reynolds, and Chapman 2002). Consistent with the system-thinking model of Fullan (2006), problem-solving throughout the school, requires deep learning and sustaining leadership at all levels.

In order to guide the professional learning taking place in the school, a cycle of data collection and evaluation to guide further changes is important to reform success. First, evidence suggests that considering the processes for evaluating change are important. These need to include a change in teaching strategies and feedback for refining and evaluating professional learning. Evidence highlighted that self-assessment was the most successful strategy for change. Second, research findings suggest that using data to guide decisions across

schools is important to reform success. Developing habits of problem analyses and evidence-based decision-making helps improve transparency and inform others of the reform. This theme is consistent with some past literature reviews, although most of the reviews focused on the importance of accountability structures (Leithwood 2016; Potter, Reynolds, and Chapman 2002; Guhn 2009; Tatto 2006; Honig and Rainey 2012; Datnow et al. 2005). Our findings extend these studies, supporting the importance of sustained data collection and evaluation of the reform initiative to inform decisions (e.g. Leithwood 2016; Potter, Reynolds, and Chapman 2002) and suggest that tangible evidence of progress is needed for teachers and others to remain committed to reform efforts (Goldenberg 2003).

In terms of supports and barriers to successfully sustaining change at the teacher/classroom level this paper outlined the following factors: ensuring that teachers understand how to translate the theory into practice; building teachers' beliefs about their ability to implement change strategies; recognition of and overcoming time constraints; and promotion of innovative approaches.

First, the evidence highlights the importance of providing staff with guidance about the specifics of implementing the reform and how it should look in practice. In cases where explicit teaching or modelling of practical strategies was provided and reform goals were rendered into actionable steps, the reform was more likely to succeed. Our findings are consistent with reviews that suggest that reform efforts that provide explicit and detailed instructions on what needs to be done at the classroom level and give time and space for building collaborative relationships are more successful (Goldenberg 2003).

The findings reported that teachers' self-beliefs about their ability to apply the reform to their teaching would impact reform success. Therefore, consideration needs to be given to professional learning and access to coaches to help address self-esteem or efficacy problems related to the reform.

Much evidence suggests that teachers' time constraints or increased workload can hinder reform efforts. A lack of time at the leadership level is likely to impact the development of school plans, and a lack of time at the teacher level reduces the time for mentoring, collaborating, and meeting. At the district level, a lack of time affected the level of support available to schools.

In addition, reform success is more likely when innovative approaches are encouraged. In schools where the need for flexibility and experimentation to overcome problems is recognised, and principals are the initiators of innovation related to the changes required for reform, the chance of success is enhanced.

Finally, staff stability is essential for sustaining change efforts. Staff instability may undermine gains if teachers are moved from team to team or to different schools (c.f. Pérez Gómez and Sacristan 1994; Potter, Reynolds, and Chapman 2002). Ensuring that there is a critical mass of teachers who understand the theoretical and practical implications of the implemented changes means

that these teachers can then impart their expertise to new teachers entering the system. It is important to establish systems for new staff to become familiar with the changes taking place. Maintaining staff stability is essential if the gains in capacity-building made through collaboration, networking and distributed leadership are to be preserved (c.f., Fullan 2006). This is an under-reported factor in supporting and sustaining change.

Our systematic review of the literature had limitations. Our search was limited to the English language, which may have led to bias against publications in other languages, thereby constraining the generalisability of our conclusions. Further, potentially relevant articles may have been excluded if they did not include our search words in their abstract, subject, or title. Notwithstanding these limitations, our literature review provides a broad outline of factors that affect the implementation of reform efforts. These factors could provide important information to stakeholders, including policymakers, professional learning providers, and school leaders. Given the findings, the following recommendations are provided:

- (1) Support development of authentic shared leadership structures and a dedicated group to oversee ongoing change within the school—funding a change agent/s to spearhead changes and support teachers.
- (2) Examine the funding needs of the reform and how funding for reform can be made sustainable and controlled by individual schools.
- (3) Ensuring that sufficient time is allocated for the reform to be implemented fully, particularly time for teacher collaboration, reflection, and PD, taking into account that change takes time, often years.
- (4) Improve data literacy and build capacity to use data for decision-making related to school improvement.
- (5) Examine ways to limit the movement of staff who have received training for the reform and train staff members as they join the school.
- (6) Examine ways to ensure ongoing engagement of stakeholders throughout the reform.
- (7) Establish external support groups to guide reform, including intra-school collaborations.

Conclusion

A common consensus within the literature was that reform is often rushed (Cheng 2009) while, in reality, improvement is slow, and implementers should expect it to take years (Ekholm 1988). Despite much research related to educational reform, efforts have often failed to bring about the desired change. This systematic literature review outlines factors that hinder or facilitate education reform attempts to sustain reform initiatives. By including empirical studies from around the world that examined different reform types, we have

overcome some of the limitations of past reviews by making our findings more generalisable. As the first systematic review of literature of this scope and nature, we have drawn together themes that previously were in independent reviews and found additional themes of importance. We have provided detail about core factors that underpin the success (and barriers) of sustaining school reform efforts. As such, our review offers information that could help achieve important goals for education quality and, in doing so, grounds for optimism for the success of future reform efforts.

Disclosure statement

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