



Evidence Based
Education

Great Teaching Toolkit

School Environment & Leadership: Evidence Review



Rob **Coe**

Stuart **Kime**

Dan **Singleton**

A model for school
environment and leadership

In partnership with



Cambridge Assessment
International Education

Acknowledgements

This School Environment and Leadership: Evidence Review marks the next phase in the Great Teaching Toolkit project. It is the product of collaboration between teachers, school leaders, and researchers, and to all those who read drafts and offered feedback and critical friendship to us, we say a huge thank you.

This collaboration extends, once again, to the team at Cambridge Assessment International Education. To you, we offer our sincere thanks for the support that you have given us with this next phase of our mission to transform professional development for teachers and school leaders.

Throughout the life of the Great Teaching Toolkit, we have been fortunate to work with the team at Ignio, and now take this opportunity to recognise them and say thank you for their powerful contribution and unwavering support of the GTT's mission.

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Dylan **William***
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Edward **Wright***
Eltham College

* EBE Advisory Board

** EBE Advisory Board Chair

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I G N I O

Innovation by design

Foreword



Lee Davis

Director, Teaching and Learning
Cambridge Assessment International
Education

Here at Cambridge, we believe that, while there is no single, key determinant of an effective school, the evidence base tells us (with varying degrees of strength) that there are many things that schools can do to become more effective and maximise the chances of success for every child that comes through their gates.

These actions emerge from what are called the correlates or indicators of effective schools and our understanding of the research in this area appears to confirm that these interrelated indicators include:

1. high academic standards and expectations
2. a positive school climate which focuses on learning and achievement
3. pedagogical leadership
4. high-performing teachers and effective classroom practice
5. students with strong self-efficacy and confidence as learners
6. parents with high aspirations and expectations
7. resources that are fit for purpose
8. clear school governance, including sound financial management.

Or, at least, this is what we think currently...

In June 2020, Evidence Based Education (EBE) published a report asking policymakers, school leaders and teachers to look critically at what constitutes effective classroom practice. The report, called *The Great Teaching Toolkit: Evidence Review*, identified four priorities for those teachers who want to help their students learn more:

1. understand the content they are teaching and how it is learnt
2. create a supportive environment for learning
3. manage the classroom to maximise the opportunity to learn
4. present content, activities and interactions that activate their students' thinking.

Cambridge was proud to work with EBE on that report and is delighted to be able to do so again—this time on research around the school environment and the role leadership plays in establishing the conditions under which schools can maximise the opportunities for all students to progress in their learning, beyond normal developmental patterns.

In recent years, we are seeing more and more evidence that school leadership has a significant influence on student outcomes—second only, perhaps, to classroom teaching—and that leadership is a critical determinant of overall organisational performance and success. What leaders do, therefore, seems to matter.

However, the purpose of this report is to explore the evidence in support of such actions and the relative strength of that evidence. In so doing, it asks us to challenge our pre-existing assumptions about leadership and the school environment and look afresh at what underpins them. The subsequent implications for policy, and the quality implementation of such policy, therefore become an imperative for us all.

A handwritten signature in blue ink, consisting of several loops and a final flourish, positioned on the right side of the page.

Executive summary

Students' academic learning in schools is primarily determined by what classroom teachers do. However, there is good evidence that the professional environment in the school can also affect students' learning, in a range of ways. The responsibility for creating and maintaining the most conducive professional environment lies with school leaders.

Despite the undoubted importance of school leadership, existing research tells us little that is trustworthy about what skills and knowledge school leaders should have, what they should do in any given situation, how we should train and support them, or exactly how their actions may be expected to benefit students, in terms of both attainment and equity. Many leadership researchers and trainers offer plentiful advice and make strong claims, but we judge that little of this is well-defined, actionable and grounded in robust evidence.

The Model for School Environment and Leadership, set out in this document, draws on a comprehensive review of existing literature and identifies a set of school characteristics for which there is good evidence that they are related to student outcomes, and where there are plausible mechanisms supporting a causal claim that these factors act to enable or constrain the classroom interactions that promote student learning. These school-level factors are our current best bets for the things that school leaders should pay attention to.

In order to cater for different audiences, we have split the findings from our evidence review into four separate but inter-related documents, of which this is the first, written primarily for practitioners. It is intended to have a constructive, action focus. The second sets out in technical detail the key methodological problems faced by research in school leadership, and hence why we are sceptical of many of its claims. The third identifies a selection of studies that we believe contain the most defensible claims and the strongest evidence about the factors we have included in *the Model for School Environment and Leadership*. The fourth provides technical details of the literature search and synthesis process that underpins the other three.



The Model for School Environment and Leadership forms part of the **Great Teaching Toolkit**, and is intended to support school leaders in their complex and challenging roles by empowering them with authority, capability and feedback to identify and address local problems in ways that are appropriate for their context, rather than giving generic advice. To do this, they should do three things. Firstly, they need to understand how, when and why each factor can enable or prevent effective learning from happening, in theory. Secondly, they should monitor each factor in their own context, collecting evidence about how each may limit or enhance the learning of their own students. Thirdly, they should prioritise a small number of factors (perhaps just one) that are both a barrier to effective teaching and learning and a lever they can realistically move enough to make a difference.

If they make use of the tools and structure of the *Great Teaching Toolkit* to support them in doing this, they can also contribute to the collection of better evidence and the generation of stronger recommendations that will benefit themselves and future generations of school leaders, teachers and students.

Our *Model for School Environment and Leadership* puts the classroom, and the interactions between teachers, students and curriculum, at the centre. These interactions are largely under the control of classroom teachers, but they also depend on a number of school-level factors that are either beyond the power of individual teachers to influence, or require leadership coordination to best support learning. These factors fall into three broad groups.

The first group of factors relates to the time spent on productive learning activities, for example, the amount of timetabled lesson time, support for effective use of homework, students' attendance at school, and any disruptions to scheduled lessons. These are the determinants of students' learning time that are at least partly outside the control of classroom teachers.

The second group of factors we call *learning supports*, because they directly underpin either the student, the teacher or the curriculum—and hence the learning interactions among them. These factors include: the engagement and support of families and community; school-wide practices for meeting student needs for order and safety, belonging, and any special educational needs; promotion of positive student beliefs, dispositions and sociocultural norms; support for staff collaboration on things that matter; capitalising on the expertise of colleagues; supporting the best professional learning; ensuring challenging expectations and goals are shared and owned by all staff; and provision of high-quality curriculum and other resources.

The third group of factors relates to the effective management of the school as an organisation—or indeed of any organisation. They include: supportive working relationships, characterised by trust; a culture of improvement that empowers and motivates staff to continuously improve, along with constructive quality assurance processes; operational delivery that prioritises core activities, identifying and addressing problems and barriers, implementing faithful and sustainable change; and strategic staffing that aligns resources with strategy, recruits and retains the best staff, addresses poor performance, delegates appropriately and promotes job satisfaction.

Below, we present a summary of the model, which we will delve into in more detail throughout the rest of this document.

A model for school environment and leadership

Learning time

The time allocated to learning may be thought of as a direct multiplier of the amount of learning that will happen.

- 1** Amount of classroom time allocated to learning the content
Number of hours per day and days per year
- 2** Time students spend on meaningful learning activities outside the classroom
Quality and quantity of homework set and completed; integration between in- and out-of-class learning activities; school support for homework completion (e.g., providing space and equipment, encouraging parent support, incentives/sanctions, etc.)
- 3** Student attendance at school
Rates of school attendance; extent to which students are willing/choosing/happy to attend school and participate in learning
- 4** Disruption to timetabled lessons
Extent to which teacher absence disrupts planned learning; extent to which lesson time is lost to interruptions; extent to which other learning activities displace timetabled lessons (e.g., careers events, school/class trips, work experience, etc.)

Learning supports

Factors that affect the teaching-learning interaction, but are (largely) outside the control of an individual classroom teacher include the below.

Student-focused supports

- 1** Family and community support
Family valuing and having high expectations of learning; school-community value alignment; cultural capital; trust between families and school
- 2** Student fundamental needs
Safety/security/order; freedom from hunger and basic wants; feelings of belonging; social connection (with staff)
- 3** Student beliefs and dispositions
Behavioural norms; individual dispositions (e.g., conscientiousness, resilience); peer culture

Teacher-focused supports

- 4** Collaboration
Staff peer support; teacher-teacher trust; explicit collaboration on curriculum, pedagogy and assessment
- 5** Collective teacher expertise
Teacher knowledge, skills and expertise; breadth and quality of experience, within both the school and immediate team
- 6** Professional learning
Opportunities and drive for professional learning: time; funding; expectation; valuing; quality assurance

Curriculum-focused supports

- 7** Goals and demands
Culture of high expectations for all students; demanding curriculum
- 8** Resources and materials
High-quality learning materials (sequenced, scaffolded, aligned with learning aims); space / accommodation fit for purpose

Management factors

School- or team-level factors that are necessary for effective functioning of any organisation.

- 1** Supportive working relationships
Trust; support; safety; openness
- 2** Improvement mindset
Drive to be better; belief that better is possible; personal accountability; constructive evaluation; willingness to innovate
- 3** Delivery
Strategic focus on core activities; allocating time and resources; removing barriers; diagnosing the causes of problems; designing and implementing solutions
- 4** Staffing
Recruiting and retaining high-quality staff; training and support

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Introduction

Outcomes:

Although the complete list of students' outcomes from education are innumerable, of primary concern for the review is student achievement, as an indicator of student learning.

School environment:

School environment refers to the character and quality of school life. It brings together: 1) the factors that affect teaching and learning which are (largely) outside the control of an individual classroom teacher, and 2) the school- or team-level factors that are necessary for the effective functioning of an organisation.

Teaching is, arguably, one of the hardest and most important jobs in the world (Chetty et al., 2014; OECD, 2010; Shulman, 1986). While many personal, family, and cultural factors contribute to students' **outcomes**, a large body of research indicates that what teachers do, know and believe matters more to the achievement of students than anything else leaders and teachers can influence. It was this that led us at EBE to publish the *Great Teaching Toolkit: Evidence Review*, in June 2020.

It is, however, clear that, while most of the learning that students achieve in school happens in classrooms and is highly dependent on the practices and expertise of class teachers, even the best teacher cannot facilitate effective learning unless other supports are in place. Most of these can be thought of as 'school-level factors': educators collaborating on curriculum, pedagogy and assessment; a culture of high expectations for all; strong relationships characterised by trust, support, safety and openness, etc. Many of these supports are *influenced* by teachers, of course, but an individual teacher generally cannot *control* them: they require the collective actions of all staff, and hence of the school leadership. It is this that led us to the current piece of work – identifying and summarising the available evidence about **school environment** characteristics and leadership practices.

It was clear there was a vast literature to draw on, and plenty of claims about the features of a school's environment, and the characteristics and behaviours of school leaders, that influence student outcomes. A set of research questions and search strategies was pre-specified, and these can be found in **Methodology underpinning the evidence review**, along with a list of 112 studies identified through the search and screening process.

As we set about answering the research questions and from conversations with school leaders, teachers and researchers, however, it soon became apparent that there was a mismatch between widespread claims and available evidence.

On the one hand, the strength of the claims made, the frequency of their citation and repetition, and the prevalence of the interpretation of the relationships as causal in nature, all gave us *the impression* that a lot was known about how school leaders influence outcomes, how best to support them in doing this, and the characteristics of leadership or school environment that matter.

On the other hand, the types of evidence presented (mostly correlational, without consideration of alternative explanations or robustness checks) and its quality (often using unconvincing, unvalidated measures) do not really seem to back up these claims.

For us, the project therefore took a slightly more critical turn, albeit still with a constructive focus on what we can do to help improve the picture. It seemed necessary to focus on summarising, untangling and clarifying the available evidence—firstly to assess the limitations of the existing literature, and secondly to separate those bits of the research that appear most trustworthy.

The limitations in the research at present (about which you can read in more detail in **Methodological challenges in school leadership research**) have very important implications for those who have the challenging job of leading schools. We are presented with plenty of advice, but much of it is not specific enough to be able to follow, is dependent for its success on other (not always stated) assumptions or conditions, or is just not appropriate to their context. Where specific, feasible, appropriate actions can be identified, there seldom seems to be strong causal evidence of likely benefits; pretty much all the research in this area is correlational and descriptive, and acknowledged to be so (Liebowitz & Porter, 2019).

When evidence is limited, however, the evidence-based approach is not to do nothing, but to do what seems most plausible and try to evaluate its impact.

With that in mind, what we acknowledge and outline in this document—and expand upon in more detail in **Evidence that school leadership and environment matter**, for those who want to delve deeper—is that there are promising aspects to the existing literature. We have tried to identify the **school-level characteristics** that are related to student attainment and, acknowledging its limitations, developed a *Model of School Environment and Leadership* for two purposes:

School-level characteristics:

Features of a whole school rather than those individual classrooms within it (e.g., school type and size, student absenteeism rate).

1. To help school leaders **understand** these characteristics, **monitor** them in their context, **prioritise** and **respond** appropriately.
2. As part of helping more leaders to be able to respond appropriately, we aim to **improve the evidence base** by presenting sound hypotheses that can be tested, as well as publishing feedback tools to offer an efficient way of testing them, and ultimately of **informing their decisions** to act or not.

One size does not fit all

As we developed our *Model for School Environment and Leadership*, we drew on previous work on the use of monitoring systems and formative evaluation as part of a school improvement (Brown et al., 2017; Bryk et al., 2015; Fitz-Gibbon, 1996; Kyriakides et al., 2019; Schildkamp, 2019; Scriven, 1980; van Geel et al., 2016; Visscher & Coe, 2013). These approaches to monitoring emphasise the inherently interdependent, varied and unpredictable nature of complex organisations such as schools, and shine a light on the very characteristics of them that make general formulas, processes or solutions unlikely to have their intended effects in an efficient and sustainable way. One size does not fit all.

Hence, the strategy we adopt in presenting our *Model for School Environment and Leadership* is to help **empower professionals in their own contexts with authority, feedback and capability** to identify and address their own local problems:

- **Authority** means leaders need to be **empowered** to make and implement key decisions about their practice.
- **Feedback** means leaders are given information about the status of their organisation and their own performance that gives them **insights** and allows them to **evaluate** their strengths and weaknesses fairly. In tasks as complex as school leadership there is no expertise without experience, but experience without good feedback is just repetition. Feedback turns experience into learning.
- **Capability** means leaders need to be **supported**, with training and education, to be able to understand the feedback they receive and select appropriate responses to it.

Improving the evidence base

The *Great Teaching Toolkit* project has always included a strong element of evaluation and learning, and the addition of the *School Environment and Leadership: Evidence Review* to it enhances both of these features.

By creating, trialling and publishing feedback tools to build on the model outlined here, we hope not only to help thousands of teachers and leaders receive better, more actionable feedback; we also aim to learn more about the characteristics of school environments that matter most to students' outcomes, and the leadership levers that can be operated to enhance them.

And this is where we need your help.

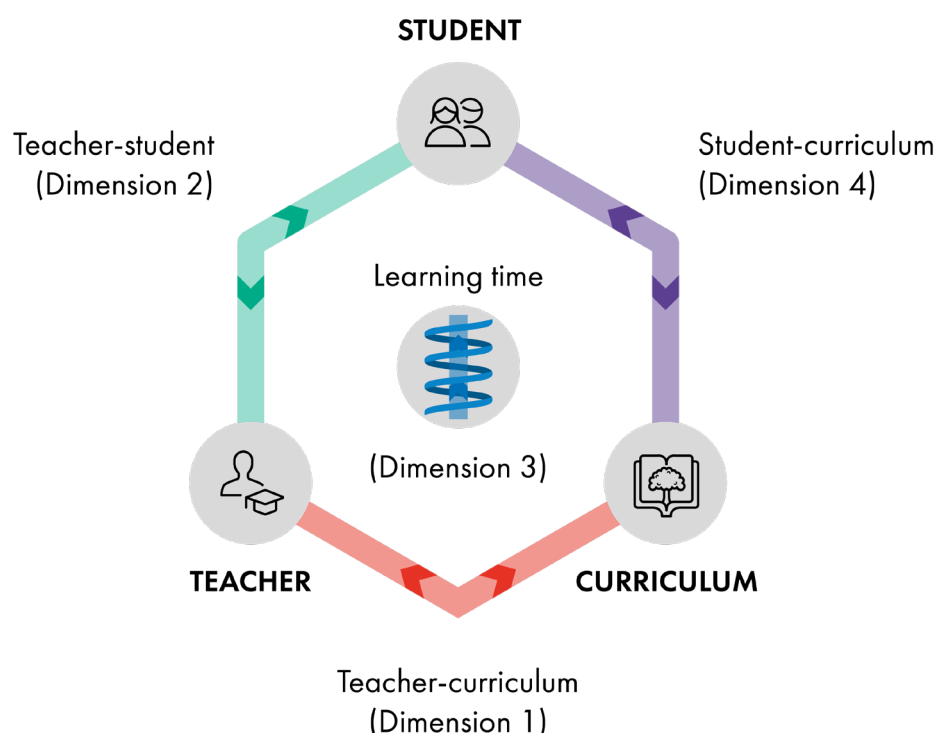
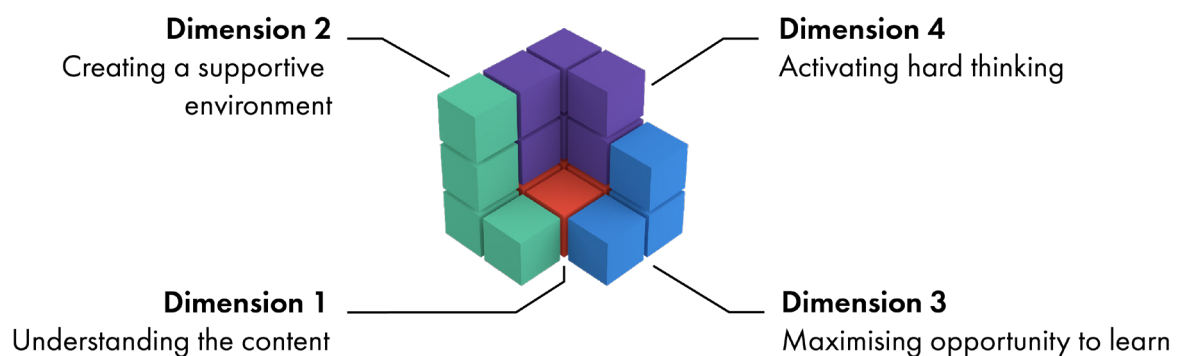
In the spirit of the message outlined above—and, indeed, of the *Great Teaching Toolkit* project more broadly—we are faced with limited and inadequate evidence here. But rather than doing nothing, we intend to help leaders do what seems most plausible, and try to evaluate its impact as we go. This approach requires genuine and sustained collaboration between schools and researchers around the world. As such, we invite you to join the collaboration by:

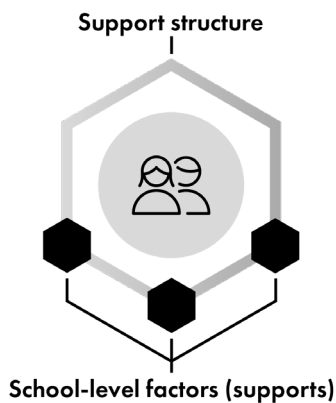
- **Reading, sharing and discussing** this review with your colleagues;
- **Using the feedback tools** we create to gather new insights and support your improvement efforts;
- **Building a better evidence base with us**—for you and your colleagues, for the school leaders and teachers who will come after you, and the children and young people we all serve.

Model for School Environment and Leadership

Overview

Most of the academic learning that students achieve in school happens in classrooms and is highly dependent on the practices and expertise of the class teacher. At the centre of the model is the classroom (see the *Components of the model image*, below), and the interactions between teachers, students and curriculum content. Each pair of such interactions (teacher-student, teacher-curriculum, student-curriculum) corresponds with a dimension in the **Model for Great Teaching**; D2, D1, D4, respectively). The remaining dimension (D3), which represents the time and opportunity for learning, can be thought of as a 'multiplier' for the impact of these interactions: the more time given to these interactions, the more learning happens.





However, even the best teacher cannot facilitate effective learning unless other supports are in place. Most of these can be thought of as school-level factors. Many of these supports are influenced by teachers, of course, but an individual teacher generally cannot control them: they require the collective actions of all staff, and hence of the school leadership. They may also operate at multiple levels: within a department or year group team, faculty, whole school, or across a trust or group of schools. The working environments may be much more a feature of a particular team than the whole school, but for simplicity we refer to them as ‘school-level’.

We divide these school-level factors into three broad types. The first group of factors relates to the time spent on productive learning activities: the determinants of students’ learning time that are at least partly outside the control of classroom teachers. The second group of factors we call learning supports, because they directly underpin either the student, the teacher or the curriculum—and hence the learning interactions among them. The third group of factors, management factors, relates to the effective management of the school as an organisation—or indeed of any organisation, although the expertise required to do them well may be context-specific. We note that ‘management’ is sometimes presented as a poor relation of ‘leadership’, the former consisting of the routine or administrative parts, leaving the visionary and transformational parts of the more glamorous ‘leadership’ free of such mundane stuff. We see this distinction as not helpful, nor conceptually sustainable, nor supported by good evidence: ‘management’ and ‘leadership’ practices are inextricably linked.

Some of these wider factors (both Learning Supports and Management Factors) may be beyond the control of the school, of course. For example, levels of threat and violence in the community may not be something a school can influence directly; for some areas and roles, school leaders are limited in their ability to recruit high-quality staff.

We include these factors because:

- (a) the question of whether/when/how a school’s leadership can influence them applies to almost all the factors, even where it seems intuitively more plausible that they should be able to;
- (b) actually it may be possible (and there are certainly anecdotal examples) of a school influencing even far-removed factors like community violence or recruitment pools.

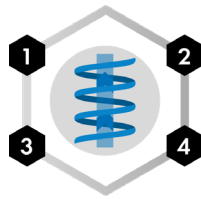
We are not claiming that any of these things are the responsibility of school leaders or that leaders should feel accountable for them. What we are saying is that there is evidence that these factors may well be necessary supports or enablers of effective learning in school, or that they can act as barriers to that learning. If these factors really are supports, enablers or barriers, then we think school leaders should understand how they affect classroom practices and learning outcomes, should monitor these factors in their own context, and should think strategically about whether and how they try to address them. Given the limitations of the current evidence, we do not think we can give advice that is more specific or action-focused than that.

Components of the model

Learning time

Amount of classroom time allocated to learning the content

Student attendance at school



Time students spend on meaningful learning activities outside the classroom

Disruption to timetabled lessons

Learning supports

Student-focused supports

Family and community support

Student fundamental needs

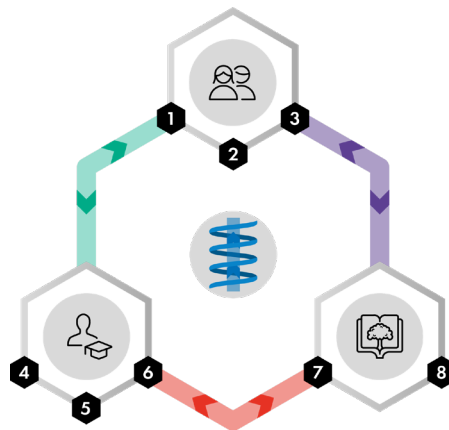
Student beliefs and dispositions

Teacher-focused supports

Collaboration

Collective teacher expertise

Professional Learning



Curriculum-focused supports

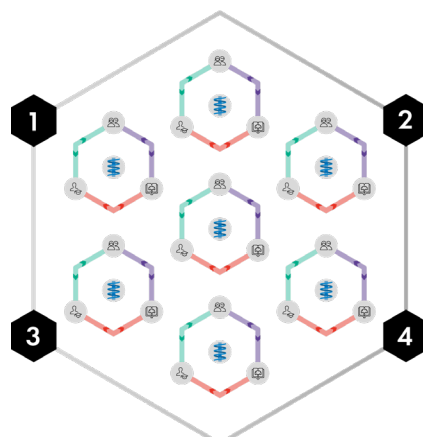
Goals and demands

Resources and materials

Management factors

Supportive working relationships

Delivery



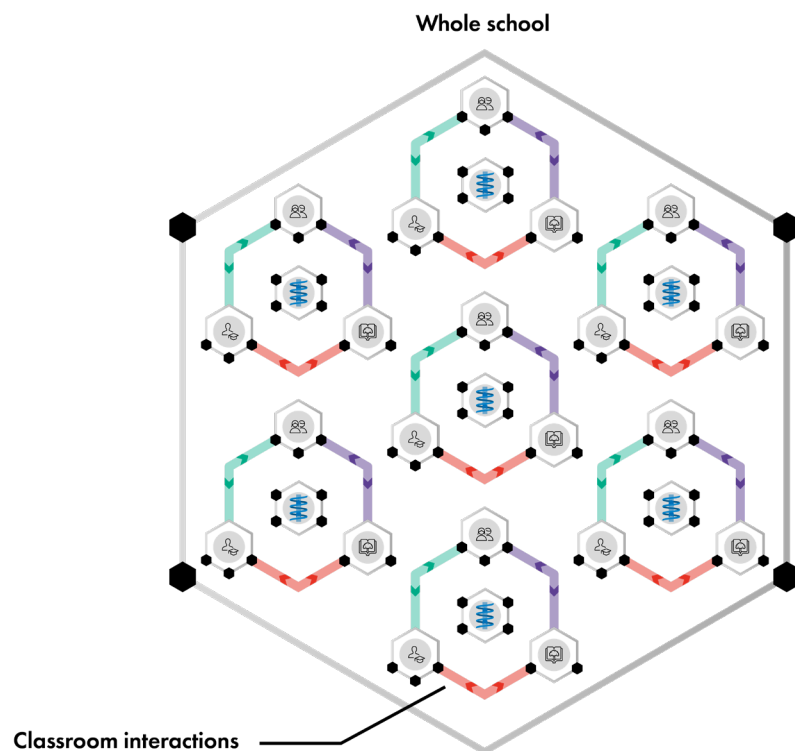
Improvement mindset

Staffing

How to use the model

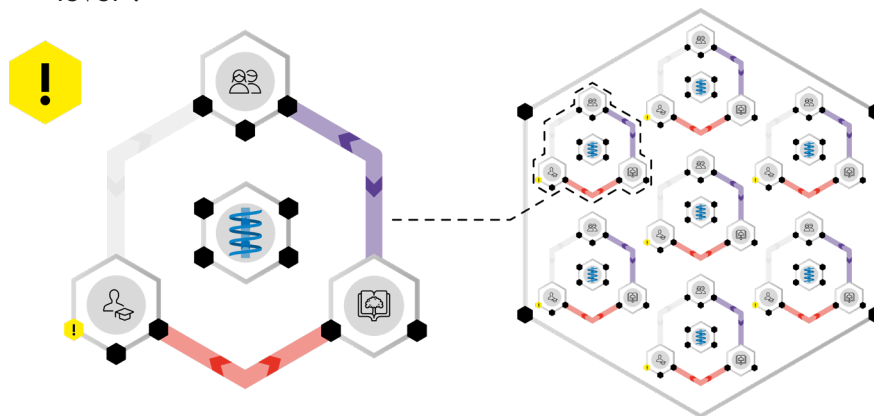
Our recommendations to school leaders¹ are:

1. **Understand** how/when/why each factor can enable or prevent effective learning from happening. This requires study, reflection and expertise. Reading this evidence review provides a good start, ideally followed by further reading, reflection and study.
2. **Monitor** each factor in your context. We provide a survey tool that any school leader can use to collect the perceptions of their staff, but it is good to include a range of sources of evidence in this process. Monitoring means tracking these indicators in a systematic way over time.

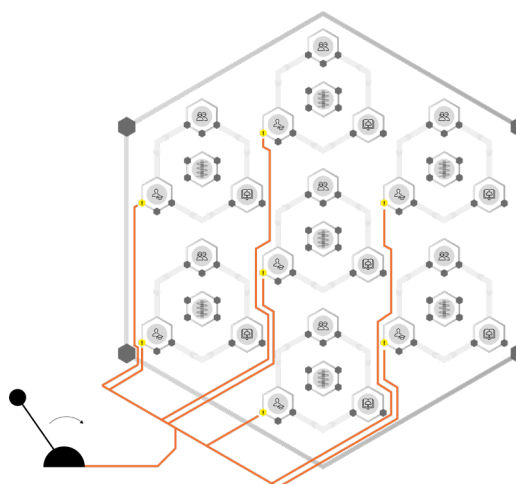


¹ As above, this applies to a wide range of leadership roles, including department, phase or curriculum area leaders, other team leaders, middle leaders, senior leaders, trust and school group leaders, etc.

3. **Prioritise** one² factor to address, that is both a 'barrier' and a 'lever':



- a. **Barrier:** A factor whose current status significantly limits the effectiveness of teaching and learning. There should be strong arguments and evidence that improving this factor is likely to enable more and better student learning to happen. It is not enough simply to show that a particular indicator is poor; it must also be a causal constraint on the quality/quantity of learning interactions in your context.



- b. **Lever:** A factor that can realistically be changed by enough to make a difference (given obvious constraints of resource, time, personnel, opportunity costs, etc.). The argument that it can be changed should be based on clear strategy, with specific, costed actions and a theory of change that sets out the likelihood of different outcomes in a range of scenarios.
4. **Contribute** to the collection of better evidence and generation of stronger recommendations by using the **Great Teaching Toolkit** to share data about the status, progress and impact in your school.

² The suggestion to focus on one factor at a time is drawn more from experience than solid evidence, so, of course, leaders should make their own decision. Faced with a collection of leadership and environment factors that look inadequate, a leader's emotional response will be to want to improve them all. But genuinely improving even one requires detailed investigation, planning, implementation, embedding and monitoring. Unless it matters more to be seen to be doing something than to achieve an authentic, sustainable, positive change, it is likely that 'less is more'. But, of course, where capacity exists to do all these steps well in relation to more than one factor, clearly that is better. Also, if the context is such that leaders are 'fire-fighting', then every fire does need to be put out.

Staff at Metropolis High School completed the Great Teaching Toolkit (GTT) School Environment and Leadership (SEL) survey. Although behaviour was not their worst factor (they were below the average for all schools, but close to average for schools with student populations similar to theirs), the senior leadership team identified it as a barrier to students' learning. They contrasted their current status with their vision of a calm, ordered school with no disruption, where students feel completely safe everywhere and always, and imagined how this would enable them to make every lesson 100% focused on learning, with every single student engaged in demanding learning activities. This contrast led them to see behaviour, safety and order as a barrier to learning.

In order to address this barrier, they set up a task group, with representatives of senior and middle leaders, classroom teachers, teaching assistants, lunchtime supervisors, students and parents. Members of the group visited local schools that had similar catchments and a reputation for managing behaviour well, and tried to include schools with a range of different approaches. They read research on behaviour management (e.g., the **EEF Guidance Report: Improving Behaviour in Schools**) and blogs, books and videos from behaviour gurus (e.g., **Bill Rogers' YouTube videos**, Tom Bennett's *Running the Room*, **teacherhead blog**, etc.). They identified some practical options and then consulted with all staff in the school and a sample of students and parents. Working with the senior leadership team, they then came up with a plan. At this point they were clear that these were things they could change: a lever.

As they implemented their plan, they continued to monitor to ensure that all stakeholders were on board and benefiting. A year later, they repeated the GTT SEL survey and it was clear that perceptions of behaviour had improved, along with several other aspects of the learning environment that they had not yet addressed directly.

When Greenfields Primary School completed the GTT SEL staff survey they were particularly concerned by responses to the questions about job satisfaction: almost half the staff said they would leave the school if they could, and levels of stress were very high. This was the environment factor that came out worst.

However, the senior leadership team did not try to investigate further to understand the causes of these perceptions, but focused on the symptoms. They began to provide free coffee and biscuits for staff; they put up calming posters in the staff room; they devoted part of an INSET day to a yoga session; they designated two members of staff as mental health first aiders and sent them on a course; senior leaders made a point of repeatedly reminding staff how much they were valued.

They justified this by saying that if teachers were happier and less stressed they would teach better, without thinking too hard about exactly what they would do differently, or what other factors might be at play. Job satisfaction and wellbeing were not really a cause of limited learning, but a symptom of wider issues: they were a problem, but were not a barrier.

Once they had made these changes, the senior leadership team felt a bit better: they had addressed the wellbeing issue. But actual job satisfaction did not change: it was not a lever they could directly move. Over the next year, a number of the more experienced teachers—including some who had been complaining about workload and stress—found other jobs and moved on. This seemed to make things better, as the complaining stopped, but the new teachers were really struggling—in silence. The leadership team did not repeat the SEL survey, as the whole experience had been rather distressing.

Rationale and evidence for the model

Causal agent:

A causal relationship is one in which it has been shown, usually through a controlled experiment, that one variable (the independent variable) causes the other (dependent variable). A causal agent is an independent variable that may be one of several factors impacting the outcomes.

For each of these factors, we present:

- Further detail and explanation of its meaning and components;
- Existing evidence that supports the claim it is important; and
- A theoretical rationale, with hypothesised mechanisms, justifying why it could be a **causal agent** for improved student outcomes.

Understanding the mechanisms behind each component of the model allows us to:

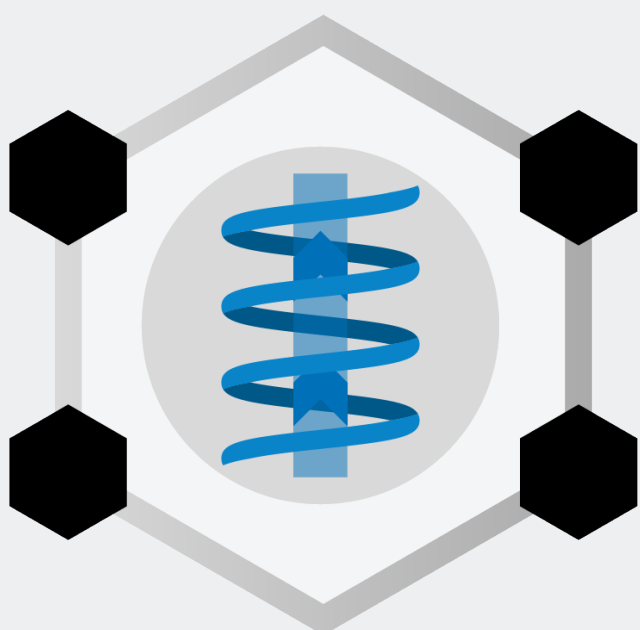
Active ingredients:

In the same way that medication may contain many chemicals, one of which is the active ingredient that leads to the intended effect, research may suggest which component needs to be adopted closely for the intended outcomes.

- Separate the **active ingredients** of each component from the redundant parts, and so clarify the conceptualisation; and
- Build and test theory about how the component leads to improvements in student outcomes.

In practice, many of these mechanisms are hypotheses: they are plausible assumptions, but not yet tested and established. As part of the Great Teaching Toolkit project, we intend to collect evidence about potential mechanisms and how they mediate the relationship between actions and outcomes, hence learning more about which ones are important.

Learning time



The time allocated to learning may be thought of as a direct multiplier of the amount of learning that will happen.

Learning time

1 Amount of classroom time allocated to learning the content

- Number of hours per day and days per year

2 Time students spend on meaningful learning activities outside the classroom

- Quality and quantity of homework³ set and completed
- Integration between in- and out-of-class learning activities
- School support for homework completion (e.g., providing space and equipment, encouraging parent support, incentives/sanctions, etc.)

3 Student attendance at school

- Rates of school attendance
- Extent to which students are willing/choosing/happy to attend school and participate in learning

4 Disruption to timetabled lessons

- Extent to which teacher absence disrupts planned learning
- Extent to which lesson time is lost to interruptions
- Extent to which other learning activities displace timetabled lessons (e.g., careers events, school/class trips, work experience, etc.)

Rationale, mechanisms and evidence

Most models of school learning include the time students spend on learning activities as one of the factors that explain what and how much is learned. For example, Carroll's (1963) model presents learning as a function of the actual time spent as a proportion of the time needed. 'Time spent' is further broken down as a product of time allocated and student engagement or perseverance: allocating more time increases learning only if students remain engaged in the learning task. 'Time needed' is determined by the amount of time the learner would need to learn the target material under ideal conditions, the quality of instruction provided, and the learner's sensitivity to the quality of that instruction.

3 'Homework' includes any learning time outside formal lessons, including reading stories with parents, playing number games, lunchtime surgeries, homework clubs, informal peer networks, background reading/research, test revision, etc.

In other words, the time allocated to learning may be thought of as a direct multiplier of the amount of learning that will happen, provided the levels of student engagement, the quality of the learning activity, and the quality of the instructional interactions with the teacher are maintained.

The efficient use of lesson time to maximise learning is one of the four dimensions of our **Model for Great Teaching**, and is largely under the control of the classroom teacher. However, learning time does occur outside the formal classroom as well. In part, this is also under the control of the classroom teacher—they choose what homework to set and manage the incentives for students to complete it—but it will also depend on wider school support. Schools may have a general homework policy; for example, they may provide support for students to work (e.g., homework clubs) and apply consequences for required work not being done.

We should note that the evidence⁴ on the impact of homework on attainment suggests that effects are bigger for secondary-age students than in primary, and that the time spent is less important than both the types of activity, and the extent to which learning activities are integrated with classroom learning. Students from disadvantaged backgrounds may suffer additional barriers to completing homework, but, where those barriers can be overcome, will benefit just as much.

Another determinant of time spent learning is school attendance. For individual students, there is a strong association between poor school attendance and a range of undesirable outcomes, such as low school attainment and delinquency (Education Endowment Foundation [EEF], 2022). In addition, the absence of one student may cause disruptions to the learning of others. Although there is some evidence that schools can intervene to improve attendance (for example, using targeted parental communication and engagement approaches), the general quality and relevance of this evidence base is currently quite weak (EEF, 2022). It is not really adequate to support any practical or specific advice for school leaders. Nevertheless, it seems likely that poor attendance, both for individuals and at a school level, is a significant barrier to students' learning and attainment, and hence something that school leaders should pay attention to.

A final determinant of learning time is the extent to which planned lessons are disrupted. For example, if a teacher is absent, the arrangements put in place to cover their class/lessons may well be less effective for learning—though school policy and practice may be able to mitigate this. The cumulative effects of 'little interruptions' such as public address system announcements (Kraft & Monti-Nussbaum, 2021) may also be considerable. Timetabled lessons may be displaced by alternative learning activities, such as school or class trips, visitors, work experience, sports, etc.

⁴ See, for example, <https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit/homework>; Cooper et al., (2006)

These activities may be a deliberate choice and have high educational value, so there is no suggestion they should not happen, but school leaders should understand that they carry a cost in terms of the time taken from planned lessons.

Mechanisms

The mechanisms we hypothesise to account for the relationship between time and learning are:

1. Additional time spent by students in high-quality (meaningful, integrated, engaged, interactive) learning activities outside class enables them to learn more.
2. Encouraging high rates of school attendance increases learning time in class.
3. Students with intermittent attendance absorb teacher attention and support, reducing attention and support for other learners.
4. Cover arrangements to support teacher absence may be less effective for learning.
5. Regular but small interruptions to lessons will have a cumulative disruptive effect on learning.
6. If lesson time is taken from one curriculum area for other activities, learning in that area will be reduced.

Learning supports



Factors that affect the teaching-learning interaction, but are (largely) outside the control of an individual classroom teacher.

Learning supports

Student-focused support



Family and community support

Meaningful and strong relationships, and engagement with parents, families and the community that the school serves

- Trust, respect and understanding in both directions between school and community
- Shared values and expectations about education between school and community
- Active engagement of parents with the school
- Engagement of school staff in the community (e.g., religious, civic, cultural or recreational events and facilities)
- Regard for student perspectives and cultures
- Awareness and respect for diversity and inclusion

The evidence for the importance of community relationships in large part comes from the work of Bryk (2009) in Chicago, for whom it is one of the five essential supports: schools essentially cannot improve unless they are strong on this characteristic. There is also support in the findings of Johnson et al. (2012) in schools across Massachusetts, K-12, who found that ‘Community Support’ (defined as “the extent to which families and the broader community support teachers and students in the school”) was the element of school working conditions with the strongest individual relationship with student attainment growth.⁵

Despite the centrality of community relationships in these datasets, other models of school leadership either leave it out, or feature it only minimally. For example, Kraft and Papay (2014)—who were both co-authors on Johnson et al. (2012)—do not include any items on parent or community relationships in their survey. The PIMRS (*Principal Instructional Management Rating Scale*, Hallinger & Murphy, 1985)—which is claimed to be “the most widely used instrument for studying **principal** leadership in the world” (Hallinger & Wang, 2015, p. xv)—also has no items on community relationships. Grissom et al.’s review reports mixed evidence on the impact of principals spending increased time on interacting with parents, community members and other stakeholders (2021, p. 68).

Headteacher vs. principal

We use these two terms interchangeably in this review. However, for clarity, we will generally talk about headteachers (which is widely used in the UK context) when it is our contribution. When quoting or discussing a previous study, we will use the term the original authors have used. Most research from North America, for example, uses the term principal to refer to the academic head of a school.

5 Johnson et al. (2012) report that “principal components analysis suggests that the composite captures only one underlying construct” so differences in the regression coefficients of individual elements should be interpreted with caution. Also, this is a cross-sectional, correlational study, so causal inferences require further support.

Mechanisms

There are a number of plausible mechanisms by which the quality of a school's relationships with families and the community could influence its students' learning:

1. Direct **learning support** from parents can promote children's learning out of school. Schools may focus and encourage parents to support their child's learning, for example with reading, language and number in early years. For older children, support may be more motivational: showing an interest in schoolwork, indicating its value.
2. The perception among students and their families that the school **values** and understands them may increase motivation, support high attendance, improve behaviour and promote engagement in learning in school.
3. Good communication and trust between school and community may enable schools to receive and respond to **feedback** about how they could better meet the needs of students, as well as to be aware of, and sensitive to, wider community issues.

2 Student fundamental needs

Staff and students maintain an ordered environment

- High demands and expectations for student behaviour
- Rules are clear and applied consistently across the school
- Consistent and effective support from school leaders for teachers to demand and maintain excellent behaviour
- Perception of safety and order among staff and students
- Absence of violence, intimidation, bullying and disruption in school

Students are free from hunger and basic insecurities

- Home breakfast or school breakfast clubs provide breakfast; school lunch is available to all
- Effective safeguarding practices are followed across the school
- Students have a stable, ordered and supportive home environment
- Freedom from violence, intimidation and threat outside school

Students feel they belong and are connected to the school

- Student perceptions of 'belongingness'
- Students have good relationship with (at least some) staff

Students' individual special educational needs and disabilities (**SEND**) are accommodated with appropriate support

SEND:

Special educational needs and disabilities, the broad umbrella term to refer to learners' learning difficulties and disabilities, which may require special educational provision. Depending on the context or region, may also be referred to as, for example, special education, special-needs education, alternative provision, etc.

- School-level practices such as training, communications and targeted support ensure that behavioural and cognitive demands are within what is likely to be possible to maintain for students with SEND
- Expertise in diagnosing and understanding individual needs and conditions is sufficient to ensure that SEND is not used as an excuse for a lack of challenge

This factor combines a number of elements, some of which are likely to be beyond the reach of schools to influence directly. Nevertheless, all these elements concern the underlying needs of students as human beings to function in an environment that makes considerable demands of them.

It seems intuitively obvious that schools where consistently high standards for behaviour and a feeling of order and safety are maintained will be more conducive for student learning. It also seems plausible that where this is not the case, or where teachers have to devote a lot of their energy to managing student behaviour, the implications for the stress and wellbeing of teachers may have indirect effects on student outcomes. In fact, there is good evidence to support both these mechanisms.

To what extent the determinants of order, safety and discipline can be located in the behaviours of individual teachers, of students and the community, or of the school leadership, is less clear from existing research. There is some evidence that school-wide interventions can improve student behaviour (e.g., Horner et al., 2010; Osher et al., 2010), but limited direct evidence of impact on student attainment. A good deal of qualitative evidence supports the view that, in certain types of school at least, order, safety and discipline are first the responsibility of school leaders (e.g., Bennett, 2017). Note also that the structure implied by order, safety and discipline is compatible with classroom environments that are supportive of student autonomy (Cheon et al., 2020).

School belonging is a construct that has been the subject of a significant body of research, originating in the humanistic psychology of Maslow and Rogers (Slaten et al., 2016). A widely cited definition, from Goodenow and Grady (Goodenow & Grady, 1993, p. 80) is “the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment”. There is strong overlap with Deci and Ryan’s self-determination theory, which sees human motivation as based on three innate needs: competence, autonomy and relatedness. In this context, ‘relatedness’ is sometimes used interchangeably with ‘belonging’ (Slaten et al., 2016). Although school belonging seems robustly associated with wellbeing, mental health, social exclusion and self-esteem, evidence for direct links with academic attainment is less convincing.⁶ However, a study by Parker et al. (2022) finds that school belonging at age 15 predicts NEET (Not in Employment, Education or Training) status at ages 16-20 in Australia, after controlling for academic attainment, school context and demographic variables.⁷

The final element of this factor concerns the extent to which a school succeeds in accommodating the needs of students with greater or more specific needs, in relation to SEND. Like the previous two elements, this is partly addressed within individual classrooms, but again like them, there will also be a school-wide component: most schools have central teams, training and resources for supporting SEND, and draw on a range of external support; practices will be determined by shared values and norms that may be influenced by school leaders. Many aspects of SEND are not binary and do not apply only to those with a particular diagnosis or label, but should be seen as a continuum, on which individual students identified as having SEND are just a bit further towards one extreme than others. Hence, a school’s approach to addressing these needs affects a much wider range of students than just those with the official designation of SEND (J. Carroll et al., 2017).

6 Although reviews by both Allen et al. (2021) and Slaten et al. (2016) claim a link between school belonging and academic attainment, they each seem to cite just one study to support this claim directly. Both these studies (Brooms, 2019; Sirin & Rogers-Sirin, 2004) are small, cross-sectional studies with African-American students in urban US contexts.

7 Their odds ratio of 0.84 (95% CI 0.81-0.87) corresponds to a one standard deviation change in school belonging predicting just over a two percentage point decrease in the probability of being NEET—enough to be politically important system-wide, but perhaps too small to notice at school level.

Mechanisms

We can therefore propose the following mechanisms to explain the importance of this broad factor:

1. Order and discipline are a direct component of most models of **effective teaching** (e.g., Dimension 3 in the Great Teaching Toolkit), and also prerequisites for a range of instructional/classroom characteristics that support learning (Dimensions 2 & 4: challenging curriculum, strong relationships, etc.). Classroom disruption takes time and attention away from learning. Ordered environments support the kinds of learner pro-social behaviours, values, attitudes and relationships that are necessary for successful learning of challenging material. There is plentiful and strong evidence to support this claim (see, for example, the review of the evidence about effective teaching by Coe et al., 2020).
2. Violence and intimidation, or not feeling safe, create stress and **anxiety for students** that can directly impair learning (Eysenck, 1979).
3. Student feelings of **belonging** and social connection support motivation and pro-social behaviours (K. A. Allen et al., 2021).
4. Schools where safety is threatened, or behaviour management is a constant battle, are **stressful for teachers**. This has both an immediate effect on teachers' focus and energy (opportunity costs, reduced motivation, and wellbeing) and, in the longer term, creates challenges around the recruitment and retention of good teachers (Cornell & Mayer, 2010; Papay & Kraft, 2017)
5. Good classroom behaviour cannot rest entirely with individual teachers: it has to be supported by leadership and school-wide (Johnson et al., 2012; Osher et al., 2010; Sugai & Horner, 2002). Hence this is a **school-level issue**, as well as a teacher- or classroom-level issue.
6. School-wide policies and practices that provide appropriate challenge, support and accommodation for **students with SEND** lead to better attainment for them, as well as for other students with less extreme needs.

Student beliefs and dispositions

Individual student dispositions, beliefs and orientations

- General levels and types of student motivation, perseverance, resilience
- Student beliefs about learning (e.g., '**growth mindset**', self-efficacy)

Growth mindset:

A focus of research based on the work of Dweck examines growth mindset, the belief that one's intellectual ability is not fixed, but can be developed.

Student peer culture and behavioural norms

- Shared beliefs among students about the value of school and education
- Norms and expectations about behaviour around the school and in classrooms
- Pro-social values and behaviours: cooperation, respect, inclusion

This factor is rather different from the other features of a school's working environment, as it focuses on the students' attitudes, beliefs, orientations and dispositions, sometimes referred to as aspects of 'character' or 'non-cognitive' skills, but also including student sociocultural norms.

Many of these student characteristics may be relatively stable and hard to change by any choices open to school leaders (for example, conscientiousness, perseverance, 'grit' or self-control; see Gutman & Schoon, 2013). Others may be less constant over time and context, but either hard to change deliberately or not a strong causal driver of higher attainment. For example, although student motivation can vary and is a cause of attainment, the strength of the causal relationship in the other direction (attainment causes motivation) is probably at least as high (Vu et al., 2022). Yet other student characteristics may be promising as possible to change in ways that lead to higher attainment, but evaluations of interventions have been inconsistent—growth mindset is probably in this category, at least in earlier attempts to implement it in schools (Sisk et al., 2018; Yeager & Dweck, 2020). Others again may be likely to be manipulable and causal determinants of attainment, but be quite domain-specific, so any influence of the school will probably be via the classroom teacher anyway (self-efficacy or academic self-concept are probably in this category; see O'Mara et al., 2006; Valentine et al., 2004). Overall, the evidence is that these kinds of social-psychological interventions can enhance attainment and other outcomes, as well as increase **equity**—but they are context-dependent and can be hard to implement effectively (Yeager & Walton, 2011).

Equity:

Aims of increased equity refer to decreased gaps in learning outcomes on account of socioeconomic status, race, gender, or other characteristics. In an equitable school, educational attainment is independent of students' personal backgrounds.

Factors related to student peer culture and norms are therefore perhaps more promising for school leaders to consider. These may include student expectations about acceptable behaviour, about the value of learning, and norms of cooperation, respect, inclusiveness, etc. Peer culture is likely a very important influence on school students' behaviours (Harris, 2009) and may be sensitive to actions taken by schools and school leaders, but there is little systematic advice that can be given here.

Mechanisms

Some general mechanisms are:

1. Pro-social norms support **cooperation** and harmony, making learning easier.
2. Adaptive beliefs and orientations (e.g., motivation, self-efficacy, 'growth mindset') make learners more **persistent**, resilient, accepting of feedback, enhancing outcomes.
3. Character dispositions (e.g., conscientiousness, resilience) support learning, though may be hard to change.



Teacher collaboration

Teachers working together in meaningful ways

- Working together in ways that support, enhance and challenge each other
- Working together on things that matter for student learning (e.g., curriculum, pedagogy, assessment)
- Feelings of trust towards peers (willingness to share vulnerabilities)
- Feelings of affiliation (camaraderie, esprit de corps, solidarity, mutual support, affection)
- Collaborative structures, such as professional learning communities

Although a culture of collaboration seems like an obviously good thing, there are different views about exactly what it means. For example, Grissom et al. (2021) cite Miller and Rowan (2006) as finding that “collaboration goes deeper than mere staff cooperation”, but the items in Miller and Rowan’s ‘Staff Cooperation’ scale (which did not correlate with attainment gains in their study) look pretty similar to items that in other scales are labelled as collaboration. Overall, the evidence is mixed about exactly what kinds of collaboration are key. The lack of validation of the measures, limited amount of replication of the same measures, absence of strong causal evidence, and prevalence of post-hoc rationalisations about why a particular measure came good, all make it hard to know.

Ronfeldt reviews a range of literature on teacher collaboration and concludes that, “[a]lthough it seems appropriate to continue to be cautious in drawing causal conclusions, it is unusual to find a body of evidence from a group of well-designed studies that seems to point to the same general conclusion” (2017, p. 88). Ronfeldt focuses on the quality of collaboration (according to participants’ ratings of its usefulness) rather than its content focus, though in order to lead to improvements in teaching effectiveness it must address areas of practice that are relevant to that aim (e.g., assessment, instructional strategies, curriculum planning). Teachers in schools with strong collaboration quality are more effective and improve faster than others. In comparing different forms of collaboration (such as lesson study, reading groups, inquiry groups or ‘professional learning communities’), he concludes that “there does not appear to be a single model that works better than others” (p. 87). Further evidence comes from Kraft and Papay (2014), who include peer collaboration in their measure of professional environment that predicts teacher growth.

Trust relationships among teachers (as opposed to leadership trust) are also included here, on the grounds that trust seems inherent in and necessary for collaboration. Although trust may seem desirable, it is not obvious how on its own it contributes to better teaching. One possible mechanism is by contributing to wellbeing (discussed below). But a more powerful and direct mechanism is likely to be that trust enables effective collaboration.

In thinking about the processes by which collaboration may lead to improved instruction, we hypothesise that the following theoretical principles may be important:

- **Focus** of collaboration. Groups must discuss, study or exchange ideas about something that matters and has practical relevance to teachers' work (e.g., assessment, pedagogy, curriculum or student needs).
- **Supportive**, trusting learning culture. Participants must feel supported by the group, willing to share vulnerabilities, and would say things like: 'We are here to support each other to learn and develop our practice' or 'Please come and observe my most difficult class'.
- **Challenge**. Participants must feel an expectation of substantial improvement and a lack of complacency or satisfaction with the status quo. Relentless demand to be 'the best we can be' and to improve (however good we are).
- **Expertise**. There must be enough expertise within the group, and good ideas must dominate. Expertise may pre-exist within the group, or be added through training, readings, videos, etc. Expertise means sound, authoritative, evidence-based knowledge of instructional principles, and examples of genuinely expert practice.

Mechanisms

Hence, we can identify the following mechanisms:

1. Collaboration allows expertise to be shared and enables **learning** from colleagues: all teachers can be brought up to the level of the best.
2. Collaboration and sharing is more **efficient** than each individual replicating. For example, sharing resources, assessments, lesson plans, etc., should mean less time spent by each individual in creating or locating them. Collaboration in these processes should result in a better-quality product.
3. Collaboration builds **social bonds** between staff, promoting affiliation, helping behaviours and organisational commitment. This, in turn, may support staff wellbeing and retention.

5

Collective teacher expertise

Collective teacher knowledge, skills and expertise; breadth and quality of experience

- Across the school
- Within specific teams

Jackson and Bruegmann (2009) review the evidence of 'human capital spillovers' in work environments as diverse as supermarket checkouts, teams of scientists and berry pickers, finding that an individual's productivity is influenced by the quality of co-workers in their own team, institution or even city. However, these effects are not universal and not wholly understood.

Jackson and Bruegmann (2009) find evidence of 'spillover' effects in schools, whereby a teacher's apparent effectiveness is enhanced when their close team is more effective. These effects are biggest for less-experienced teachers and those who have shown commitment to professional learning, and the effects are lagged and persist over time. They interpret these effects as evidence of teachers learning from their peers, through formal and informal collaboration and support.

Further support for the importance of peer expertise can be found in an experiment by Papay et al. , who evaluated teachers on specific skills and matched a teacher who ranked lower on a particular skill with a high-skilled colleague to work together, setting goals, observing and reviewing each other's practice, and agreeing strategies for improvement. Students in classrooms taught by the 'low-skilled' teachers improved their attainment by 0.12 SD, with no clear change in the classrooms of the 'high-skilled'. Papay et al (2016) find support for the likely mechanism being teachers learning skills from a more expert partner.

Mechanisms

The posited mechanisms for this factor are:

1. There is greater potential to **learn** from more expert colleagues.
2. Individual **motivation** is higher when surrounded by motivated peers.
3. **Expectations** will be higher if surrounded by high-performing experts.
4. Groups with more expertise have more **capacity** to support.

6

Professional learning

Quantity and quality of the support leaders give to activity that enhances the learning and effectiveness of staff, including:

- Direct support through allocation of time and money
- Prioritisation of the importance of professional learning and development for all staff
- Design, coordination and selection of professional learning programmes/activities that are:
 - Coherent;
 - Of high quality; and
 - Appropriate to the developmental stages of staff, and the challenges and strategic aims of the school.

A focus on the need for leaders to support the professional development of their staff is a feature of pretty much every model of school leadership and a fair amount of evidence supports its inclusion. For example, Robinson et al. (2009) identify 'Promoting and participating in teacher learning and development' as having around twice the strength of relationship with attainment as any other leadership activity. Grissom et al. (2021) find evidence for the impact of 'Teacher feedback, coaching and other professional learning' on student learning.

A counterpoint can be found in a study by Bloom et al. (2015) who interviewed 1,800 principals in eight countries about their management practices and scored them using an approach that has also been applied to management in other sectors, such as hospitals and manufacturing firms.⁸ They captured reports of 20 basic management practices, grouped under four areas of management: operations, monitoring, target-setting and people management. Bloom et al. found astonishingly high correlations between these ratings and school-level student attainment data. For example, for schools in England the standardised (school-level) **regression coefficient** of management on the school's average GCSE grade was 0.5, and 0.8 for a value-added measure. But, interestingly, just one of the 20 practices scored in this model mentions anything close to professional development ('Managing Talent: school nurtures and develops teaching and leadership talent'). Of course, these are correlational studies, so cause and effect are hard to untangle.

Regression coefficient:

A regression coefficient is a statistical measurement to describe the strength of the relationship between one of multiple independent variables and a dependent variable.

⁸ See <https://worldmanagementsurvey.org/>

Mechanisms

Plausible mechanisms by which a focus on supporting high-quality professional development may lead to improved student outcomes are easy to construct:

1. High-quality professional development leads directly to more effective individual **classroom practice**, which produces higher attainment.
2. Shared professional development creates more **coherence** in instructional practices across teachers, which makes it easier for students to learn.
3. The feeling of undertaking good professional development is **motivating** to teachers and makes them feel valued and competent, promoting retention.

7

Curriculum goals and demands

The levels of student performance that teachers expect or require

- Teachers' beliefs about what they think is possible/likely
- Teachers' thresholds of acceptability for student outcomes
- Teachers' willingness to respond/intervene, as a function of student performance levels ('I will do whatever it takes to get them up to an acceptable level')
- The extent to which teacher expectations or requirements are differentiated (e.g., the belief that all students can and will succeed at a high level)

Teachers' beliefs in their ability to promote student learning

- Individual teachers' beliefs in their own capabilities
- Teachers' beliefs in the collective capabilities of their peers

Teachers' feelings of ownership and responsibility for student outcomes

- Belief that teacher actions and expertise are the main determinants of students' outcomes
- Feeling responsible for bad outcomes (e.g., students' failure to understand ideas, failure to perform well in assessments, poor behaviour) and believing they have agency to change this
- When faced with disappointing outcomes, questioning what they might have done, or could do, better, and keep trying to find ways to get through

The research literature on expectation effects is vast and long-established (though not universally excellent). We included teachers' high expectations in the *Great Teaching Toolkit* model of effective classroom practice, arguing that there was sufficient causal evidence to support this as a lever of improvement (Coe et al., 2020, Dimension 2 Element 4). Given this evidence, it is perhaps surprising that hardly any of the existing school environment surveys seem to capture teacher expectations as such. Although the word 'expectations' is often used in this context (preceded by 'high'), in fact it may matter less what teachers expect (i.e., believe to be likely) from their students than what they demand: the expectations they communicate, the success criteria they promote and, crucially, their willingness to act if some outcome drops below this acceptable level.

Another important variable is the extent to which high expectations apply to all students, particularly those for whom a realistic estimate is that they are unlikely to succeed, or those from disadvantaged or minority groups whose expectations may be affected by negative stereotypes. On the other hand, genuinely requiring every student to master all aspects of the curriculum is likely to be very challenging and could take an enormous amount of effort and resource that could have been applied in other ways. The overall cost-benefit analysis is hard to call.

Related to teacher expectations, many leadership models do focus on teacher efficacy as a driver of effectiveness. Most draw on Bandura's (1997) concept of self-efficacy ("beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments", p. 3). Multiple flavours of efficacy feature, including teacher individual and collective efficacy, as well as leader individual and collective efficacy (Leithwood & Jantzi, 2008; Tschannen-Moran et al., 1998).

Many different survey instruments measuring teacher self-efficacy have been developed and used in numerous studies (Tschannen-Moran et al., 1998; Tschannen-Moran & Hoy, 2000). A meta-analysis by Kim and Seo (2018) finds 16 studies that estimate correlations between **teacher efficacy** and student achievement and tries to account for their "conflicting results"—the mean correlation is just 0.10. Even where there is a correlation, the direction of causation is ambiguous; do students achieve more because of teachers' self-efficacy beliefs, or do teachers perceive themselves as effective in schools where students are achieving more? Almost certainly both. Indeed, this is inherent in Bandura's theory, but ignoring it makes the interpretation (implied through the use of words like 'effects' or 'impact') of these correlations as evidence that efficacy causes achievement particularly egregious.

To establish causation, as a minimum, we would want to see studies where efficacy beliefs were controlled for an independent (and high-quality) measure of teacher effectiveness. Even more convincing would be an intervention study that tried to increase teacher self-efficacy and showed it led to increases in student attainment. Unfortunately, we have not been able to find any examples of either type of study.⁹

Teacher efficacy:

A teacher's belief that they have an impact on student learning, outcomes, or performance.

⁹ One potentially relevant study is a randomised-control trial of a principal training programme by Jacob et al. (2015), who did find an impact on the principals' self-efficacy, but no impact on their students' attainment. This seems to undermine the claim that self-efficacy is a manipulable causal driver of effectiveness.

On the other hand, there is a good deal of evidence to support the causal impact of self-efficacy interventions on a range of other outcomes, including those that set out to raise student self-efficacy to improve attainment (e.g., Unrau et al., 2018) and a range of health outcomes (Warner & French, 2020). Self-efficacy influences performance through a number of mechanisms (Bandura, 1986):

Choices. Individuals with high self-efficacy are more likely to:

- choose activities that offer the opportunity for learning and achievement in the target area; and
- choose more ambitious goals for their performance.

Persistence. Individuals with high self-efficacy:

- are more motivated to invest effort; and
- persist longer at challenging tasks.

Self-regulation. High self-efficacy allows individuals to:

- perceive setbacks as temporary, increasing their resilience;
- remain calm and focused under pressure, improving their performance; and
- attribute success to their own efforts, reinforcing their efficacy beliefs.

Clearly the belief in and demand for 'high expectations' is related to efficacy. It would seem unreasonable to somehow demand a high level of student attainment if a teacher did not believe they could do anything to achieve this. Logically, therefore, teacher self-efficacy may be a requirement for high expectations. But high expectations are also a requirement for increased efficacy leading to higher performance. One way to increase feelings of self-efficacy would be to set lower goals; conversely, more challenging goals could reduce people's belief they can achieve them, but might lead to higher performance (Locke & Latham, 2002).

A related, but distinct, aspect of goals and demands (alongside expectations/demands and efficacy beliefs) is the extent to which teachers feel responsible for student outcomes: the feeling that it is down to them how well students do. On the face of it, this feeling of teacher responsibility seems like a component of teacher efficacy: if I believe I am capable of getting students to succeed, then presumably if they don't, I can't really say it was nothing to do with me. However, human beings probably can perform that illogical contortion quite easily (and arguably what matters is not whether they feel responsible, but whether they act in response). Bandura distinguished Rotter's (1966) concept of locus of control as distinct from self-efficacy. To complicate matters further, Guskey (1987) found that teachers' feelings of responsibility for negative student outcomes were largely independent of their feelings of responsibility for positive outcomes.

Some of the existing measures of 'efficacy' seem to focus more on teachers' attributions (e.g., Gibson & Dembo, 1984) and the *5Essentials* survey (Bryk et al., 2009) focuses specifically on responsibility. And, of course, any actions teachers take may be related to, but not wholly dependent on, their attributions.

To summarise this factor, we should note that, firstly, it is characterised by a lot of confusion in the language used: words like 'expectations' and 'efficacy' have different meanings in different studies. Second, and relatedly, instruments that claim to capture efficacy seem to focus on different aspects of it: the claim that a survey captures 'teacher self-efficacy' or 'collective efficacy' is not enough to tell us what its questions actually target. Thirdly, the different aspects of this factor (teachers' expectations; teachers' demands; consequences for students of not meeting those demands; the willingness and persistence of teachers in ensuring demands are met; the extent to which these expectations, demands, consequences and actions differ for different students; the extent to which teachers believe they have the capabilities to enable students to achieve those demands; the extent to which teachers take personal responsibility for either positive or negative student outcomes; and the ways they act in response to those feelings of responsibility) are all inter-related, but also conceptually distinct. Fourthly, based on current evidence, we do not really know which aspects are most important, in terms of the strength of their relationships with student attainment and their power as causal levers that can be manipulated to achieve desired results.

In short, it's complicated.

Finally, we should note that there is overlap between this factor and 'improvement mindset' (see page 45 for more).

Mechanisms

Among plausible mechanisms we could hypothesise for curriculum goals and demands improving attainment are:

1. Teachers' high expectations promote **students' self-efficacy** ('If they believe I can do it, so do I').
2. Systems in which a minimum standard of performance is required may provide **motivation** for students to achieve it.
3. **Responsive** action taken by teachers to bring students up to the acceptable level leads to more learning, creating higher student self-efficacy and motivation for future learning.
4. A curriculum and approach based on the principle that every student will master key ideas makes it less likely that **gaps** in knowledge undermine future learning: no one gets left behind.
5. **Challenging** goals enhance performance (Locke & Latham, 2002).
6. **Self-efficacy interventions** (for teachers) raise performance, through better choices, persistence and self-regulation.

8

Resources and materials

The extent to which a school provides high-quality learning materials

- The curriculum is well designed (sequenced, scaffolded, aligned with learning aims)
- Learning resources (e.g., textbooks, worksheets, activities, exercises) are aligned with the planned curriculum and of high quality
- Teachers support, adapt appropriately, and have the required expertise to deliver, the curriculum

The learning space/accommodation is fit for purpose

- The learning environment is not too hot or noisy
- Air quality is good

The curriculum has become a big focus in England recently, particularly since the advent of Ofsted's (2019a) *Education Inspection Framework* (EIF), which requires schools to demonstrate their "curriculum intent, implementation and impact", as revealed in a series of "deep dives" by inspectors. Although Ofsted published the research underpinning the development of this approach (Ofsted, 2019b), it says nothing about the impact on student attainment of different curriculum choices schools can make.

Although there is evidence that choices of curriculum materials, in mathematics at least, can have "meaningful effects on student achievement" (Koedel et al., 2017), other studies find no differences, or that differences across studies are inconsistent (Blazar et al., 2020). It seems likely that how the curriculum is implemented (otherwise known as pedagogy) is what really matters (Polikoff, 2018). As curriculum is generally not something that an individual teacher can choose independently for their own classroom, but that may influence learning outcomes, it should have a place in our model. In terms of likely impact, however, we cannot really predict, on the basis of existing evidence, the kinds of curriculum design or materials that are expected to be best.

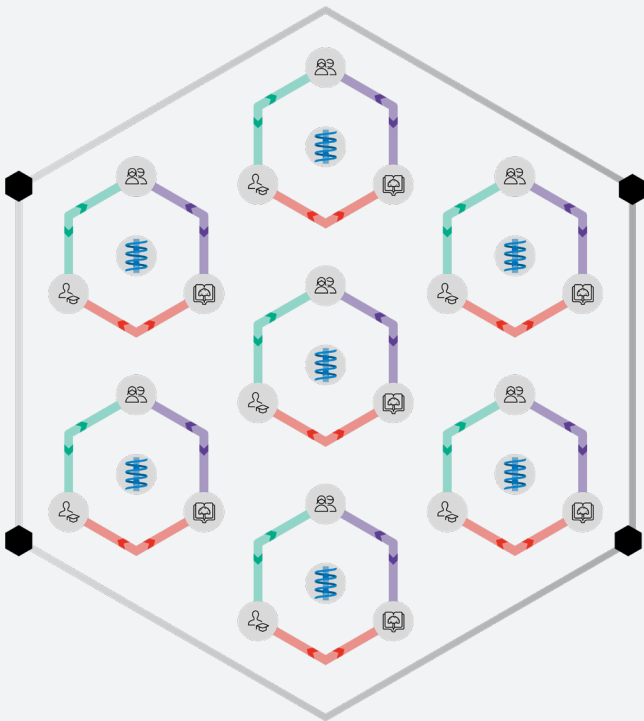
Other aspects of this factor we have included here relate to the classroom environment. For example, there is evidence that features such as classroom temperature (Park et al., 2020), noise (Clark & Sörqvist, 2012) and air quality (Heissel et al., 2022) can all affect students' learning.

Mechanisms

The plausible mechanisms by which curriculum resources and materials may impact on student learning are:

1. Curriculum resources may help to structure the learning sequence in a coherent and evidence-aligned way, hence facilitating more efficient learning.
2. Curriculum resources support effective pedagogy, for example by providing good explanations, scaffolding, examples, and activities that encourage or enable teachers to use the most effective approaches.
3. Environmental factors, such as classroom temperature, noise and air quality, directly impact learning by reducing students' concentration, motivation and energy.

Management factors



School-level (or team-level) factors that are necessary for effective functioning of any organisation.

Management factors



Supportive working relationships

Staff feel trust towards school leadership

- Belief that leaders are well-intentioned, competent, honest, caring, forgiving, consistent
- Willingness from staff to share or expose vulnerabilities
- Feelings of psychological safety: it is ok to take a risk or make a mistake

Staff feel trusted and valued by school leaders

The notion of trust is a component of many models of leadership, perhaps most obviously those that focus on 'transformational' leadership. However, exactly what is meant by 'trust' is not always very clear or well-conceptualised. A clear definition, conceptualisation and rationale is given by Tschannen-Moran & Hoy (2000), according to whom trust can be understood as the "willingness to be vulnerable to another party based on the confidence that the latter party is (a) benevolent, (b) reliable, (c) competent, (d) honest, and (e) open". These five facets of trust are derived from the overlap in common definitions and operationalisations of the construct.

Different researchers have focused on different facets of trust in schools. For example, PIMRS (Hallinger & Murphy, 1985) divides the trust scale in the teacher survey into 'calculative trust' (which focuses on competence and honest communication), 'relational trust' (openness and the closeness of the relationship) and 'faith trust' (benevolence, integrity, honesty). In the work of Bryk and colleagues (Bryk et al., 2009; Hart et al., 2020), different aspects of trust appear in various scales, according to the different roles of the parties in the relationship. For example, the extents to which teachers feel trust towards school leaders, other teachers and parents are treated as separate constructs. It is also recognised that in each of these types of relationship, different aspects of trust dominate. For example, upward trust (e.g., from a teacher to a headteacher) depends more on perceptions of integrity, benevolence and openness. Downward trust (from headteacher to teachers) depends more on a perception of competence and reliability. The evidence presented by Bryk et al. (2009) that these measures not only predict future school improvement in student outcomes but that they are 'essential supports' for such improvement has been reviewed in [**Evidence that school leadership and environment matter.**](#)

A further triangulation of the relationship between team trust and performance, and an explication of the mechanisms underpinning it, can be found in a study by Edmondson (1999) in a large manufacturing company, who found that team self-reports of 'psychological safety' were strongly correlated with observers' ratings of team performance. We should note, however, that observers' ratings of performance may be confounded with their observation of relational trust, and that the correlation does not tell us to what extent trust is a cause of performance. Edmondson finds support for the hypothesis that psychological safety enables certain learning behaviours such as experimenting, seeking feedback, discussing errors or failures, exploring differences, asking questions and reflecting. These learning behaviours enable teams to perform better on complex tasks, in both the short and the long term.

However, an alternative perspective from a specific application of the concept of psychological safety to the context of schools can be found in the work of Higgins et al. (2022). In a study of over 500 public schools in New York City over three years, they found a negative relationship between teachers' perceptions of psychological safety and the school's probability of achieving 'Annual Yearly Progress' on accountability measures, once a measure of 'felt accountability' was also included. In this study, high perceptions of psychological safety were associated with worse performance.

Mechanisms

Mechanisms here are outlined below.

1. Willingness to show vulnerability (provided that 'safety' is not interpreted as tolerance for low performance):
 - allows others to provide effective **support**;
 - makes **innovation** and risk-taking more likely; and
 - enables **learning** from mistakes.
2. The feeling of being trusted supports **job satisfaction**, which reduces turnover that disrupts learning.

2**Improvement mindset**

Effective evaluation, monitoring and quality assurance

- Accountability and evaluation processes that are seen as fair and valid
- Systems and practice for giving fair and constructive feedback on performance
- Leaders' ability to create, implement and interpret performance information appropriately
- Responding strategically to information about areas of underperformance
- Absence of 'gaming' accountability processes

Teachers' beliefs that they can and need to be better than they are

- Teachers' beliefs (individually and collectively) in their own capacities for improvement
- Lack of complacency about current status ('We can always be better' rather than 'If it ain't broke, don't fix it')
- Teachers' perception of pressure to improve
- Teachers' willingness to innovate and experiment to improve outcomes

Teachers' feelings of ownership and responsibility for student outcomes

- Belief that teacher actions and expertise are the main determinants of students' outcomes
- Feeling responsible for bad outcomes (e.g., students' failure to understand ideas, failure to perform well in assessments, poor behaviour)
- When faced with disappointing outcomes, teachers question what they might have done, or could do, better, and keep trying to find ways to get through

The importance of systems of effective performance evaluation is related to, complements, and perhaps overlaps with strategic staffing. Certainly, differential retention or removal of high- and low-performing staff can only be possible if there is valid information available about performance.

Grissom et al. claim "[m]ultiple studies demonstrate that students benefit academically from sophisticated teacher evaluation systems that marry structured classroom observations of a teacher's performance with high-quality feedback" (2021, p. 60).

Mechanisms

Some potential mechanisms, including those identified by Grissom et al. (2021), are:

1. Awareness of accountability enhances staff **motivation** to perform at a high level.
2. Accountability metrics focus staff **attention** on key performance indicators (provided what is measured aligns well with what is important).
3. **Feedback** from an evaluation process leads to learning and developing expertise for those who receive it.
4. Effective evaluation gives leaders **insights** into areas that can be improved and informs strategy choice, increasing their chances of managing genuine improvements in things that matter.
5. **Innovation** and problem-solving raise organisational performance, especially if changes are evaluated.

3

Delivery

Strategy focuses on classroom practices and the learning interactions between students, teachers and curriculum

- Time and resources are allocated to these core activities

Leadership and strategy focus on removing barriers

- Teachers feel supported, and that their concerns are addressed by school leaders
- Leadership is perceived as responsive, visible, in-touch and supportive
- Leaders solve or remove problems and distractions
- Teachers can devote their time and energy to core tasks (classroom teaching, planning, assessment)

Effective problem-solving

- Challenges and barriers are identified and their causes understood
- Solutions are feasible and address those causes
- Implementation is well-planned and followed-through
- Changes are sustained

A number of studies have claimed that, despite the focus in much of the leadership literature on either 'instructional' or 'transformational' leadership, school leaders actually spend a lot more time on more routine aspects of organisation management, and that how much time they spend on organisation management is a better predictor of student attainment (Grissom & Loeb, 2011; Horng et al., 2010). However, the operationalisation and validation of 'organisation management' in these studies is unconvincing, and it is not really clear what they are measuring; a detailed critique is presented in **Methodological challenges in school leadership research** (see p.13).

We should also note that these studies make a distinction between 'organisation management' and 'administration'. However, the difference is conceptually somewhat blurred, and not really consistent with the actual factor loadings across both headteacher and assistant headteacher ratings in their analysis (see Appendix A for further detail). Whether or not this distinction can be upheld, and remains important, is a question for which we do not currently have a definitive answer. Meanwhile, we have included both aspects in our model, on the grounds that we do not think it is possible to make a clear and coherent separation, and that it is plausible that both aspects of management may be important for running a school effectively, and hence impact on student outcomes.

The wider evidence base, from contexts other than schools, that 'routine' management practices are important for organisational effectiveness, may also be relevant here. Bloom et al. (2015) document some of this evidence. Again, however, many of the activities characterised as 'managerial' do seem to be quite strategic in nature, or focused on core activities (such as instruction), so the picture remains confusing.

Despite the limitations in the evidence and theory, it is not hard to make a case that how well the operational, administrative, logistical and organisational functions of a school are managed could make a difference to the quality of learning that happens in it. In particular, if any of these things becomes problematic it could become a distractor from, or barrier to, everyday effective practice in other areas. Hence, the main impact of organisation management may be negative and perhaps non-linear: provided things are managed well enough, there may be little additional benefit in focusing on or improving organisation management, but if it drops below an acceptable level, it becomes more strongly related to key outcomes such as student attainment. At this stage, however, this is really just a hypothesis that needs testing.

Part of this management function is the practical support teachers perceive from leaders: solving, mitigating or removing problems, clearing away obstacles and enabling them to get on with the job in a frictionless environment. Clearly, any such problems will take time and energy away from instructional activities, so removing or avoiding these barriers has a direct and immediate effect on teachers' activity, and hence an impact on student learning. A related aspect is the extent to which school leaders require administrative paperwork or other non-core activities for accountability or regulatory requirements, particularly if these are time-consuming. Clearly, there may be room for disagreement about whether such activities are necessary or enhance quality.

Mechanisms

The hypothesised mechanisms in this area include:

- Prioritising instructional activity (pedagogy, curriculum, assessment) keeps people's **focus** on what makes most difference to learning.
- Prioritising core aims, identifying feasible actions to deliver them (taking account of challenges and their causes), and allocating **time and resource** to these strategic activities (at the cost of not doing other things) make core aims more likely to be achieved.
- Ensuring solutions/actions are **implemented** faithfully, sufficiently and sustainably makes them more likely to achieve the desired aims.
- Removing **barriers** and distractions from instruction enables efficiency and effectiveness: more and better instruction, hence learning.

4

Strategic staffing

Ensuring that the uses of staffing and other resources are aligned with strategic goals

- Recruitment of high-quality staff
- Retention and reward of high-quality staff
- Ability and willingness to have challenging conversations about, and constructively address, under-performance
- Letting go of persistently low-performing staff
- Ensuring time and budget are spent on things that deliver strategically important goals
- Managing workloads so that staff time is used optimally
- Assigning staff to roles that match their strengths, expertise and motivations

The extent to which leaders delegate autonomy, responsibility and influence to other staff

- Staff are meaningfully involved in key decisions
- Teachers have collective professional autonomy to make choices about pedagogy, curriculum and assessment
- Staff feel responsible for raising issues and generating solutions, and accountable for their success

Staff are deployed and managed in a way that promotes job satisfaction

- Staff feel their workloads are manageable
- Staff feel their work is valued and contributes to achieving the school's goals
- Staff feel commitment to the school and a desire to continue working there

'Managing personnel and resources strategically' is one of the four leadership practices in Grissom et al.'s (2021) review. As well as highlighting the importance of time management, they find support for the use of effective hiring processes (such as using the best data available—a practice they suggest is surprisingly rare—looking for the right things, and devoting sufficient time to the process), for strategic assignment of teachers to classes (optimising the match, resisting accountability pressures and pursuing equity in assignment), and for strategic retention (retaining high-performing teachers, allowing low performers to leave or moving them out).

In the *World Management Survey*, used by Bloom et al. (2015), twenty different areas were coded; of these, five seem to fit under this heading of strategic staffing.

A study by Sebastian et al. reviews existing theory and evidence on what is variously called collaborative, shared, collective or school-wide distributed leadership. They note that “a working definition of teacher leadership and a clear understanding of specific activities of teacher leaders that are important for school improvement has not yet emerged” (2016, p. 73). Neumerski also makes this point: “there is little consensus around what constitutes ‘teacher leadership’” (2013, p. 320). Sebastian et al. characterise it as “active efforts from a school principal to delegate influence and empower teachers” (2016, p. 70). They also note that, although the essence of distributed leadership is empowering a wider range of actors than just those in formal leadership positions to make decisions and influence outcomes, it still requires the action and support of those formal leaders to enable this transfer and make it work. Distributed leadership is not just a free-for-all, in which leaders abdicate responsibility and avoid action.

Sebastian et al. (2016) draw on the conceptual framework of the *5Essentials* from Bryk et al. (2009) with data from students in grades 3-8 in Chicago, and use a subset of its items in their teacher survey. A structural equation model shows that the influence of ‘teacher leadership’ on classroom quality (measured through student surveys and correlated with student attainment growth) is largely mediated through ‘learning climate’ (student perceptions of peer behaviour and school safety). However, the strength of these relationships seems to owe more to common method and source than to independent relationships between traits, so the precise mechanisms are hard to untangle. Also, Johnson et al. (2012) find only weak direct relationships between measures of distributed leadership (‘governance’ and ‘professional expertise’ in their survey) and student growth.

We include job satisfaction as an aspect of staffing. If teachers are overworked, feel undervalued or that their work does not contribute to wider goals, it seems likely they may work less hard, less effectively or remain in post for less time. Related to job satisfaction is wellbeing, though the precise meaning of the latter and the distinction between them is not always clear. While there are obvious mechanisms by which staff job satisfaction and wellbeing enable effective teaching, and indirect effects of poor wellbeing if teachers are off sick or leave the school, we may also see reports of poor wellbeing as an indicator of wider problems of leadership (Sims, 2020). In making the case that wellbeing is something school leaders should monitor and care about, we can also use the argument that it matters in its own right, irrespective of its impact on student outcomes.

Dicke et al. (2020) review the evidence about both teachers’ and principals’ job satisfaction and a range of outcomes, citing a number of studies that link these variables with student achievement. Using TALIS-PISA data and multilevel structural equation models, they find support for viewing job satisfaction as having two components (satisfaction with the profession and with their own school environment), as well as a general (combined) component.

Klusmann et al. (2022) present evidence that teachers' emotional exhaustion is associated with less effective classroom practices, which in turn mediate the relationship with poorer attainment. They conclude that, "supporting teachers' wellbeing is not only important for the teachers themselves, but also it is important for students' academic development". However, the study is cross-sectional so cannot really untangle the direction of causation.¹⁰ Moreover, the relationships with attainment are weak and only in one outcome (English) do they narrowly reach the conventional threshold of statistical significance ($p < 0.05$) without any control for multiple comparisons. They also report previous studies with mixed results, so the association between teacher wellbeing and student attainment is far from established.

Better-evidenced is the claim that job satisfaction predicts teachers' intention to leave a school (e.g., Ladd, 2011; Sims & Jerrim, 2020). Not surprisingly, self-reported job satisfaction correlates more highly with intention to leave than with actual observed leaving, but there is still an association, especially if 'job satisfaction' is modelled as partially determined by a school's leadership quality and discipline (Sims & Jerrim, 2020, fig. 13). Evidence that teacher turnover is generally bad for student outcomes is relevant here, since it provides a mechanism by which teacher job satisfaction may have an indirect impact on student learning.

¹⁰ Klusmann et al. (2022) acknowledge that "our cross-sectional data did not allow us to draw causal conclusions" but nevertheless make repeated implicit causal claims, using words like *effects*, *impair*, *consequences*, etc., and making practical recommendations that clearly imply this interpretation.

Mechanisms

Plausible mechanisms are:

1. Decisions and actions that help to recruit and retain high-quality staff (while avoiding or letting go of weaker staff) raise the overall **effectiveness** of the staff body.
2. Awareness of these processes creates **incentives** for existing staff to raise their performance, even without any changes in staffing.
3. Allocating staff to **match** roles to individual strengths increases overall effectiveness, even without any change in overall human capital.
4. Ensuring allocation of staff resource is **aligned** with strategic goals makes goals more likely to be achieved.
5. Appropriate delegation:
 - Removes **bottlenecks** of a single decision-maker;
 - Brings in local knowledge and specific expertise (hence **better decisions**);
 - Allows greater **responsiveness** (quicker/easier to adjust in real time);
 - Shares **ownership** and accountability, enhancing buy-in (hence better implementation); and
 - Feelings of autonomy and influence are related to **job satisfaction** (hence retention; Johnson et al., 2012; Papay & Kraft, 2017).
6. Strategic **targeting** of training to address gaps is more efficient than generic training.

What is missing from our model?

Readers familiar with the school leadership literature may have noticed two key omissions: ‘shared vision’ and ‘instructional focus’. Although we have been critical of the evidence that supports inclusion of many of the factors we have listed, we judge that these two fall below an acceptable level in relation to clarity of the construct, unique contribution not captured elsewhere, defensible mechanisms by which they may impact student learning, and supporting evidence.

Shared vision

A focus on ‘shared vision’ is a mainstay of much writing about school leadership. For example, Leithwood et al. (2019) list ‘build a shared vision’ among the specific leadership practices that characterise successful school leaders. However, the research underpinning this claim is exclusively correlational, and the operationalisation of the exact practices that constitute building a shared vision falls short of the standard required for a scientifically meaningful claim (see [Methodological challenges in school leadership research](#) for this argument in detail). Hence, the direct evidence for its inclusion seems quite limited.

It may be that shared values are important through their influence on characteristics that we have captured separately. For example, shared values may support collaboration. Affective commitment may be a component of trust of leadership. Shared beliefs about education may be important through their mediating effects on instructional and development-focused activities—though it is probably more important for these beliefs to be right than for them to be shared.

A further counter-argument is that shared values and goals could be a mixed blessing. There is good evidence that having diverse perspectives and the challenge from different thinking about issues within an organisation can be a strength (Herring, 2009). Encouraging critique and challenge, with robust debate, could lead to better decision-making in the end, and hence better outcomes. An unintended consequence of the desire to achieve shared values and goals could lead to favouring clones who ‘fit’ and encourage employment practices that are not supportive of diversity.

Allen and Meyer’s (1990) conceptualisation and measurement of organisational commitment has been widely used in many studies outside education, and some within (e.g., Hallinger & Wang, 2015). Their three-component model separates affective (emotional attachment to, identification with, and involvement in the organisation), continuance (perceived costs associated with leaving the organisation), and normative commitment (perceived obligation to remain in the organisation).

There is evidence that these three components predict a range of other things, though mostly other measures that share a common source and method, that is, correlations between survey responses from the same respondents. A widely cited meta-analysis of these relationships by Meyer et al. (2002) does also find correlations with direct measures of turnover, absenteeism and supervisor ratings, albeit quite weak (correlations in the range 0-0.2, after correction for unreliability, most of which do not reach an acceptable threshold of statistical significance, $p < 0.05$, in these samples).

Instructional focus

Transformational leadership:

Unlike instructional leadership's focus on instruction, transformational leadership promotes a focus on leader-follower relations, as well as the goal of moving followers to align with larger group goals.

Numerous reviews of the leadership literature emphasise the importance of 'instructional leadership' (e.g., Grissom et al., 2021; Leithwood et al., 2019; Robinson et al., 2009). The basic argument is that as instruction is the prime activity of a school and its main route to affect learning, leadership activities should centre on monitoring and enhancing its quality. One of the influential headlines of Robinson et al.'s BES is that "the impact of pedagogical leadership is three to four times that of **transformational leadership**"¹¹ (2009, p. 90). On the other hand, Liebowitz and Porter find that "prior literature may overstate the unique importance of instructional management as a tool to improve student achievement outcomes" (2019, p. 26).

As with so much of this field, the definitions are neither clear nor universally agreed (Grissom et al., 2021). Robinson et al. define pedagogical leadership as "close involvement by leadership in establishing an academic mission, monitoring and providing feedback on teaching and learning, and promoting professional development" (2009, p. 88). In other words, it is a collection of at least three things, each of which we have already captured here separately. Hallinger has a slightly different definition, again with three dimensions, but not quite the same three ('defining the school's mission', 'managing the instructional program', and 'promoting a positive school learning climate'; 2005, p. 225). The three are subdivided into ten 'instructional leadership functions' which cover a very wide range of activities, not all of which seem obviously 'instructional' (e.g., 'communicating the school's goals' or 'maintaining high visibility'). Hallinger's PIMRS (1985) has 'instructional' in its title but focuses on a wide range of aspects of leadership.

Given that instruction is the main function of schooling, it is almost a tautology to say that school leadership should be centred on instruction—that is, by definition, their focus. Given the complex and multifaceted nature of instruction and of the processes that underpin it, it is also quite unhelpful.

¹¹ As noted in paper 2, all the studies synthesised here are correlational, so the word 'impact' is misleading, but the association with student learning is substantially larger for instructional than transformational leadership practices. The fact that studies from the US dominate this synthesis may also help account for the apparent importance of 'instructional' leadership: there may be much more variation in the extent to which school principals in the US focus on instruction, than in other countries where pretty much all do anyway.

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