

4. Leadership, curriculum evaluation and building school capacity

This chapter considers the critical role played by school leadership in planning, implementing and evaluating the curriculum. The final section of the chapter considers ways of measuring the impact of interventions or changes in practice in order to make judgements about progress.

4.1 Leadership

Schools offering Cambridge International's programmes and qualifications operate using many different administrative structures. Many are state funded, while others are independent. Some schools are privately owned and commercial, while others are run by school boards and are not-for-profit. No matter what the structure, this chapter aims to highlight leadership principles and practices that are most likely to support the development of an effective school.

Effective schools are schools that:

- successfully progress the learning of all of their students, regardless of background, beyond their normal expected developmental rate of growth
- make sure the educational experience students actually receive, including the impact of the school curriculum, teaching approaches, the co-curriculum and the learning environment, closely aligns to the school vision and educational aims.

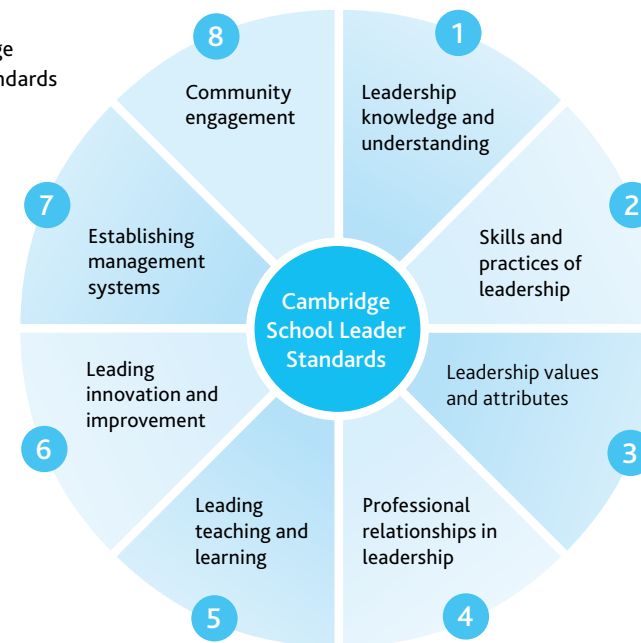
Schools will assign different management responsibilities to different individuals within the senior administration team. All schools need to have an individual in the school, normally the principal or school head, who is the senior educational leader. In some schools, this role is separate from the school business head or chief executive, who is responsible for school administration. In other contexts, the business head is line managed by the principal, who has overall responsibility for the school. The focus of this chapter is very much on the role of the senior educational leader.

The ● *Cambridge School Leader Standards* define the key professional characteristics and practices that leaders should develop to enable effective teaching and student learning in Cambridge schools. Teachers cannot achieve

and sustain high-quality outcomes for all students without effective leadership, and so the Cambridge School Leader Standards identify and support the challenges of achieving such leadership. They confirm what successful leadership practice looks like and help leaders to determine areas and priorities for their own professional development.

The Standards are divided into eight headings (see Figure 3) and 40 statements which are detailed and concrete. These enable users to understand how to demonstrate achievement in individual standards.

Figure 3: Cambridge School Leader Standards



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Instructional leadership

The Cambridge School Leader Standards place a clear emphasis on the role of the educational leader as an instructional leader.

Instructional leadership focuses on the quality of instruction and maintaining a focus on learning. Robinson's (2007) study of the leadership styles and behaviours that had the greatest impact on student outcomes, concluded that: *'The more leaders focus their professional relationships, their work and their learning on the core business of teaching and learning, the greater their influence on student outcomes.'*

Robinson (2011) goes on to identify five key functions 'student-centred' leaders engage in:

1. **Establishing Goals and Expectations.** This includes creating a positive and inclusive school climate focused on a culture of learning.
2. **Resourcing Strategically.** The focus is on using resources in strategic ways to maximum impact to optimise student learning.
3. **Ensuring Quality Teaching.**
4. **Leading Teacher Learning and Development.** Professional learning opportunities are focused on improving instructional impact.
5. **Ensuring an Orderly and Safe Environment** so that everyone in the school, students and staff, feel safe and supported.

“Everyone in the school community – heads of department, heads of year, teachers and other educators, parents and students – is empowered to play an appropriate leadership role.”

In effective schools, the principal is a strong instructional leader. Moreover, leadership is widely distributed as it is viewed more as a process than a position of responsibility. Everyone in the school community – heads of department,

heads of year, teachers and other educators, parents and students – is empowered to play an appropriate leadership role.

School administrators (including the principal, heads of department and heads of year) are responsible for building school capacity in a way that allows teachers to realise their full potential.

A number of the school's senior administrators should be actively involved with teachers, observing teaching and learning, and engaging in a professional discussion with teachers about what is happening in the classroom. This professional link can become a very powerful motivational force for teaching professionals, and critical for senior administrators in developing a deep appreciation of what is actually happening in the school.

Administrators need to support teachers so that they can concentrate on student learning and planning teaching. They are responsible for ensuring that the right structure is in place, and that there are enough appropriately qualified staff to deliver the curriculum. Roles and responsibilities need to be well defined and clearly communicated. Ideally, planning time is built into teachers' schedules so that they can work collaboratively in teams (in academic departments or year groups) on developing learning activities. Where possible and practical, teachers should be encouraged to visit each other's class and provide peer support to their colleagues. This is particularly important in developing less experienced teachers and a very cost-effective form of professional development.

Teachers also play a leadership role, in that they are involved in creating, implementing, monitoring, reviewing and refining practices and systems, and then measuring impact in order to improve student learning. Nurturing and using teacher talent in this way creates a virtuous circle of motivation, desire to learn more, commitment and enhanced practice. Working collaboratively to resolve collective challenges can also create a shared sense of purpose and a powerful instrument of change.

Listening to the learner voice is crucial to understanding their perspective on the curriculum and how it is implemented.

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Leadership and management functions relating to the curriculum include:

| | |
|----|--|
| 1 | Curriculum planning and evaluation |
| 2 | Teacher recruitment and evaluation |
| 3 | Professional development (PD) |
| 4 | Development and implementation of quality assurance policies and procedures. |
| 5 | Managing change |
| 6 | Involvement with the school and local community. |
| 7 | Management of the assessment process and relationships with Cambridge International (exams officer). |
| 8 | Timetable (considered in the previous chapter). |
| 9 | Student admissions, progression through the school and guidance on to higher education. |
| 10 | Measuring impact |



4.2 Curriculum planning and evaluation

Periodic curriculum evaluation, focused on evidence-based judgement with a view to improving practice, will help make sure the curriculum is accomplishing its purpose. Evidence-based evaluation processes will help to measure what achievements have been made and to identify what needs more work. Table 9 identifies some of the key questions that evaluations should address, although this is by no means a complete list.

Table 9: Some essential questions for curriculum planning and evaluation

| Area for review | Examples of questions |
|--|--|
| Curriculum planning | <p>Does the school's curriculum:</p> <ul style="list-style-type: none"> • deliver the most appropriate programme of study to support the school's mission and educational aims? • deliver a balanced, coherent and consistent programme of learning with clear and smooth progression routes designed for the needs of learners? • appropriately challenge all ability levels? • recognise the language background of learners and provide them with the support they need to access the curriculum? • provide sufficient opportunity for learner choice? • provide pathways that enable learners to achieve the entrance or admission requirements for university, higher education courses and employment? |
| Quality assurance policies and practices | <ul style="list-style-type: none"> • Are your quality assurance policies and practices fit for purpose, clear in their intent and easily understood? • How do you know that the school's quality assurance policies are being adhered to? • What areas need additional quality assurance policies and practices? |

Continued

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| Area for review | Examples of questions |
|---|--|
| Teacher evaluation Fulfilling Cambridge (and other qualification) subject requirements Effective delivery of learning and meeting learner needs | <ul style="list-style-type: none"> • Are the stated aims of the curriculum being addressed within the teaching programme? • Are teachers teaching to the syllabus correctly, covering all the prescribed content and skills? • Is there evidence that teachers are using a variety of appropriate teaching strategies and learning activities? • Are the assessment objectives and methodology for assessment being respected? • Are coursework components being correctly implemented and supported? • Is there evidence that teachers are using formative assessment appropriately to inform their teaching practice? • Is there evidence that teachers are differentiating their practice to the needs of individual learners? • Do learning activities provide opportunities for the development of the desired skills and learner attributes? • How are the views of learners taken into account? • Is there a process of lesson observation with supportive feedback to effect improvements in teaching and learning? • Are lessons supported with sufficient resources, suitable for the level of study? • Do lessons include topics of national relevance by structuring and delivering content in local contexts? |
| Professional development | <ul style="list-style-type: none"> • Are all teachers engaging in suitable professional development activities to ensure successful implementation of the desired curriculum? • Is your professional development programme meeting the specific needs of teachers and the requirements of the strategic plan? • Is the balance between internal and external professional development opportunities appropriate? • What evidence do you have that the professional development programme is positively influencing classroom practice or learner achievement? |

| Area for review | Examples of questions |
|--|--|
| Resources and facilities | <ul style="list-style-type: none"> • Are facilities and administrative resources appropriate to support teaching programmes? • Do learners and teachers have access to appropriate library/ media centre and IT resources? • Are appropriate student welfare and learning support services provided? • Do you have appropriate facilities for the security of examination material? |
| Formal examinations and qualifications | <ul style="list-style-type: none"> • Do you have an exams officer to manage the administration of any Cambridge exams you offer? • Is there a process in place to make sure the exams officer carries out their duties in line with Cambridge requirements? • Are the Cambridge (and national) examination requirements and procedures being strictly adhered to? • Are the mechanisms for checking accuracy in, and completeness of, learner data sufficient? • Are the policies regarding authenticity of learners' work being followed? • Are the systems for entering, storing and exchanging learner records secure, with appropriate back-up and retrieval safeguards? |
| Communication and evaluation methodology | <ul style="list-style-type: none"> • How can you improve your evaluation procedures to get more meaningful or accurate information? • How is this information shared or disseminated to other stakeholders? • How can the school become more effective in making use of this information to refine and further develop the curriculum? • Is there effective communication and exchange of information with external agencies, for example, Cambridge International, other qualification organisations, ministries and other governmental agencies? • Are learner and teacher schedules (timetables) and calendars of events accurate, clear and informative? |

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Many schools use recognised evaluation/accreditation frameworks to support the process of curriculum and whole-school evaluation. These will provide their own list of questions, processes and criteria. Often these are external, provided by national authorities or accreditation agencies. What is important is that they lead to school improvement and that the whole school community is involved in relevant evaluation and development activities so that everyone takes ownership of the process.

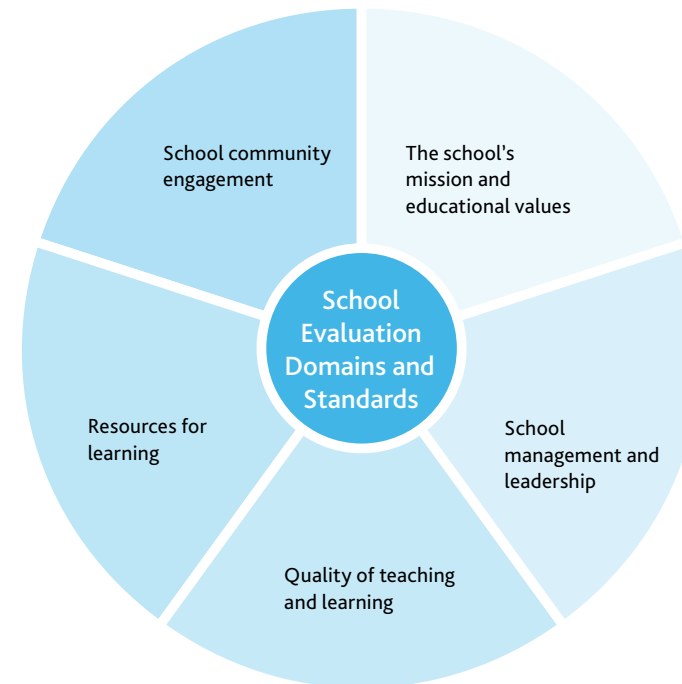
Larger scale school-wide evaluations are very time consuming. For this reason they are conducted only occasionally. It is important that smaller evaluation cycles are built into the regular operations of the school so that evaluation and development are seen as an ongoing process.

We offer a school self-evaluation service that can contribute powerful insights as part of a broader evaluation strategy. The Cambridge instrument investigates five domains (see Figure 4). These are centred on research-based indicators of effective schools including:

- high academic standards and expectations
- a school climate that focuses on achievement
- instructional leadership
- high-performing teachers
- students with a strong self-efficacy and confidence as learners
- parents with high aspirations and expectations
- learning resources that are fit for purpose
- excellent school governance that includes responsible financial management.

“ We offer a school self-evaluation service that can contribute powerful insights as part of a broader evaluation strategy. ”

Figure 4: Cambridge School Evaluation Domains and Standards



The self-evaluation process provides an opportunity for schools to engage with their three main stakeholders – students, teachers and parents. It allows them to collect data that will help them reflect on their performance, design improvement strategies and track progress over time. See more about our ● School Improvement services.

4.3 Teacher recruitment and evaluation

As good teaching is such a powerful influence on student learning, nothing is more important than ensuring teaching is as consistently excellent as it can possibly be. Schools should recruit teachers who share the school's vision and, ideally, display the learner and teacher attributes. The best way to improve

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teaching practice is to conduct well-designed teacher evaluation and professional development, while building a culture where it is valued and understood.

Teacher evaluation is a very important quality assurance process. Schools will operate different systems, often prescribed by national authorities. While the summative element of judgement or appraisal is important, the formative aspect is even more so. The most effective forms of evaluation allow teachers to self-reflect against elements of clearly defined criteria. These criteria include the Cambridge Teacher Standards and the learner and teacher attributes, as well as performance criteria in terms of learner results and value added to student learning. Reflective practice, one of the key concepts in the learner and teacher attributes, is reinforced.

Many schools also involve learners in providing feedback to teachers, whether formally or informally. Learner evaluations of their classes, when they are carefully designed and non-threatening, are a powerful practice that provides valuable formative feedback to teachers.

Teacher evaluation needs to relate closely to the school's professional development programme. This makes sure professional development supports areas identified for development during the evaluation process.

● Chapter 6 of the *Developing your School with Cambridge* guide provides more information.

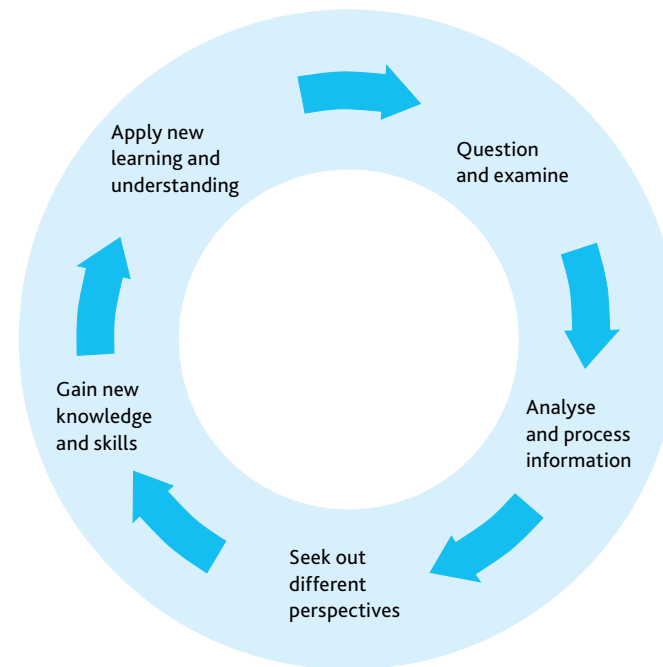
4.4 Professional development (PD)

Professional development (PD) includes a wide range of activities and practices that support ongoing and evidence-based reflective practice (see Figure 5: The reflective cycle). This involves participants in:

- reflecting on current practice through the teacher evaluation process, which will identify PD priorities
- working with peers to share ideas and to observe, record and give feedback on classroom experiences
- reviewing relevant resources to introduce and become familiar with new concepts

- accessing recognised local or international educational expertise to enhance understanding
- planning, trialling, evaluating and modifying new practices and resources
- using collaborative support structures and processes, including peer critiquing and online services.

Figure 5: The reflective cycle



PD needs are likely to span the following areas:

- subject and resource support, including familiarisation with subject content, learning activities and skill acquisition and development
- enhancing understanding of pedagogic and assessment practices and their planning and integration into teaching programmes

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- building professional capacity through collaboration with other teaching professionals in the school and through inter-school subject cluster groups or networking
- opportunities to upgrade professional qualifications, with the potential to become teacher-trainers or examiners, or to contribute in other ways that advance the introduction of the curriculum and the uptake of the associated new pedagogy and assessment methodology.

PD needs will be situational. Teachers new to the profession and/or to Cambridge programmes will need close support from experienced colleagues and to attend appropriately targeted training. Experienced teachers will want to improve their professional practice by completing advanced PD programmes, doing PD qualifications, and by becoming involved in professional communities of practice. These resources, courses and professional collaborations stimulate participants to reflect on their experience of working in a school environment and to evaluate their practice.

In this way, participants reflect on their experience of working within a school environment through stimulus from resources, courses and professional collaboration. Reflective PD encourages individuals to develop action plans and experiment with new strategies. This experimentation gives them additional experiences on which they can reflect, and more opportunities for professional growth.

PD opportunities should not just be for teachers. The school leadership team and teaching support staff will also contribute to the successful implementation of the curriculum and will therefore benefit from relevant and constructive professional development.

For more information about our professional development services see Chapter 5 in this guide and ● Chapter 7 of the *Developing your School with Cambridge* guide.

4.5 Developing and implementing quality assurance policies and procedures

Policies and procedures should provide teachers and learners (and where appropriate, parents) with clear direction, guided by the school's mission and

aims. They need to be understood by the school community and enforced through quality assurance practices, including teacher evaluation. These resources, courses and professional collaborations stimulate participants to reflect on their experience of working in a school environment and to evaluate their practice.

In addition to the teacher evaluation policy, those that relate to the curriculum usually include:

Language policy: Every school will have its own language profile, so it is important that this is reflected in a policy that recognises the language needs of different groups of learners and teachers. It will consider the solution to questions including: How will English as a second language be supported? How will learners be encouraged to develop their first or best language? What responsibilities do teachers have to support language learning?

Assessment policy: How often are internal summative grading and reporting conducted? What are the grading procedures and how does this relate to the criterion system used by Cambridge International and/or other qualifications taught in the school? How is assessment for learning supported? What can learners and parents expect from teachers in terms of reporting and detailed feedback on specific assignments and over specified lengths of time?

Homework policy: What are the expectations? How is this organised to make sure classroom learning is supported?

Special Educational Needs and Gifted and Talented policy: What are the expectations for teachers to differentiate so that all learners are appropriately challenged? How does the school support learners with specific needs?

Co-curricular expectations: What does the school provide for learners beyond regular classes? How does this fit in with teacher contracts and expectations? How does the school work with the local community to support learner participation in activities that it cannot provide itself, or are better provided outside the school?

Discipline policy: What is the code of conduct for teachers and the code of conduct for learners? How is the code of conduct supported and enforced?

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What support does the school provide to learners who display discipline problems?

For further information see ● Chapter 3 of the *Developing your School with Cambridge* guide.

4.6 Managing change

Introducing Cambridge curricula for the first time will present challenges, particularly if teaching staff are not familiar with the programmes or do not have a background of relevant experience. The high value we place on teachers becoming creative professionals means that preparation is vital. In other words, we expect teachers to develop their own schemes of work and apply the syllabus to the needs of their learners in the context of the school. To a lesser extent, this is also true for experienced staff who will also need time to plan and refresh their lesson plans, recognising that every class of learners is unique.

Teachers new to Cambridge programmes will be involved in:

- becoming familiar with subject requirements, including assessments, and planning how to satisfy those requirements
- writing or rewriting schemes of work and producing new teaching material
- accessing and evaluating subject resources, for example, textbooks, websites and workbooks
- planning and trialling teaching strategies and assessment practices.

Teachers should be supported so that they have enough time to prepare properly and have access to professional development. One option is to have a 'pre-implementation year', to give teachers the opportunity to review, prepare, practise and evaluate the new material and approaches before full implementation. The opportunity to trial units of work and practise assessment tasks will help to build teachers' confidence and develop a sense of purpose towards the new curriculum.

Mentoring and team teaching are excellent strategies to help manage curriculum change and development. Experienced teachers can support less experienced colleagues and can also lead professional development activities within the school. Team teaching allows teachers to share expertise, provide professional support and learn new skills. While the content in different academic disciplines is different, many of the teaching and assessment principles and practices are often similar, so inter-departmental collaboration can also be very productive. Finally, we recommend working with another school that has experience of Cambridge programmes to support teachers during a time of change. This can be very useful in smaller schools where there may only be one subject teacher at each school level.

“ Teachers should be supported so that they have enough time to prepare properly and have access to professional development. ”

4.7 Involving the local community and parents

It is very useful if parents understand the curriculum, and the choices that learners have to make at different stages. Parent information sessions with question and answer sessions can support school communications.

Parents should support the development of the Cambridge learner attributes at home. Schools can encourage this by using the school reporting process to map learners' progress against these broader attributes, explaining their significance. In the same way that it can be beneficial for staff evaluation to include self-reflection, learners will also benefit from an element of self-evaluation in reporting. Some schools require students to write their own self-evaluations as part of the reporting process. Other schools conduct parent/student conferences where the student leads the discussion. For an example of this see case study 9 on page 43 of the ● *Cambridge Learner Attributes guide*.

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To understand the wider world, learners must first develop a deep appreciation of their local context and culture. Participating in community activities can enrich the curriculum, but can also benefit learners by giving them insights into career options through links with local businesses. Becoming aware of post-school options can help learners choose the subjects they want to study, enabling them to be responsible for their next steps in learning. It can also increase motivation levels and encourage greater participation in classroom activities. Community service can support the development of the learner attributes and help nurture a sense of social responsibility.

4.8 Administering our assessments (exams officers)

The exams officer is the person appointed by the head of centre to act on behalf of the school, with specific responsibility for administering Cambridge exams. We provide detailed support and training for exams officers managing our assessment processes. For more information please see [our website](#).

4.9 Student admissions, progression through the school and guidance on to higher education

Transparency is key in student admissions. The school's policies and selection criteria must be clearly published on the school website and in other relevant documentation. For instance, if potential students must pass an entry test, the requirements must be freely available for students and parents to understand.

Once a student has been accepted, it is important to provide the appropriate level of challenge at each stage of their students' education as described in Chapters 1 and 2. The choice of subjects at IGCSE/O Level can be vitally important. If a student decides they wish to study medicine but they did not take chemistry IGCSE, they would be unable to undertake A Level study in the subject and therefore unable to pursue their chosen pathway. It is recommended that students study English, mathematics, at least one science, at least one humanities subject and one language at IGCSE plus other subjects as appropriate for future career paths. For those wishing to pursue higher education in science, engineering and medicine, all three science subjects at IGCSE would provide good foundations.

At A Level, subject choice becomes even more important. In the UK, the Russell Group universities publish a guide called [● *Informed Choices*](#). This guide gives a list of what they refer to as 'facilitating subjects' as well as guidance on some of the subjects considered less desirable. Mathematics is regarded highly by all subject disciplines. The sciences, history and English literature are all regarded as facilitating subjects. If you wish to study economics, most universities require A Level Mathematics rather than A Level Economics.

We recommend that those staff who are involved in advising students on subject choice and on their university/college applications look at the information available on our website. The [● recognition database](#) provides a tool for students to search by country and qualification to see where their qualifications are accepted worldwide and if they are given credit in institutions in North America.

See our [● website](#) for general guidance and resources.

Also see our [● website](#) for information on the entry requirements and admissions processes of top destination countries.

4.10 Understanding and measuring impact

Measuring impact is critical to evaluation, and thereby to developing practice and improving student learning. Without measuring impact, how will we know if curriculum revisions or new approaches to teaching and learning have made a difference to our learners' progress and attainment? This section looks at how leadership in schools can answer these questions by introducing the concept of effect size and focusing on three areas in particular:

1. Improvements in student progress and attainment.
2. Changes in teacher self-efficacy.
3. Impact on student self-efficacy.

Impact focus 1: Improvements in student progress and attainment

Measuring effect sizes is one way of helping school leaders and teachers understand the impact of changes they have introduced on student progress and

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teacher and student self-efficacy. If teaching strategies or the curriculum are changed in some way, calculating effect sizes helps determine not just if learning and self-efficacy have improved, but by how much. Effect size is a useful way of quantifying or measuring the size of any difference between two groups or data sets. This helps school leaders and teachers understand the impact of any changes they have introduced and what has the maximum benefit for learners and teachers.

An effect size is found by calculating the standardised mean difference between two data sets or groups. In essence, this means we are looking for the difference between two averages, whilst taking into account the spread of values around those averages at the same time. Case study 7 below illustrates this through providing a worked example:

Case study 7:

Using effect size to measure improvements in student progress following an intervention

Ultimately, as school leaders and teachers, we are interested in the impact of a specific educational intervention or change on student outcomes. We want to know how much progress our learners have made, as well as what they have been able to attain or achieve.

Consider the following scenario:

Over the course of a term, a teacher has worked hard with her learners on understanding 'what success looks like' for any given task or activity. She has stressed the importance of everyone being clear about the criteria for success, before learners embark upon the chosen task and plan their way through it. She has even got to the point where learners have been co-authors of the assessment rubrics used, so that they have been fully engaged in the intended outcomes throughout and can articulate what is required before they have even started. The teacher is happy with developments so far, but has it made a difference to student progress? Has learning increased beyond what we would normally expect for an average student over a term anyway?

Case study 7 continued

Here is an extract from the teacher's mark-book:

| Student | Sept task | Nov task |
|----------|-----------|----------|
| Katya | 13 | 15 |
| Maria | 15 | 20 |
| Joao | 17 | 23 |
| David | 20 | 18 |
| Mushtaq | 23 | 25 |
| Caio | 25 | 38 |
| Cristina | 28 | 42 |
| Tom | 30 | 35 |
| Hema | 32 | 37 |
| Jennifer | 35 | 40 |

Before we start analysing this data, we must note the following:

- The task given in September was at the start of the term – the task in November was towards the end of the term.
- Both tasks assessed similar skills, knowledge and understanding in the student. The November task needs to be as close as possible to the September task in assessing the same construct.
- The maximum mark for each was 50.
- The only variable that has changed over the course of the term is the approach to teaching and learning by the teacher. All other things are equal.

With that in mind, looking at the extract above, what conclusions might you draw as an external observer?

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Case study 7 continued

You might be thinking something along the lines of:

Mushtaq and Katya have made some progress, but not very much... Caio and Cristina appear to have done particularly well... David, on the other hand, appears to be going backwards!

What can you say about the class as a whole?

Calculating effect sizes:

What if we were to apply the concept of 'effect sizes' to the class results above, so that we could make some more definitive statements about the impact of the interventions over the given time period? Remember, we are doing so in order to understand the size of the effect on student progress.

Let us start by understanding how it is calculated. An effect size is found by calculating the standardised mean difference between two data sets or groups. In essence, this means we are looking for the difference between two averages, while taking into account the spread of values (in this case, marks) around those averages at the same time.

As a formula, and from our scenario above, it looks like the following:

Effect size = Average class mark after intervention – Average class mark (before intervention) ÷ Spread standard deviation of the class

In words: the average mark achieved by the class before the teacher introduced her intervention strategies is taken away from the average mark achieved by the class after the intervention strategies. This is then divided by the standard deviation of the class as a whole. The standard deviation is merely a way of expressing by how much the members of a group (in this case, student marks in the class) differ from the average value (or mark) for the group.

Case study 7 continued

Inserting our data into a spreadsheet helps us calculate the effect size as follows:

| | A | B | C |
|----|--------------------|-----------------------|---|
| 1 | Student | September task | November task |
| 2 | Katya | 13 | 15 |
| 3 | Maria | 15 | 20 |
| 4 | Joao | 17 | 23 |
| 5 | David | 20 | 18 |
| 6 | Mushtaq | 23 | 25 |
| 7 | Caio | 25 | 38 |
| 8 | Cristina | 28 | 42 |
| 9 | Tom | 30 | 35 |
| 10 | Hema | 32 | 37 |
| 11 | Jennifer | 35 | 40 |
| 12 | | | |
| 13 | Average mark | 23.8 =AVERAGE(B2:B11) | 29.3 =AVERAGE(C2:C11) |
| 14 | Standard deviation | 7.5 =STDEV(B2:B11) | 10.11 =STDEV(C2:C11) |
| 15 | | | |
| 16 | | | Standard deviation overall 8.8 =AVERAGE(B14:C14) |

Therefore, the effect size for this class = $(29.3-23.8)/8.8 = 0.62$

But what does this mean?

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Case study 7 continued

Interpreting effect sizes to understand impact

In pure statistical terms, a 0.62 effect size means that the average student mark, after the intervention by the teacher, is 0.62 standard deviations above the average student mark before the intervention.

We can state this in another way: the post-intervention average mark now exceeds 61 per cent of the student marks previously.

Going further, we can also say that the average student mark, post intervention, would have placed a student in the top 4 in the class previously. You can see this visually in the table above where 29.3 (the class average after the teacher's interventions) would have been between Cristina's and Tom's marks in the September task.

We know from results analyses of the Program for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) that, across the world, a year's schooling on average leads to an effect size of 0.4. John Hattie and his team at the University of Melbourne reached similar conclusions when looking at over 900 meta-analyses of classroom and whole-school interventions to improve student learning – 240 million learners later, the result was an effect size of 0.4 on average for all these strategies. What this means, then, is that any teacher achieving an effect size of greater than 0.4 is doing better than expected (than the average) over the course of a year. From the example given in case study 7, not only are the learners making better than expected progress, they are also doing so in just one term.

Impact focus 2: Changes in teacher self-efficacy

Teacher self-efficacy is a term we use to refer to a teacher's level of confidence in their ability to guide learners to success. It captures the idea that, both individually and collectively, teachers believe they can have a highly positive effect on student learning and attainment, regardless of a student's socio-economic background and the level of motivation they bring to the learning environment.

This level of confidence can be found by asking teachers to self-report against questions (or items), such as:

1. How much, in your current practice, do you feel you can gauge/measure student understanding of what you have taught?
2. To what extent, in your current practice, do you feel you can use a variety of assessment strategies?
3. How well, in your current practice, do you feel you can implement a variety of active learning strategies?
4. How much, in your current practice, do you feel you can motivate learners who show little or no interest in school work?

A teacher's responses to such questions, before an intervention or change is put in place, can then be compared with their responses afterwards. Allocating a numerical code to the response options, e.g. 0 = No influence; 1 = Some influence; 2 = A lot of influence, etc, enables statistical analysis and the calculation of effect sizes (see above). An exemplar questionnaire, for adaptation by the school, can be found in the appendices.

Impact focus 3: Impact on student self-efficacy

Linked closely to the above is the idea of student self-efficacy, which refers to a learner's level of confidence about their ability to be successful within a given context (task, subject, etc) – both now and in the future. Learners with strong self-efficacy are more likely to challenge themselves when faced with difficult situations or tasks and be intrinsically motivated. They willingly exert a high degree of effort in order to be successful, and see failure as a learning opportunity or something that is within their control. Such learners tend also to recover quickly from setbacks, and, ultimately, are likely to achieve their personal goals. One of the main reasons we developed the learner attributes was to support the development of student self-efficacy.

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The level of a student's sense of efficacy can be found by asking them to self-report against questions/descriptors/items, such as the following:

1. I can succeed at anything if I try hard enough.
2. If I practised every day, I could develop any skill.
3. Once I have decided to accomplish something that is important to me, I keep trying, even if it is harder than I originally thought.
4. When I am struggling and taking longer to complete something difficult, I focus on my learning and change my approach, instead of feeling discouraged.
5. I believe that the brain can be developed, just like a muscle.
6. I think that, no matter who you are, you can significantly improve your level of capability.

Once more, a student's responses to such questions, before an intervention or change is put in place, can then be compared with their responses afterwards. Allocating a numerical code to the response options, e.g. *0 = Not like me at all; 1 = A little like me; 2 = Like me; 3 = A lot like me*, etc, thereby enables statistical analysis and the calculation of effect sizes (see above).

An exemplar questionnaire, for adaptation by the school, can be found in the appendices.

Considerations on measuring impact

In reality, measuring and using effect sizes is not a perfect tool as the assumptions made about similar tasks and identifying only one variable as changing are not fully achievable. That said, calculating effect size provides one set of data to measure impact and needs to be part of a broader discussion and analysis.

Much of this analysis will be qualitative, trying to understand why some students have done better than others and trying to make sense of patterns in the data. School leaders and teachers must look at the data carefully and intelligently in order to understand 'why'. Why did some learners do better than others? Why did some not make any progress at all? In what areas has student attainment or self-efficacy improved, stayed the same or got worse? Its most important function is to support collaborative work and discussion around student learning and progress, helping departments and teachers to work out a common language, high expectations and a clear focus around improving student outcomes.

John Hattie's work (2010 and 2012, see annotated bibliography) provides insightful guidance to schools about what they should prioritise based on effect sizes from international research. Another valuable study is by the Education Endowment Foundation/Sutton Trust (see annotated bibliography).