NSW GOVERNMENT | Education — Centre for Education Statistics & Evaluation
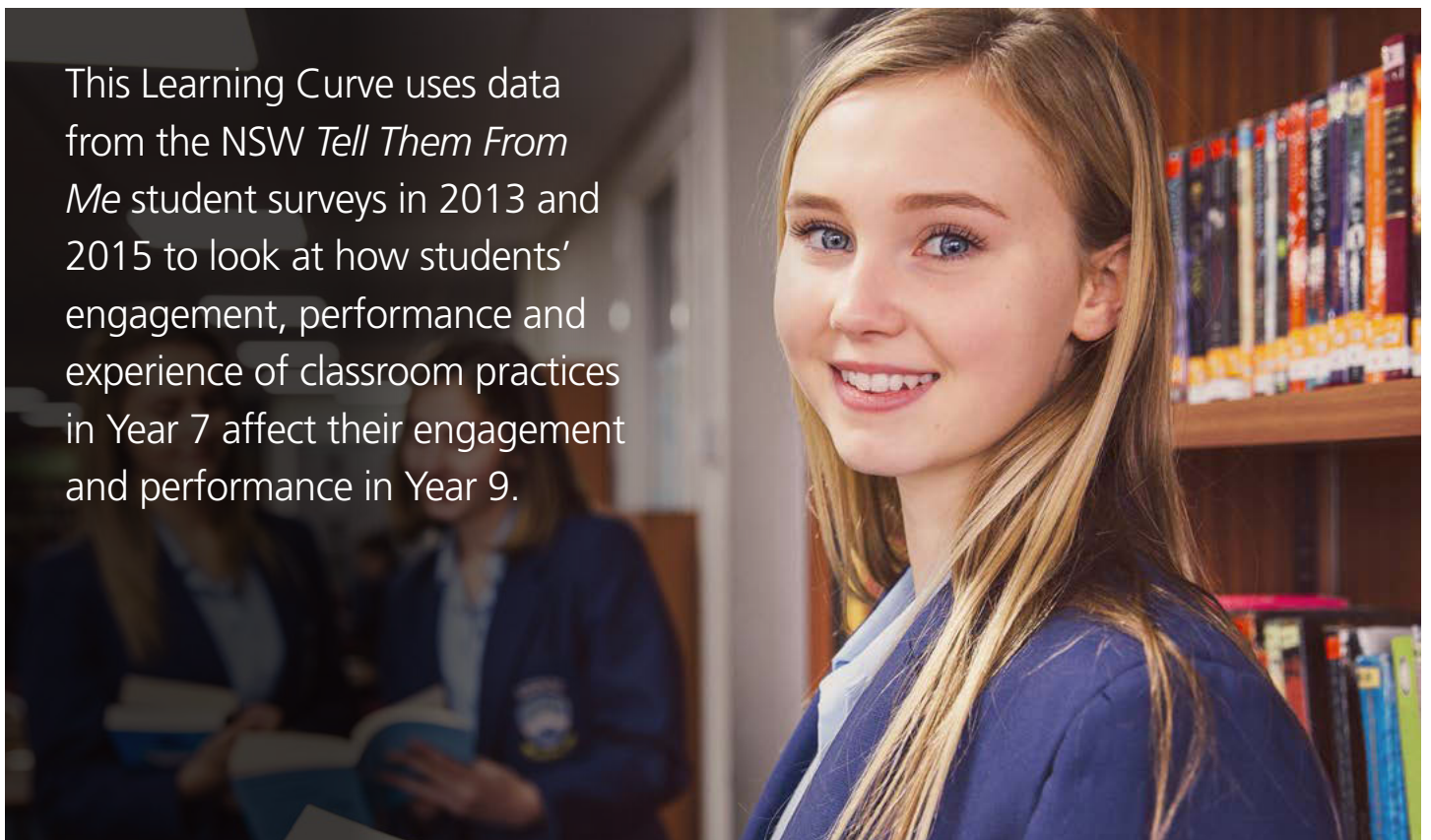
Improving high school engagement, classroom practices and achievement

This Learning Curve uses data from the NSW *Tell Them From Me* student surveys in 2013 and 2015 to look at how students' engagement, performance and experience of classroom practices in Year 7 affect their engagement and performance in Year 9.

Key findings:

- Engagement matters for learning. Students who are positively engaged are up to six months ahead in their learning, after socioeconomic status and prior achievement are taken into account.

- Effective classroom and teaching practices matter for learning. Students whose teachers use effective teaching practices and set high expectations for all can be up to seven months ahead in their learning, after socioeconomic status and prior achievement are taken into account.

- Students respond positively to better classroom practices, not only through direct improvements in their learning but also through greater engagement with school.

- The relationship between performance and engagement goes both ways – engagement affects performance but improvements in performance also positively affect engagement.

- Student engagement and classroom practices can change. School leaders and teachers can take practical steps to improve both.

The findings in this Learning Curve are a result of a collaboration between the Centre for Education Statistics and Evaluation (CESE) within the NSW Department of Education and the Institute for Social Science Research (ISSR) at the University of Queensland.

This study confirms that when students are engaged at school, they learn more and perform better. The study also confirms that engagement can be improved when teachers use effective teaching practices.

Significantly, this study also provides a strong quantitative basis for confirming the difference made to student performance by three engagement indicators – positive behaviour, positive attendance, and academic interest and motivation – and two classroom practices – effective learning time and teachers' expectations for success.

This Learning Curve looks at these engagement indicators and classroom practices in detail and suggests strategies for teachers and school leaders, based on a review of the research evidence.

Methodology

The analysis reported in this Learning Curve uses a sub-set of the 2013-2015 Tell Them From Me (TTFM) longitudinal data; specifically, students who were in Year 7 in 2013 and in Year 9 in 2015. This has resulted in a matched data set of around 6,800 students.

The analysis unpacks the complex relationships between engagement, classroom practices and NAPLAN reading performance by looking at students moving from Year 7 to Year 9, from three related perspectives:

- The relationship between engagement and performance
- The relationship between classroom practices and performance and the impact classroom practices have on performance through improved engagement
- The two-way (or bi-directional) relationship between engagement and performance – how engagement impacts on performance and how, in turn, improved performance impacts on engagement.

The statistical technique Structural Equation Modelling (SEM) was used to unpack these relationships. This shows the effect that differences in measures of engagement and classroom and teaching practice in Year 7 have on NAPLAN reading scores in Year 9. SEM can also show how much the effect of classroom practices on performance is mediated by the measures of engagement; in other words, how classroom practices affect engagement, which then improves performance.

The results from the statistical modelling show how much a difference of one point in each of the TTFM measures of engagement and classroom practices highlighted in this Learning Curve affects NAPLAN scores. The engagement and classroom practices measures are scored from 0 to 10; the difference between a student who disagrees with the questions and one who agrees is five score points.

Using this data, we can calculate the difference in NAPLAN score points between two hypothetical students within the same hypothetical school. These two students are identical in a range of measurable attributes (e.g. socioeconomic status and prior academic performance, while holding all other engagement measures constant) except for their responses to questions for each of the TTFM measures: Student A reports being engaged or has a teacher who uses effective classroom practices; Student B does not.

One way of reporting the differences in NAPLAN scores between these hypothetical students is to use a months of progress approach to understanding relative student progress and learning gaps (Grattan Institute 2016). This approach measures the months of learning it would take the typical NSW Year 9 student to move from one NAPLAN score to another.

The use of NAPLAN as a measure of academic achievement

The National Assessment Program – Literacy and Numeracy (NAPLAN) is an annual assessment for students in Years 3, 5, 7 and 9. NAPLAN test results for reading in Years 7 and 9 are used in this Learning Curve as indicators of academic achievement. While academic achievement covers a broad range of school-based outcomes across many different subjects, the modelling of longitudinal data sets is suited to academic test instruments, such as NAPLAN, that have a level of consistency over time and are reported on a single scale. The NAPLAN tests measure students' achievement gain between testing years in addition to being a valid and reliable measure of academic achievement by Year 9.

Reading was selected for this analysis as it is one of the core NAPLAN tests. The NAPLAN reading tests measure literacy proficiency across the English learning area in line with the Australian Curriculum.

The importance of reading as an outcome of schooling is summed up by Vacca et al. (2011):

> Adolescents entering the adult world in the 21st century will read and write more than at any other time in human history. They will need advanced levels of literacy to perform their jobs, run their households, act as citizens, and conduct their personal lives.

The *Tell Them from Me* Survey

Tell Them From Me is an online survey system that enables schools to capture the views of students, teachers and parents. It provides school principals and school leaders with insight into student engagement, wellbeing, and effective classroom and teaching practices at their school. It covers school and family factors that are known to influence student learning.

The NSW study

The diagram below shows how far one hypothetical student who reports each of the three engagement indicators and two classroom practices (Student A) is ahead in learning of another who does not (Student B), after accounting for student socioeconomic status and prior achievement. These results are drawn through comparing *Tell Them From Me* (TTFM) student survey data with results from the NAPLAN standardised test in reading. The effect on performance has been estimated by converting NAPLAN score points into months of learning (see Methodology for more detail).

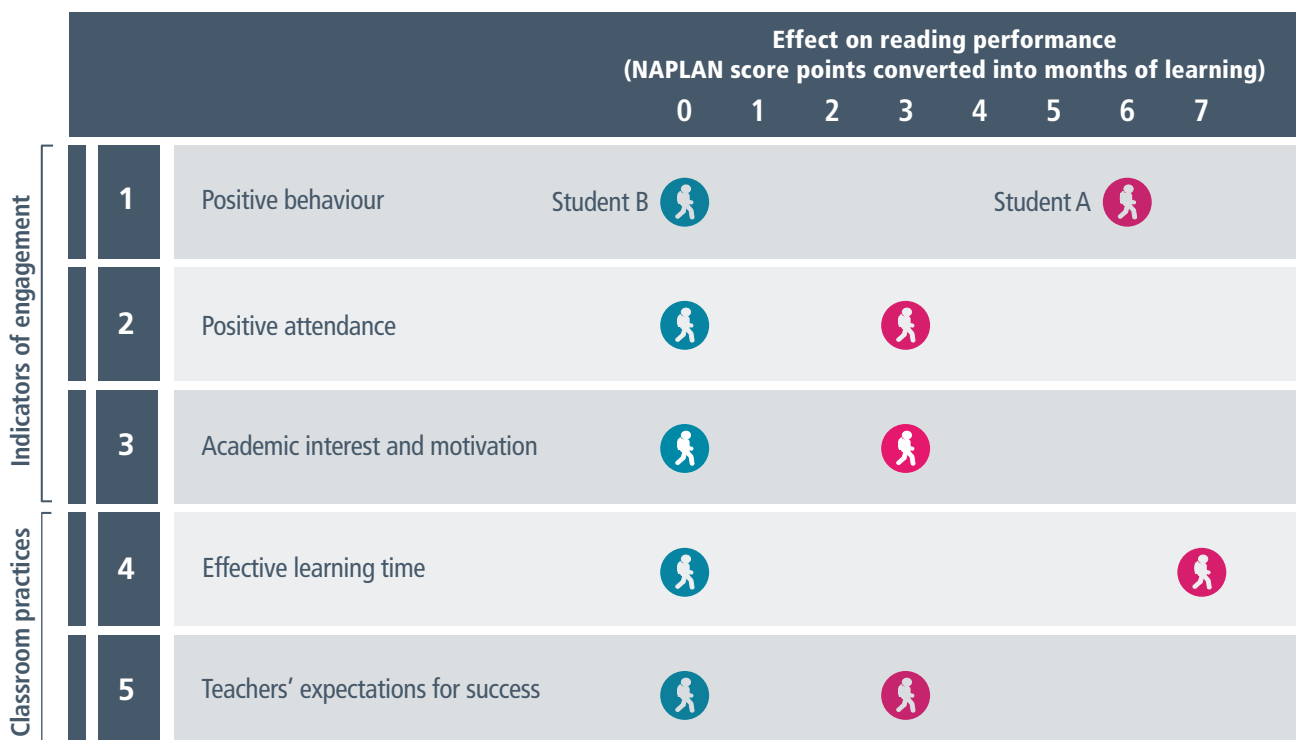### What existing research tells us about engagement

We know that student engagement and effective teaching and classroom practices go hand in hand. These aspects of schooling have become even more significant in recent years due to the increased focus on completing high school and undertaking post-secondary education. There is now evidence that positive engagement during the school years is an important factor not only in enrolment but in the completion of post-secondary education (Lawson & Lawson 2013).

We also know through previous studies in NSW that schools that demonstrate high value-add in terms of student growth create environments that promote learning and high levels of student engagement, use explicit and effective teaching strategies, and set high expectations for achievement (CESE 2015a).

Why this new research is significant

The NSW government school system is one of the largest school systems in the world. The data set used in this study is notable in terms of longitudinal cohort size, the scope of indicators available for analysis, and linkage with robust performance data. The models developed from this rich and comprehensive dataset allow us to explore multiple relationships within the data and establish indicators of engagement and classroom practice that best predict student outcomes.

Figure 1: What works to drive performance in Year 9

			Effect on reading performance (NAPLAN score points converted into months of learning)							
			0	1	2	3	4	5	6	7
Indicators of engagement	1	Positive behaviour	Student B 🚶						Student A 🚶	
	2	Positive attendance	🚶			🚶				
	3	Academic interest and motivation	🚶			🚶				
Classroom practices	4	Effective learning time	🚶							🚶
	5	Teachers' expectations for success	🚶			🚶				

1. Positive student behaviour

This section and the following two sections show the results from modelling work on the direct effects of student engagement on learning outcomes. Three indicators of engagement – positive student behaviour, attendance, and academic interest and motivation – showed statistically significant and marked effects on Year 9 NAPLAN results as shown in Figure 1.

The results from NSW

Positive behaviour is a measure of institutional engagement[1]. It captures behaviours that occur in the learning environment, such as whether students are listening to their teacher or being disruptive. It also measures the extent to which students break school rules or otherwise get into trouble at school. Student behaviour is closely related to classroom management, another important factor in students' social and psychological development (Romi, Lewis, & Salkovsky 2015).

Where two students are identical in terms of socioeconomic status and prior academic performance, a student in Year 7 who exhibits positive behaviour in class and at school is, on average, six months ahead in their learning by Year 9 (in terms of NAPLAN scores), compared with a student who reports poor behaviour (Figure 2).
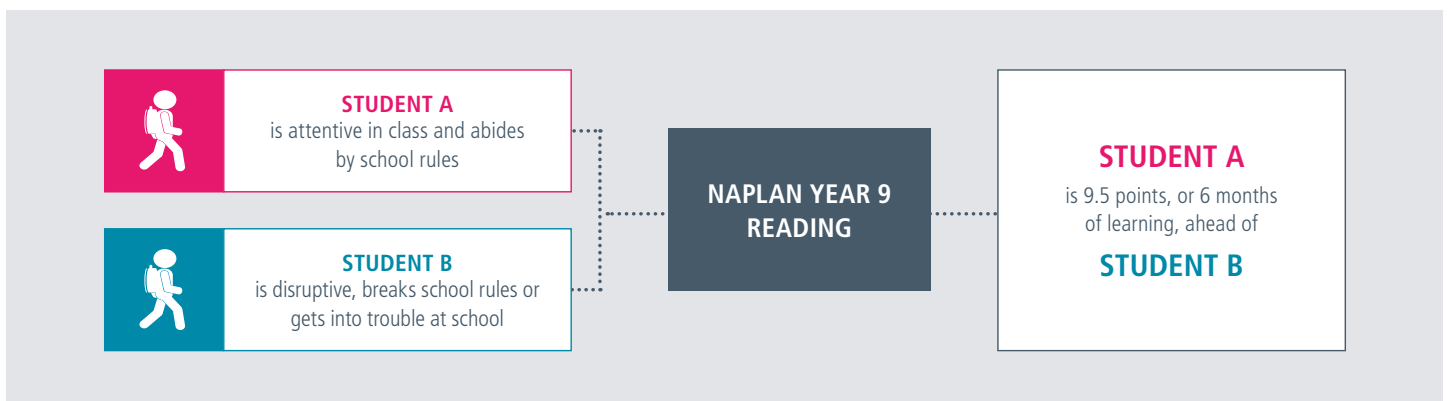
What the evidence says

Behavioural engagement is positively associated with academic performance. Students who attend school regularly, concentrate on learning, adhere to the rules of the school, and do not engage in disruptive behaviours such as skipping class or fighting generally get better grades and perform better on standardised tests (Wang & Holcombe 2010).

Studies using other longitudinal data have shown that early problems with behavioural engagement have long-lasting effects on achievement. For example, the Beginning School Study in the US showed that teachers' ratings of behavioural engagement in the first grade were related to achievement test score gains, grades over the first four years, and even decisions to drop out of high school (Fredricks et al. 2004).

In many cases, students who are behaviourally disengaged do not display disruptive or non-compliant behaviour, but rather, display passive or internally focused behaviours such as withdrawal from class activities and discussion, and moving off-task (Grattan Institute 2017). Girls, in particular, are more likely to disengage in this way (Kann & Hanna 2000, cited in Beaman et al. 2007).

Teachers, therefore, need to be able to identify all student behaviour that might become a problem, and use effective preventative strategies (alongside effective responses and reactions), to prevent minor behaviours escalating to more serious behaviour and negative student outcomes (Grattan Institute 2017).

Figure 2: The effect of student behaviour on NAPLAN scores[2]

STUDENT A
is attentive in class and abides by school rules

STUDENT B
is disruptive, breaks school rules or gets into trouble at school

NAPLAN YEAR 9 READING

STUDENT A
is 9.5 points, or 6 months of learning, ahead of
STUDENT B

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1   Institutional (or behavioural) engagement forms part of the suite of *Tell Me From Me* engagement measures, alongside social-emotional engagement and intellectual (or cognitive) engagement.
2   See Methodology for more information.

What schools can do to encourage positive behaviour?

Student behaviour is strongly linked with classroom management. Creating a positive learning environment in the form of well-managed classrooms has a positive effect on student behaviour, student engagement and student achievement (Marzano et al. 2003). The focus should be on the enabling potential of discipline and its role in the development of dispositions to learning and engagement. Teaching strategies that incorporate positive discipline techniques will enable students to develop their own strategies for self-discipline which in turn will help promote intellectual effort and engagement in the classroom (Watkins 2000).

In the classroom

The following strategies are effective in creating well-managed classrooms and improving student behaviour more generally:

- Actively engage students and promote positive behaviour rather than focusing only on reactive discipline strategies such as punishment

- Develop structure and routines for the classroom and explicitly teach these through discussion and practice

- Foster positive relationships between teachers and students and among peers

- Establish and maintain clear expectations and rules for student behaviour in the classroom and at school

- Reinforce appropriate behaviour and respond consistently to misbehaviour.

As a whole school

The evidence also suggests that adopting a school-wide strategy to manage student behaviour decreases problem behaviour and is associated with improved academic outcomes (Luiselli et al. 2005; Wilson et al. 2003). The international literature points to two different school-wide approaches: positive behaviour support programs that communicate and teach rules (and reward students for following them); and social and emotional learning that promotes self-management, social awareness, relationship skills and responsible decision making (Durlak et al. 2011).

While these two approaches differ in their aims and methods, they emphasise the prevention of problem behaviours using positive techniques, and recognise the critical role of teaching strategies and the involvement of the whole school community including teachers, students and parents (Osher et al. 2010).

These strategies are often used in conjunction with policies that recognise the need to manage inappropriate student behaviour when it impacts significantly on learning. The NSW Department of Education outlines a balanced approach to discipline which recognises and reinforces appropriate behaviour and manages unacceptable behaviour (NSW Department of Education, 2016). This approach, while emphasising the positive, does not rule out the use of exclusionary practices (such as timeouts and suspensions). Whole-school approaches that are aimed at all students should be supported by more targeted and intensive interventions for students who are at risk behaviourally or who demonstrate behavioural difficulties over an extended period of time (see Bennett 2017).

2. Attendance

The results from NSW

School attendance is a measure of institutional engagement[3]. The indicator used in NSW is similar to that developed for the Programme for International Student Assessment (PISA) and measures the extent to which students report that they skipped classes or missed days at school without permission, or arrived late for school or classes.

Where two students are identical in terms of socioeconomic status and prior academic performance, a student who attends school and does not miss lessons in Year 7 is on average three months ahead in their learning by Year 9, compared with a student who has poor attendance (Figure 3).
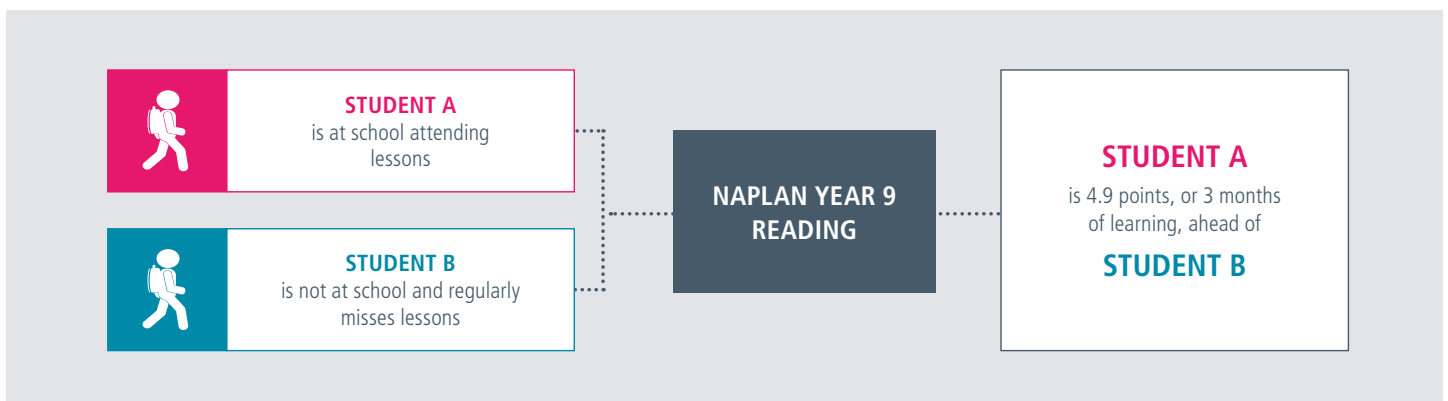
What the evidence says

The research places great emphasis on the impact of non-attendance at school, particularly unauthorised absences, or truancy, when students miss school without permission (Willms 2014).

Low levels of school attendance are associated with:

- Poor academic performance (Willms 2003), including low levels of literacy and numeracy (Australian Council for Educational Research 2014)
- Further truancy and absenteeism in subsequent years and early school leaving (Rumberger 1995)
- Disruptive behaviour, negative attitudes towards school and poorer outcomes later in life (Department of Justice 2001).

Students in lower socioeconomic schools, Aboriginal students, students who are highly mobile and those whose parents have lower levels of education and occupational status, all have lower levels of attendance, on average (Department of Education, Employment and Workplace Relations 2013).

Figure 3: The effect of student attendance on NAPLAN scores[4]

STUDENT A
is at school attending lessons

STUDENT B
is not at school and regularly misses lessons

NAPLAN YEAR 9 READING

STUDENT A
is 4.9 points, or 3 months of learning, ahead of
STUDENT B

3   Insitiutional engagement is also referred to as behavioural engagement.
4   See Methodology for more information.

What schools can do to improve attendance

Set expectations for attendance

Schools can improve positive attendance behaviour by setting expectations for attendance and establishing improvement goals. In addition to TTFM and other survey data, schools can analyse attendance rates to monitor trends and patterns in the data. This process can help to identify individual students whose patterns of attendance have changed or do not meet an expected level. Systematic and sustained follow-up of identified students with low or changing attendance can help to understand and address any barriers to full school participation, including the involvement of family and community support structures (Epstein & Sheldon 2010).

Listen to students' perspectives

Poor attendance, in particular unauthorised absences, may reflect school engagement and behavioural issues, so students' views on their reasons for non-attendance may give insight into ways to improve school attendance. In studies elsewhere, students have attributed their low attendance to poor relationships with teachers; a dislike of school or school work; a perception that school is irrelevant, too difficult or too easy; and feeling unsafe at school (Attwood & Croll 2006; Queensland DET 2013). *Tell Them From Me* survey data can help schools identify issues that may be affecting their students' attendance.

Promote social and emotional engagement

Strategies to improve student attendance are often used in combination with, or overlap, strategies to enhance behaviour, wellbeing and learning. A survey of school leaders from Queensland schools found that improving student wellbeing and ensuring students feel connected to school had a significant impact on attendance, together with other more commonly employed strategies such as referral to school support staff (Queensland DET 2016).

Feeling connected to school is particularly important for the students covered in this NSW study (i.e. those in Years 7 to 9). During adolescence, the need for a positive sense of belonging and connection with others through mutually supportive relationships is at its peak (Wang & Holcombe 2010).

Promote positive relationships with teachers

Students' relationships with teachers and other school staff are central to their feelings of connection to school. Research shows that when students believe that their teachers care about them and provide a well-structured learning environment with high, clear and fair expectations, they are more engaged in school and are more likely to attend (Klem & Connell 2004).

Increase collaboration with families

Research has shown that students have better attendance when parents are involved in their children's education (Epstein & Sheldon 2010). Examples of ways schools can support parents to be involved include: involving parents in school-decision making; increasing parental participation in classroom activities; and establishing a contact person at school for family members to communicate and work with.
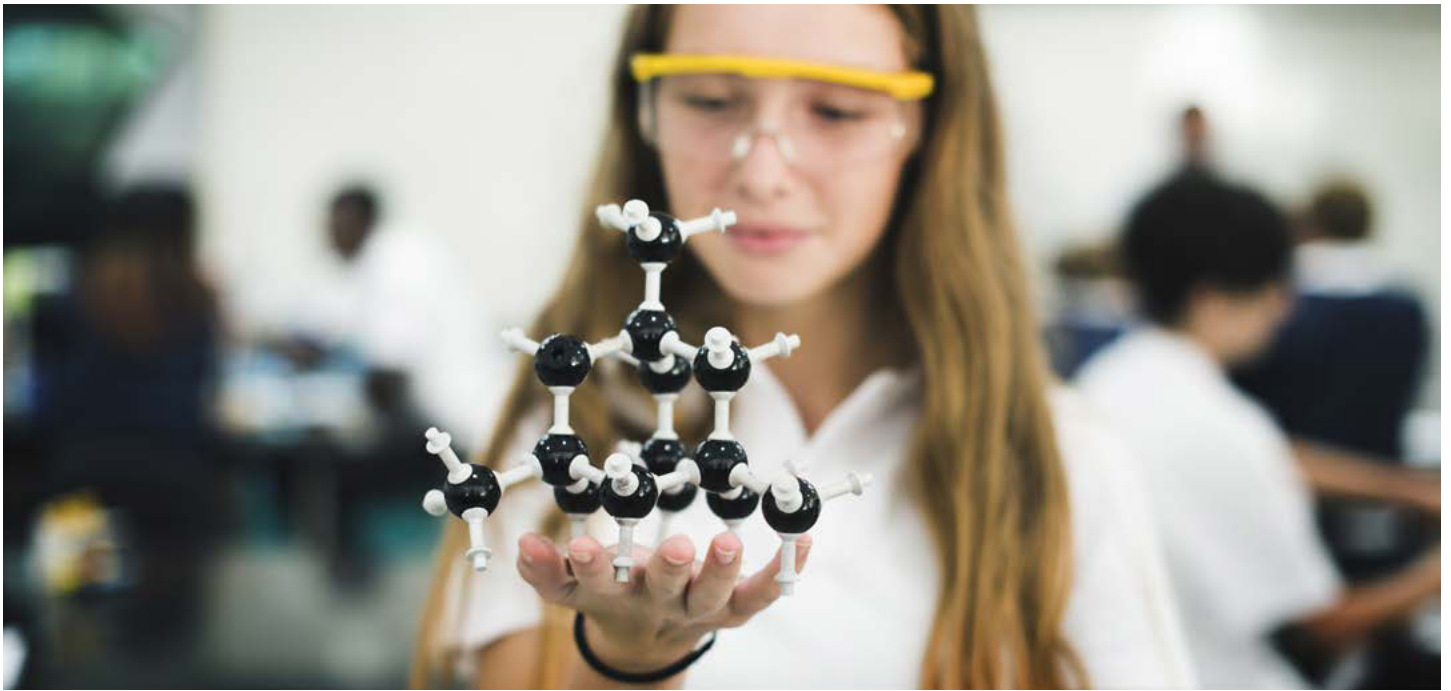
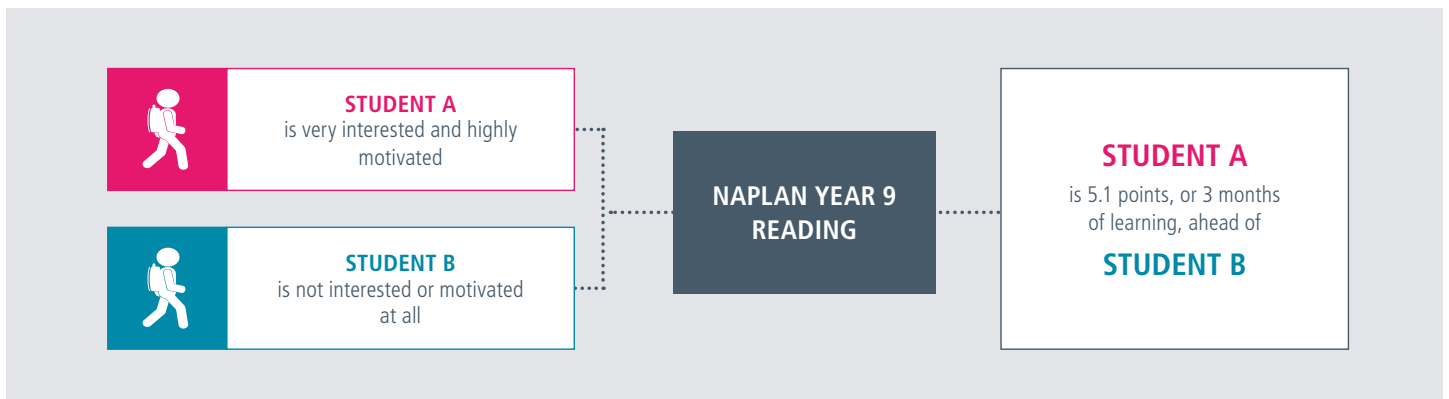# 3. Academic interest and motivation

The results from NSW

Academic interest and motivation is a measure of intellectual engagement and refers to students having a serious emotional and cognitive investment in their learning (Canadian Education Association 2012).

Where two students are identical in terms of socioeconomic status and prior academic performance, a student who exhibits positive levels of interest and motivation in Year 7 is, on average, three months ahead in their learning by Year 9, compared with a student who is not interested and motivated (Figure 4).

What the evidence says

Student motivation is a trait that describes what compels learners to invest time and effort. A student may be intrinsically motivated – that is, moved to act for the enjoyment or challenge of learning – or extrinsically motivated, which involves doing something for external reasons such as pressures or rewards. Research commonly finds that internal motivations are positively associated with achievement, whereas the correlation of external motivations with achievement is not as strong (Guthrie & Coddington 2009). Intrinsic motivation, furthermore, is positively related to wellbeing and positive adjustment in children and adolescents (Vallerand 1997).

Figure 4: The effect of NAPLAN scores of changes to student interest and motivation[5]

STUDENT A is very interested and highly motivated	**NAPLAN YEAR 9 READING**	**STUDENT A** is 5.1 points, or 3 months of learning, ahead of **STUDENT B**
STUDENT B is not interested or motivated at all		

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5   See Methodology for more information.

What schools can do to increase interest and motivation

Hattie (2009) notes that student motivation is 'highest when students are competent, have sufficient autonomy, set worthwhile goals, get feedback and are affirmed by others'. For example, when students have high self-efficacy, i.e. believe they are capable of performing a task, they are more likely to have elevated levels of effort and persistence and deal more effectively with challenging tasks (Wigfield & Eccles 2000).

Teachers can help shape students' motivation through their teaching practices and classroom environment by:

- Supporting student self-efficacy by guiding students to revise and practise tasks and by providing effective feedback that helps students develop their own strategies for learning - for example, providing students with feedback about their effort

- Providing students with opportunities to set goals for performance improvements that are achievable and worthwhile

- Adopting approaches that build students' sense of autonomy, for example: listening to students; asking questions and responding to questions; acknowledging students' perspectives; and giving them opportunities to work though problems on their own, when they have a sufficient knowledge base.

4. Effective teaching practices

How teaching and positive classroom practices combine with student engagement to affect learning

The analysis in the previous three sections focused on aspects of student engagement and their effect on learning. This section and the one that follows extend this modelling work and explore the effects of better classroom practices on student learning. Teachers' classroom practices (for instance, teaching practices, classroom management, teacher expectations and teacher-student relations) directly affect learning. The evidence shows, however, that they also affect learning indirectly, by improving student engagement (Lawson & Lawson 2013).

The results from NSW

This research project finds that one of the key conditions – or facilitators – of learning is the extent to which teachers support effective learning time[6]. In the TTFM survey, this refers to teachers' use of classroom time, such as whether classes are well organised and whether important or difficult concepts are taught well. Effective learning time is a measure of quality instruction. Teachers who deliver quality instruction are aware of, understand, and actively and systematically pursue goals for student learning.

The results from the NSW data show that when students report their teachers demonstrating practices that promote effective learning time, they are, on average, seven months ahead in their learning by Year 9 compared with students whose teachers do not demonstrate effective learning time (assuming all other characteristics are the same; Figure 5).

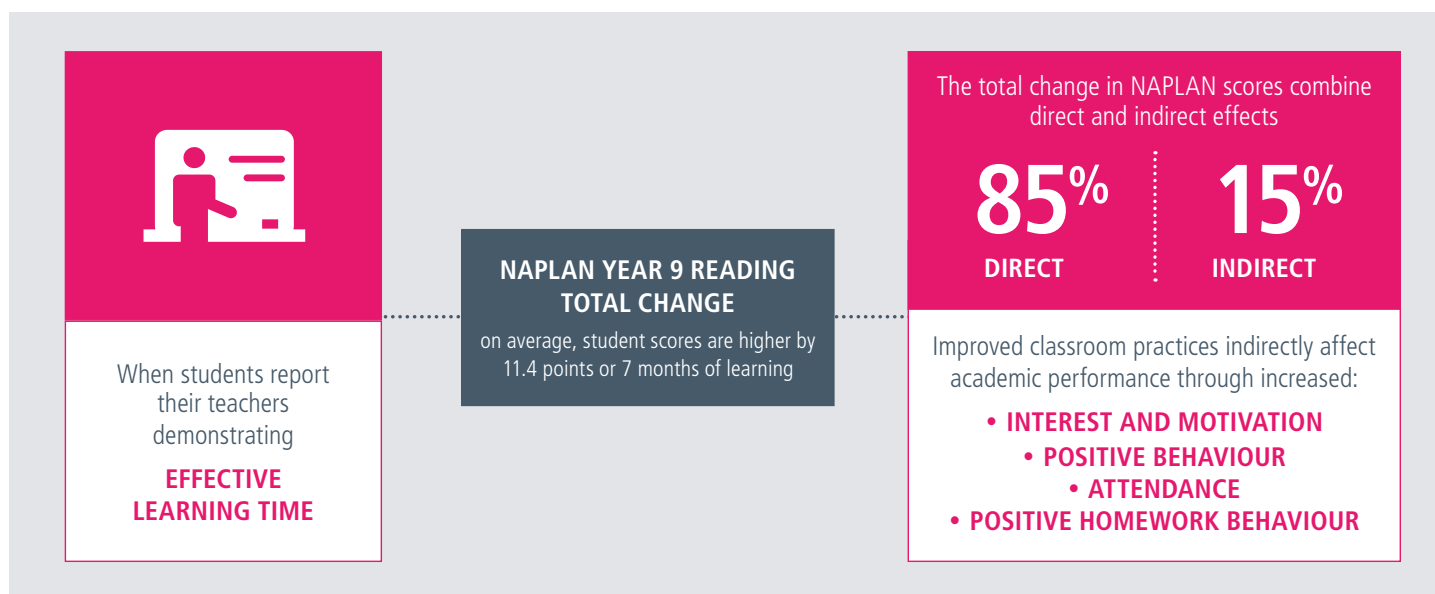Teachers' effective use of learning time affects student learning in two ways:

- Directly, by unlocking learning in the classroom which leads to improvements in student performance. For instance, the teacher is able to explain complex material clearly so the student understands this material better and this understanding is reflected in higher test scores.

- Indirectly, through students becoming more engaged with school and with learning, which then drives performance. For instance, the fact that the teacher is better at explaining material motivates students to work harder and engage with school work, which is then reflected in improved performance.

The modelling shows that the majority of the improvement in performance (85 per cent) comes *directly* as a result of the teacher employing practices that unlock learning. The other 15 per cent of the total change in NAPLAN scores results from the impact of effective learning time on intellectual and institutional engagement (students' interest in their studies, their behaviour, attendance and attitude towards homework[8]), which in turn drives an improvement in performance.

What the evidence says

When teachers are well organised and focus on ensuring students have understood difficult or important ideas, students' general engagement with school and learning improves. Evidence shows that students who learn in supportive classroom environments that promote mastery of classroom content have, on average, enhanced engagement and learning outcomes (Wang & Holcombe 2010). In line with this, a study of middle school students in the US reported higher cognitive (intellectual) engagement and greater use of learning and metacognitive strategies when teachers presented challenging work and pressed for understanding (Fredricks et al. 2004).

Figure 5: The effects on student learning of improved teacher effective learning time[7]

When students report their teachers demonstrating **EFFECTIVE LEARNING TIME**

NAPLAN YEAR 9 READING TOTAL CHANGE
on average, student scores are higher by 11.4 points or 7 months of learning

The total change in NAPLAN scores combine direct and indirect effects

85% DIRECT   **15%** INDIRECT

Improved classroom practices indirectly affect academic performance through increased:
- **INTEREST AND MOTIVATION**
- **POSITIVE BEHAVIOUR**
- **ATTENDANCE**
- **POSITIVE HOMEWORK BEHAVIOUR**

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6   Based on students reporting that they agree or disagree that they are receiving effective learning time in class.
7   Based on ISSR analysis of the 2013 and 2015 NSW Tell Them From Me secondary data. Structural Equation Modelling (SEM) shows the direct and indirect effects on performance by comparing one student who agrees with the survey questions on effective learning time with one who does not, after taking account of student socioeconomic status and Year 7 NAPLAN scores and holding all other engagement measures constant. See Methodology for more information.
8   In TTFM, students demonstrate positive homework behaviour when they report enjoying doing homework and studying; having an appreciation that doing homework helps them learn; and handing homework in on time.

## What schools can do to improve teaching practices

The aspects of teaching that make up the effective learning time measure in TTFM include:

- Organising lessons well

- Paying particular attention to how important ideas are taught and helping students understand their significance

- Requiring students to demonstrate mastery, especially of difficult ideas

- Allowing students to ask questions and ensuring responses are clear and have been understood.

Other teaching strategies known to be effective in supporting students' learning (CESE 2015b) and which are strongly related to those above, include:

- Telling students what they will be learning, and being clear about the purpose of tasks

- Ensuring students are given time to engage with the learning process and receive clear and timely feedback.

The evidence also points to the importance of positive relationships between teachers and students for engagement and learning. According to Fredricks et al. (2004), if teachers focus only on academic aspects and neglect social engagement, students are likely to experience emotional disengagement and be more apprehensive about making mistakes. In contrast, if teachers focus only on the social and fail to attend adequately to the intellectual, students are less likely to be cognitively engaged in learning.
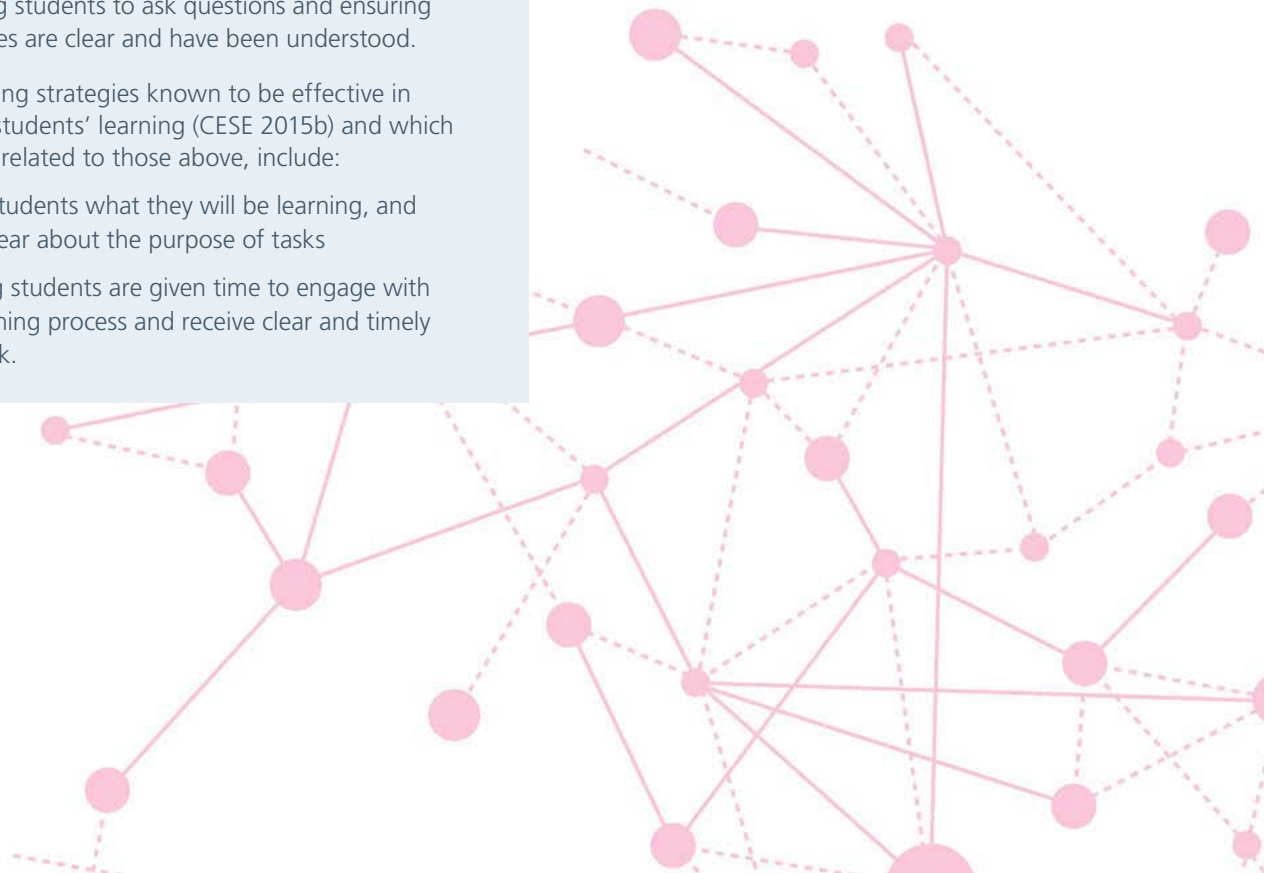
5. Expectations for success

The results from NSW

The results from the NSW data show that when students agree that their teachers have high academic expectations of them (and their peers), they are three months ahead in their learning by Year 9 compared with students who do not agree (assuming all other characteristics are the same; Figure 6).

Like teachers' effective use of learning time, teachers' high expectations affect student learning directly and indirectly. For high expectations, 40 per cent of the total improvement in achievement comes about indirectly, via raising academic interest and motivation, positive behaviour, attendance and homework behaviour. The remaining 60 per cent appears in the modelling as direct effects, realised through strategies such as teachers encouraging students to work hard. In other words, when teachers encourage students to work hard, and students respond by doing so, this directly improves their NAPLAN results.
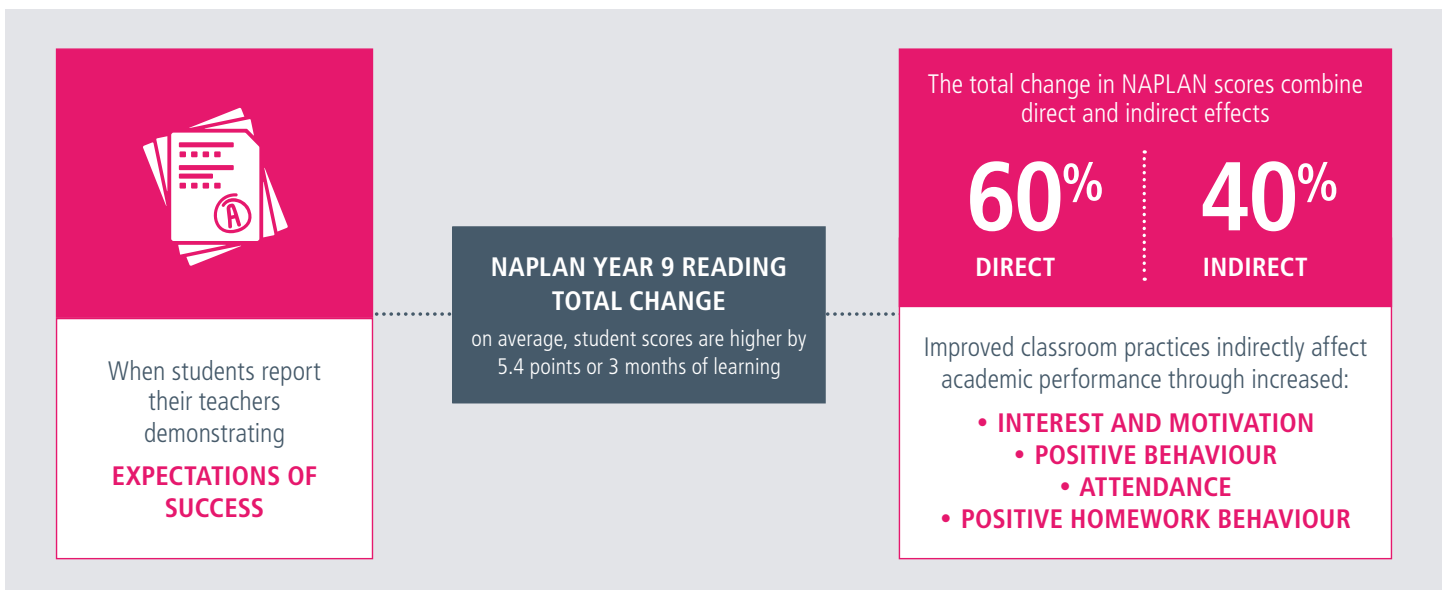
High expectations are effective for learning when they are part of a broader engagement and learning culture

The results from NSW support the notion that teachers' high expectations are effective for learning due to their importance in promoting student engagement. For instance, schools that provide a range of support encompassing high standards for academic learning and conduct, meaningful and engaging pedagogy and curriculum, and teachers who know and care about students and have fair and clear expectations, are more likely to have students who are engaged in and connected to school (Klem & Connell 2004).
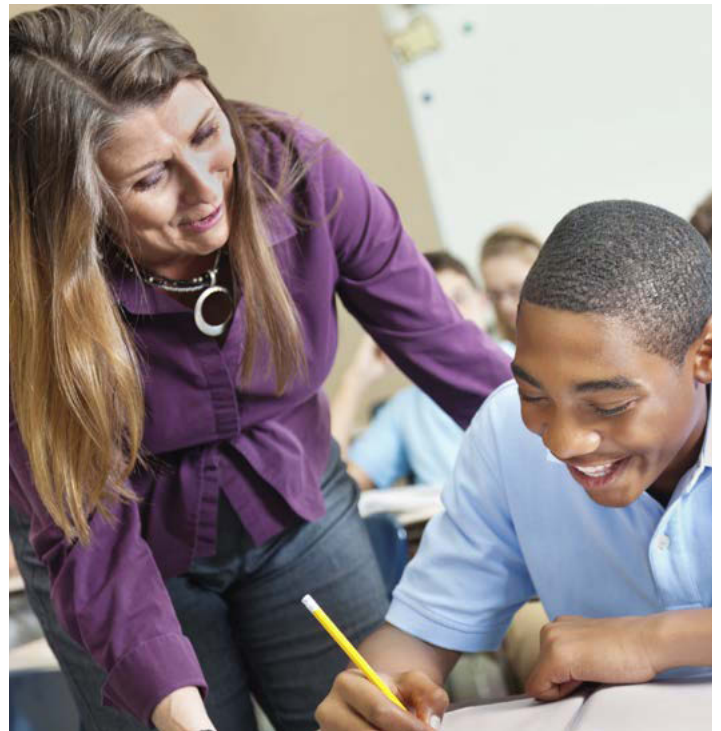
High expectations are effective for learning for all types of students and schools. Marks (2000) found that supportive classroom environments, in which students experience high expectations and receive help from teachers and peers, promote the engagement of all students, after accounting for socioeconomic status. More broadly, at a whole-school level, the evidence also suggests that, after taking into account differences in schools' social and academic characteristics, students are more engaged and learn more in schools where teachers cooperate and take on collective responsibility for student learning, including having consistent and clear expectations for students (Lee and Smith 1996).

Figure 6: The effects on student learning of teachers demonstrating high academic expectations for success[9]


When students report their teachers demonstrating
EXPECTATIONS OF SUCCESS

NAPLAN YEAR 9 READING TOTAL CHANGE
on average, student scores are higher by 5.4 points or 3 months of learning

The total change in NAPLAN scores combine direct and indirect effects

60% DIRECT | **40%** INDIRECT

Improved classroom practices indirectly affect academic performance through increased:
- **INTEREST AND MOTIVATION**
- **POSITIVE BEHAVIOUR**
- **ATTENDANCE**
- **POSITIVE HOMEWORK BEHAVIOUR**

9   See Methodology for more information.

What schools can do to promote high expectations

Some of the ways that teachers can demonstrate high academic expectations of their students, as measured in TTFM, are:

- Be clear about what is expected of students and follow-up on expectations

- Make it clear to all students that they must work hard to succeed

- Encourage students to do better, for instance, through personal best goal setting; that is, a student's attempt to improve on or match his/her previous best standard of performance (Mok et al. 2014)

- Provide feedback that explicitly identifies the next learning steps and the skills necessary to improve

- Expect homework to be done on time.
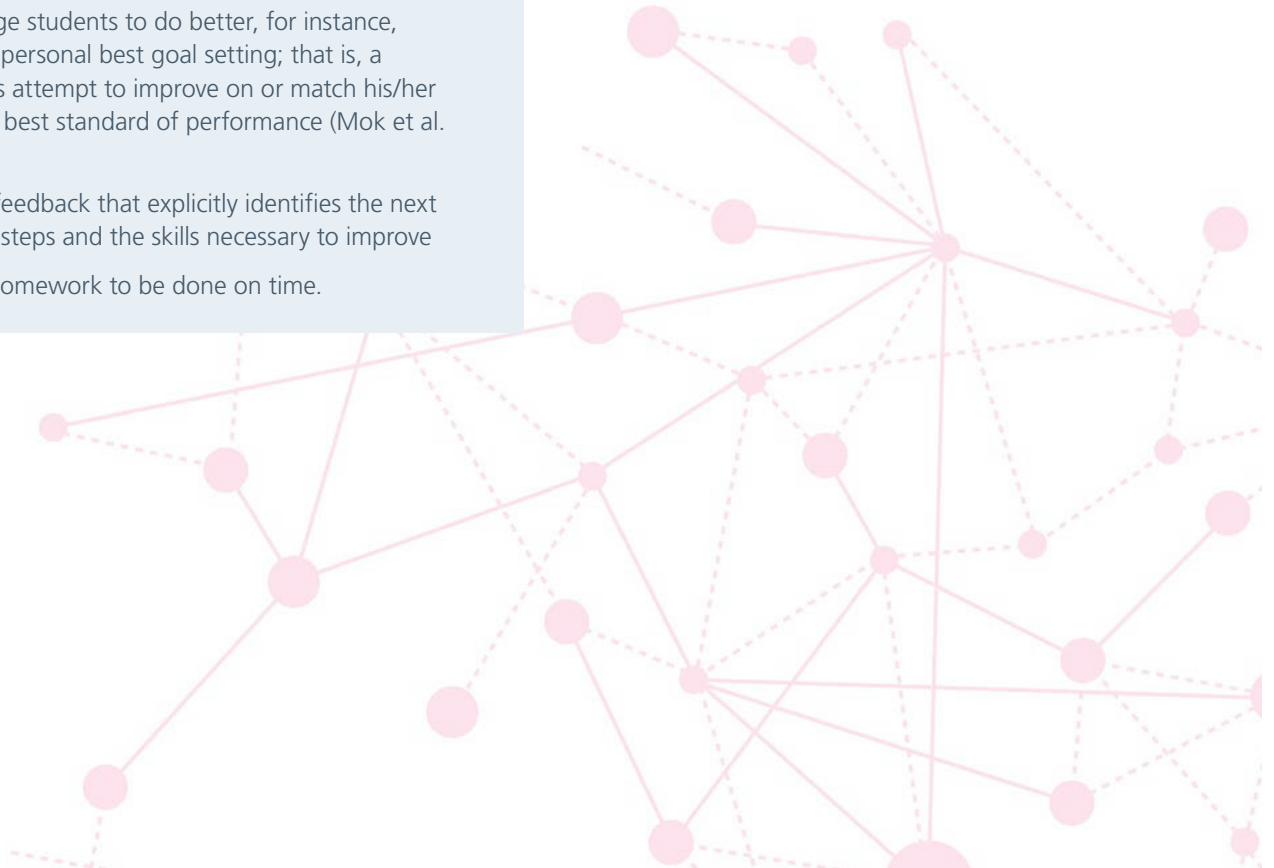
Engagement and the 'Matthew effect': how gains in performance through improved engagement and use of effective teaching practices can have lasting effects.

TTFM data confirms that higher engagement leads to improvement in student performance. However, the statistical modelling work also allows us to explore the relationship between engagement and performance in reverse, by measuring the extent to which gains in academic achievement can lead to improvement in student engagement.

The 'Matthew effect', coined by the sociologist Robert Merton, describes the tendency for 'those who are successful … to be given the opportunities that lead to further success, and [for] those who aren't … to be deprived of them'. In education, the 'Matthew effect' has been used by Reschly (2010) to describe the cycle of increasing reading competence and engagement on one hand, and the contrasting cycle of inadequate progress/decreasing motivation and disengagement, on the other. While individual students bring differing assets to their engagement with learning, the teacher plays a vital role in helping to create a positive cycle – through the quality of teaching instruction and through motivating students.

The evidence from NSW

The NSW data shows that there is a statistically significant, albeit modest, effect of performance on engagement. For instance, a student who is 50 NAPLAN score points higher than another in 2013 has a positive behaviour score 1.4 per cent higher on average in 2015 (everything else being equal, including socioeconomic status and engagement in 2013). This improved engagement can then lead to future increases in performance, becoming part of a positive cycle.

Conclusion

This study of TTFM data confirms that when students are engaged with school and their learning, they learn more and perform better. Our research highlights that engagement is a function of both the student and the school context and can be improved when teachers use effective teaching practices.

One of the more interesting findings from CESE's study is that students respond in two ways to effective teaching and classroom practices: on the one hand, effective practices act as keys, directly unlocking the learning process; on the other hand, they effect change indirectly, as students' behaviour and attitudes to learning improve. The balance between direct and indirect effects varies between practices. For example, holding high expectations describes a more holistic teaching 'practice', which may be why so much of its impact is indirect. In contrast, effective learning time encompasses some very specific instructional practices that translate more directly to improved student learning.

Summary of strategies to improve engagement, effective teaching practices and achievement

Based on the modelling work in this Learning Curve, the following summarises the strategies that the research evidence identifies as most effective for improving engagement and achievement in Years 7-9.

Strategies to encourage positive behaviour

- Create a positive learning environment with well-managed classrooms

- Adopt teaching strategies that incorporate positive discipline techniques to enable students to develop their own strategies for self-discipline

- Actively engage students and promote positive behaviour rather than focussing only on reactive discipline strategies such as punishment

- Develop structure and routines for the classroom and explicitly teach these through discussion and practice

- Foster positive relationships between teachers and students and among peers

- Establish and maintain clear expectations and rules for student behaviour in the classroom and at school

- Reinforce appropriate behaviour and respond consistently to misbehaviour

- Adopt school-wide positive behaviour support programs that communicate and teach rules (and reward students for following them)

- Encourage social and emotional learning that promotes self-management, social awareness, relationship skills and responsible decision making

- Use these strategies in conjunction with policies that recognise the need to manage inappropriate student behaviour when it impacts significantly on learning.

Strategies to improve attendance

- Set expectations for attendance and establish improvement goals

- Analyse attendance rates to monitor trends and patterns in the data

- Listen to students' perspectives: students' views on their reasons for non-attendance may give insight into ways to improve school attendance

- Promote social and emotional engagement, ensuring students feel connected to school and have a positive sense of belonging and connection with others

- Promote positive relationships with teachers with a well-structured learning environment: students should believe that their teachers care about them and will have high, clear and fair expectations of them

- Increase collaboration with families, for instance, through involving parents in school decision making; increasing parental participation in classroom activities; and establishing a contact person at school for family members to communicate and work with.

Strategies to increase interest and motivation

- Give students feedback on their work and their level of effort, and help them develop their own strategies for learning

- Encourage students to believe they can perform a task; this will increase their levels of effort and persistence

- Provide students with opportunities to set goals for performance improvements that are achievable and worthwhile

- Adopt approaches that build students' sense of autonomy, for example, listening to students; asking questions and responding to questions; acknowledging students' perspectives; and giving them opportunities to work though problems on their own, when they have a sufficient knowledge base.

Strategies to promote high expectations

- Be clear about what is expected of students and follow-up on expectations

- Make it clear to all students that they must work hard to succeed

- Encourage students to do better, for instance, through personal best goal setting (that is, a student's attempt to improve on or match his/her previous best standard of performance)

- Provide feedback that explicitly identifies the next learning steps and the skills necessary to improve

- Expect homework to be done on time.

Effective teaching practices

- Organise lessons well

- Tell students what they will be learning and be clear about the purpose of tasks

- Pay particular attention to how important ideas are taught and help students understand their significance

- Require students to demonstrate mastery, especially of difficult ideas

- Allow students to ask questions, ensuring responses are clear and have been understood

- Ensure students are given time to engage with the learning process and receive clear and timely feedback

- Encourage positive relationships between teachers and students for engagement and learning, with a balance between academic and social engagement.

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Ian McCarthy and Brianna McCourt

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