Hello and welcome to an audio recording of the paper titled ‘How schools can improve literacy and numeracy performance and why it (still) matters’, produced by the Centre for Education Statistics and Evaluation, or CESE.

The teaching of literacy and numeracy is a core responsibility of schools.

This audio paper will summarise four evidence-based practices to improve student literacy and numeracy outcomes at school. Namely:

1. Intervene early and maintain the focus
2. Know what students can do and target teaching accordingly
3. Have clear and transparent learning goals, and
4. Focus on teacher professional learning that improves the teaching of literacy and numeracy

The paper also examines the research on the importance of literacy and numeracy skills to individuals and society more broadly, including employment outcomes, the economy, social inclusion, health, and other variables.

**Before we proceed, let’s look at how literacy and numeracy are defined.**

The Australian Curriculum defines literacy and numeracy as the following:

... students become literate as they develop the knowledge, skills and dispositions to interpret and use language confidently for learning and communicating in and out of school and for participating effectively in society. Literacy involves students listening to, reading, viewing, speaking, writing, and creating, oral, print, visual and digital texts, and using and modifying language for different purposes in a range of contexts.

**Literacy encompasses the knowledge and skills students need to access, understand, analyse and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions, interact with others and participate in activities at school and in their lives beyond school. Success in any learning area depends on being able to use the significant, identifiable and distinctive literacy that’s important for learning and representative of the content of that learning area.**

... numeracy encompasses the knowledge, skills, behaviours and dispositions that students need to use mathematics in a wide range of situations. It involves students recognising and understanding the role of mathematics in the world and having the dispositions and capacities to use mathematical knowledge and skills purposefully.

**Let’s start with a brief overview**

The importance of literacy and numeracy skills is well established. These skills have a significant impact on both individuals and society as a whole. They are foundational skills, providing the base on which to learn other, more complex skills. Literacy and numeracy skills underpin workforce participation, productivity and the broader economy, and can also impact on social and health outcomes. Individuals without these skills are at risk of not being able to participate in the workforce or engage fully in social and civic life.

Vacca et al. state: ‘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.’

Literacy and numeracy skills have long been a focus for schooling and a variety of programs and practices have been implemented in NSW schools over the last three decades. However, in the face of data suggesting that we have reached a plateau in student achievement, and even a decline in
performance in some areas, it is timely to revisit the importance of a sustained focus on literacy and numeracy skill acquisition for all students across all stages of schooling.

There is some debate over which particular interventions work best for improving literacy and numeracy outcomes and more high-quality research is warranted in this area. As with most matters pertaining to student learning, the quality of the teaching is key.

Research undertaken for the Commonwealth Department of Education, Science and Training in 2005 investigated the literacy teaching practices of early years teachers. The study examined the effectiveness of teachers and made findings about both the content of the instruction and the quality of the teaching. The teacher effectiveness research reinforced the crucial importance of the individual teacher in producing effective learning outcomes. It found that effective teachers have a wide repertoire of teaching practices, which they employ to suit the classroom context, their purposes and the needs of their students. Effective teachers of literacy have a strong literacy knowledge base that they make explicit to their students, in addition to creating and making use of a rich literacy environment. To quote Louden et al:

‘The ways in which effective teachers are able to manage the many competing demands of the classroom have been likened to the skills of a juggler or to the conductor of a large orchestra. They individualise instruction in order to support and challenge students and they motivate students to participate in classroom activities, at the same time as they gain the respect of their students and skilfully structure activities and instruction’.

This paper draws on previous research on effective practices conducted by the Centre for Education Statistics and Evaluation, as well as literature more specifically focused on literacy and numeracy. The paper does not attempt to re-prosecute the well-understood case for the importance of high-quality, knowledgeable teachers. Nor does it focus on specific literacy and numeracy interventions or programs, or on practices for which the evidence of improvement is mixed or thin. Rather, it explores evidence-based practices at the system and school-level, which can improve the literacy and numeracy skills of students, across all stages of schooling.

Let’s now take a look at the four evidence-based practices to improve student literacy and numeracy outcomes at school.

The first is, Intervene early and maintain the focus

A strong body of evidence shows that access to quality early childhood education programs makes a significant and long-term difference to children’s development in many areas, including their cognitive development. Quality early childhood programs, especially in the year before school, can help children develop skills that will assist them to transition to school and gain the skills needed to succeed in later life. This is particularly important for children from disadvantaged backgrounds, as early intervention can contain the effects of disadvantage and reduce performance gaps, which emerge early.

A number of longitudinal studies in the US, notably the High Scope Perry Preschool Program and the Carolina Abecedarian Project, which targeted very disadvantaged families, found significant short and long-term improvements in outcomes for children, including improved cognitive and social development; reduced need for remedial education; higher rates of school completion and post-school education; as well as higher employment rates and reduced levels of criminal activity and welfare dependence.

The UK study Effective Provision of Preschool and Primary Education (or EPPE), which examined the longitudinal effects of preschool showed that pre-schooling contributed to better intellectual development, improved independence, concentration and sociability for all children.
Early intervention needs to be followed by continued high quality learning experiences to sustain effectiveness. The first three years of school are a peak window within which children develop the literacy and numeracy skills that they will carry into upper primary and secondary school. These skills enable them to take on progressively more demanding learning tasks and successfully progress throughout school. It has been noted in various research studies that children who have not acquired sufficient reading skills at the end of Year 1 almost never acquire average reading skills by the end of primary school without substantial remedial support; similarly, Jordan et al found that number sense performance in Kindergarten accounted for 66 per cent of the variance in maths achievement in Year 1 with this effect persisting in to Year 3.

As Heckman states, ‘The longer society waits to intervene in the life cycle of a disadvantaged child, the more costly it is to remediate disadvantage’.

In NSW primary schools, an evaluation of the K-2 Literacy and Numeracy Action Plan found improved outcomes for students in K-2. On most of the measures of reading, writing and numeracy used at each grade level (Kindergarten to Year 2), and in each system or sector, the percentage of students rated by their teachers as at or above the expected end of year standard increased in 2015.

**Let’s now take a look at the second evidence-based practice to improve student literacy and numeracy outcomes, which is, know what students can do and target teaching accordingly**

Targeting teaching effectively towards stronger or weaker students could be an effective strategy for improving Australia’s performance in literacy and numeracy. Such an effort is necessary, given Australia’s most recent PISA results. In 2012, 20 per cent of Australian 15-year-olds fell short of PISA’s minimum proficient standard in maths. Only nine per cent of students failed to meet this benchmark in the world’s five best-performing countries. Similarly only 15 per cent of Australia’s strongest students reached the highest levels of mathematical proficiency, compared with 40 per cent of students in the best five systems.

There is also a large spread of learning achievement in Australian classrooms. In Australian schools, achievement can be spread over as many as five to eight year levels within a single class. For example, a Year 7 class may have students working at a Year 1 level, while others have mastered concepts from Year 8. The figures in NSW are similar to those for Australia as a whole.

One way to ensure that all students achieve at their potential in literacy and numeracy is for schools to systematically implement targeted teaching. Targeted teaching refers to methods teachers use to lift the performance of students who are many years behind and also to challenge students who are already well ahead of year level expectations. Implemented school-wide, it is a means of not just delivering the year level curriculum, but extending the skills and knowledge of every student in every class regardless of their starting point. Examples of targeted teaching can include early intervention in the pre-school and early school years, tiered intervention at later stages of schooling, and differentiated instruction.

In order to implement targeted teaching effectively, teachers need accurate information about what students know and are ready to learn next. One way teachers can acquire this information is through the use of formative assessment which has been shown to have a significant effect on learning across the spectrum. Formative assessment is a term used for the variety of methods teachers use to monitor student learning, and to identify concepts that students are struggling to understand or skills they are having difficulty mastering; or conversely, areas in which students may require further challenge in order to keep them performing at their highest levels. In other words, it is a method of assessment for learning.

Key elements of formative assessment include:
• identification of goals, outcomes and criteria for achievement
• communication between teachers and students about a student’s current knowledge and future directions
• active involvement of students in their own learning, and
• teachers responding to feedback by modifying teaching strategies.

Black and Wiliam analysed over 250 studies of formative assessment, and found significant learning gains with effect sizes between 0.4 and 0.7. These gains can be seen both across student learning in general, and also specifically in regard to literacy and numeracy. For example, in a study looking at student writing in Years 1 to 8, Graham et al. found that feedback to students about their writing from adults, peers, self, and computers statistically enhanced writing quality, yielding average weighted effect sizes of 0.87, 0.58, 0.62 and 0.38 respectively. In another study, Fontana and Fernandes examined Portuguese maths students aged 8 to 14 who’d been taught by their teachers to self-evaluate as a means of formative assessment, against a group of students who had not. The results of the students who had been taught self-assessment techniques improved by an average of 15 marks – almost twice as big an improvement as the control group, whose marks improved by an average of 7.8 marks.

The New South Wales Tell Them From Me student survey data also shows the positive relationship between the use of formative assessment and NAPLAN scores.

Let’s now look at the third evidence-based practice to improve student literacy and numeracy outcomes, which is, have clear and transparent learning goals

Research shows that having clear and transparent learning goals at both the school and classroom level leads to improvements in learning achievement. At the school level, a whole school approach can be important in promoting clear and transparent learning goals. In the study of high value-add schools in NSW, setting whole school goals and strategies for change was found to be one of the six effective practices in high growth schools.

Research shows that in order to impact student outcomes:
• the school’s vision must be translated into concrete goals
• these goals must focus on teaching and learning
• the goals must be shared, and
• the goals must embody high expectations but focus on a small number of core priorities to avoid innovation overload.

An effective whole school approach can be useful in the case of literacy and numeracy, particularly at the high school level, where the focus can often move away from literacy and numeracy as a core goal.

Critical to the success of a whole school approach for literacy and numeracy are well-articulated and clear learning continua or progressions. Learning is not a series of discrete events, but rather a trajectory that involves developing skills and understandings that build upon each other. According to Popham, learning progressions, or ‘standards’ refer to ‘a carefully sequenced set of building blocks that students must master en route to a more distant curricular aim’.

Learning progressions ensure that students are learning age-appropriate material (that is knowledge and skills that are neither too advanced nor too basic), and that teachers are sequencing learning effectively and avoiding the inadvertent repetition of material that was taught in earlier grades.

Learning progressions or continua support explicit teaching by enabling teachers to accurately determine students’ current learning achievement. Presenting learning as a continuum can assist educators to understand what is to be learned, and support both instructional planning and formative assessment. For example, one study looked at how a group of primary and junior secondary school teachers in Hawaii used learning progressions in literacy or numeracy. The study
found that when teachers used learning progressions to set expectations for, and assess student work, they gained a clearer understanding of what ‘within grade-level progress’ could look like and gained confidence in using assessment techniques and tools to monitor student progress.

Learning continuas or progressions also need to be clearly aligned and mapped to the existing curriculum or syllabuses in order to achieve the best outcomes for students. According to Margel et al. and Merrit et al.:

‘Learning progressions, by specifying how ideas develop over time, can provide curriculum designers with the tools to purposefully build upon and link students’ current understandings to form richer and more connected ideas over time’.

At the classroom level, Hattie rates teacher clarity, or the teacher’s ability to communicate the intentions of the lessons and what success means for those intentions – as one of the top 20 influences, as measured by effect size, on student learning and achievement. Learning intentions can be defined as: what it is teachers want students to learn in terms of the skills, knowledge, attitudes and values within any particular unit or lesson.

Learning intentions can be clarified through learning progressions or continuas. Learning intentions should be clear and provide guidance to the teacher about what to teach; help learners be aware of what they should learn from the lessons; and form the basis for assessing what the students have learnt and what teachers have taught well to each student.

One way in which clear and transparent goals can be set is through the use of explicit teaching. Explicit teaching practices involve teachers clearly showing students what to do and how to do it, rather than having students discover or construct this information for themselves. Explicit teaching can also be referred to as direct or explicit instruction.

To quote Hattie:

_The teacher decides the learning intentions and success criteria, makes them transparent to students, demonstrates them by modelling, evaluates if they understand what they’ve been told by checking for understanding, and retelling them what they’ve been told by tying it all together with closure._

Evidence shows that students who experience explicit teaching practices perform better than students who don’t. In fact, the average effect size for explicit teaching according to Hattie is 0.59, which indicates above average benefits to student outcomes.

Research conducted by the Centre for Education Statistics and Evaluation into high value-add schools shows the effectiveness of explicit teaching strategies on outcomes: teachers in high value-add schools were more likely to report using effective teaching strategies such as setting clear learning goals compared with teachers in schools that did not show high-growth over time.

Adams and Engelmann found that explicit instruction has even higher effect sizes for literacy and numeracy in particular, with an effect size of 0.69 for reading, 1.11 for maths and 1.33 for spelling. Evidence also shows that the most effective strategies for improving writing include strategy instruction which involves explicitly and systematically teaching students strategies for planning, revising and/or editing text, sentence combining and summarisation.

Let’s now take a look at the fourth and final evidence-based practice, which is, focus on teacher professional learning that improves the teaching of literacy and numeracy

High-quality teaching is, according to Hattie, the greatest in-school influence on student engagement and outcomes. At least 20 to 30 per cent of the variance in student achievement stems from teacher effects. The average teacher is associated with an impact on standardised tests each year of somewhere between 0.2 and 0.4 expressed as effect sizes. But some teachers support even higher gains in their students’ achievement, with yearly gains of 0.5 to 0.6, and do so repeatedly over years.

Effective professional learning can help ensure that all teachers are delivering at their highest levels and improve student outcomes in literacy and numeracy.
A report compiled by the United States Institute of Education examined the overall impact of professional development on elementary school teachers across a number of evaluation studies and found an average and consistent effect size of 0.54 in relation to improving student outcomes. Significant gains in student outcomes have also been seen in studies looking at the impact of professional learning on maths outcomes and literacy outcomes at both the primary school and secondary school level.

The evidence base suggests that professional learning is most successful if it:

- deepens teachers’ content knowledge and knowledge about how students learn that content
- is supported by the wider school community and seen as part of achieving whole school goals, and
- is linked to clear and relevant goals that are related to student outcomes.

A meta-analysis commissioned by the Ministry of Education in New Zealand analysed 97 studies of professional learning that led to improved outcomes in literacy, numeracy and science.

It found that, for students of the participating teachers, deepening pedagogical content and assessment knowledge, grounding learning in practice (that is, taking into account the local classroom context), and engaging existing theories of practice (that is, existing practices within the school) were the most effective professional learning programs. This study also showed that all of the professional learning programs that led to improved student outcomes in maths and literacy included communication of clear goals related to student outcomes during the professional development sessions.

The importance of a whole-school approach to teacher professional learning is highlighted by a 2008 meta-analysis which showed that when school leaders promote and participate in teacher professional development, the activity produces an effect size on student outcomes of 0.84. Other crucial elements of effective professional learning are teaching experts working in classrooms with teachers, and teachers learning from each other by sharing experiences and expertise. The general consensus in the evidence base is that professional learning should be primarily school-based and school-managed and that schools need to become learning communities in which professional learning is part of the teachers’ everyday work.

The appointment of Instructional Leaders has been an effective strategy in NSW schools under the K-2 Action Plan, and has accelerated the pace of change in the targeted schools. An evaluation by Erebus found that:

‘the particular model of Instructional Leadership adopted is of less importance than the skills and experience of the people involved, the level of competence and confidence they have in their respective roles, their willingness to embrace change, and the relationships they develop’.

One area for professional learning that’s been shown to lead to improvements in both literacy and numeracy at a whole-school level is the use of writing as a means of learning. The ‘write-to-learn’ concept recognises writing as a tool for learning and a means to promote content learning across all disciplines and year levels. In numeracy, explicit teaching of writing supports development of students’ foundational skills, procedural fluency, and conceptual understanding. The formal teaching of writing should not be confined to English classes alone as a function of learning to write. The approach to the teaching of writing should be school-wide, with each discipline teaching and assessing the requirements of writing that are specific to that discipline, as a means of writing to learn. Bangert-Drowns et al. conducted a meta-analysis of the impact of 48 writing-to-learn strategies on academic achievement in a school setting. The findings suggested that writing-to-learn typically produced small, positive effects on school achievement. Graham and Perin, in a meta-analysis of writing interventions, also note a small positive effect size for ‘writing for content area learning’. They state that although the impact of writing activity on content learning is small, it is consistent enough to predict enhancement in learning as a result of writing-to-learn activities. They found writing-to-learn was equally effective for all content areas (social studies, maths, and science) and all grades (4-12) that were studied.

The US National Writing Project began in 1974 in the Graduate School of Education at the University
of California, Berkeley and continues to deliver robust research about the importance of writing. The Project has a substantial evidence base for the importance of explicit teaching of writing, showing significant gains in writing and overall literacy for students of teachers who have good knowledge about the teaching of writing, including theory and research, the analysis of practice, and the experience of writing. A major focus of the project is equipping teachers at every level with the tools to identify and teach to the full spectrum of writing development across year levels and subject areas.

The National Writing Project states:

‘Writing is essential to communication, learning, and citizenship. It is the currency of the new workplace and global economy. Writing helps us convey ideas, solve problems, and understand our changing world. Writing is a bridge to the future.’

Another way to improve literacy and numeracy through teacher professional development is to ensure that teachers possess the technical expertise to make the best use of data and the evidence base. Research shows that effective teachers use data and other evidence to constantly assess how well students are progressing in response to their lessons. For example, a study by Timperley in 2009 showed that a professional development program for teachers that focused on the interpretation and use of assessment information resulted in student achievement gains accelerating at twice the expected rate. For all schools that focused on writing, the average effect size was 1.20; and for reading, 0.92. Gains were found to be greatest for the lowest-performing 20 per cent of students: effect sizes were 2.25 in writing and 1.90 in reading for these students.

Another study focussed on NSW, showed that teachers who received training on the effective use of data as part of the National Partnership on Literacy and Numeracy reported a greater understanding of data analysis tools and techniques, leading to changes in their classroom practice. Eighty-one per cent of survey respondents said that this training had led to more effective classroom teaching of literacy and numeracy.

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We’ve now covered the four evidence-based practices to improve student literacy and numeracy outcomes at school:

1. Intervene early and maintain the focus
2. Know what students can do and target teaching accordingly
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4. Focus on teacher professional learning that improves the teaching of literacy and numeracy.

**Let’s now take a look at the importance of literacy and numeracy to individuals and society**

It’s essential that students gain a fundamental understanding of basic literacy and numeracy skills at school. If they do not, individuals are at risk of not being able to participate fully in society, and society as a whole is at risk of poorer outcomes. Literacy and numeracy skills underpin workforce participation, productivity and the broader economy, and can also impact on social and health outcomes.

As the National Foundation Skills Strategy for Adults states, ‘people with higher language, literacy and numeracy skills are more likely to be employed, participate in their community, experience better health and engage in further training’. Graham and Perin similarly say that literacy is a ‘basic requirement for participation in civil life and in the global economy’ and that the ability to read, comprehend and write is ‘tantamount to a survival skill’. Improved literacy and numeracy skills also have a generational flow-on effect with research showing that parents transfer improved literacy and numeracy skills to their children.

**The following section looks at the effect that improved literacy and numeracy skills have on employment outcomes, the economy, social outcomes, health outcomes and involvement in crime.**
While the research draws links between literacy and numeracy skills and various outcomes, it’s important to note that the causal relationship is complex and it can sometimes be difficult to isolate the impact of literacy and numeracy skills from other factors, such as socioeconomic status and cultural background.

Foundation skills, such as literacy and numeracy, are essential for preparing and applying for work, and are also increasingly in demand by employers. As the OECD Skills Outlook report 2015 states, ‘Young people who leave school before they achieve a sufficient level of proficiency in literacy and numeracy find it difficult to enter the labour market’.

Results from the Program for the International Assessment of Adult Competencies 2012 Survey of Adult Skills suggest there is a positive relationship between literacy and numeracy and employment outcomes. In Australia, approximately 82 per cent of respondents who scored at Level 4/5 in reading literacy were employed, compared with only 56 per cent of those scoring at or below Level 1. Further, a median earner with Level 4/5 reading literacy proficiency earns approximately 12 US dollars more per hour than a median earner with Level 1 proficiency.

The demand for literacy and numeracy skills in the workplace has also increased with the emergence of the knowledge economy and the increasing role of information and communication technologies or ICT.

As The National Foundation Skills Strategy for Adults states: ‘the trend away from low-skilled to knowledge-based work has increased the need for workers with stronger LLN [language, literacy and numeracy] skills’. The strategy also notes that ongoing technological developments have enhanced the need for continual skill development.

There is increasing recognition that in modern societies, a country’s educational levels are a predictor of its potential for economic growth. For example, Coulombe et al. in a study that used 1960-1995 data from 14 OECD countries, found a one per cent higher national literacy score is associated with 2.5 per cent higher labour productivity and thus an associated increase in GDP per capita. Literacy and numeracy skills are particularly important for productivity as they provide the foundation to develop other skills. In Australia, a report by the federal Treasury stated:

*The basic skills acquired in early childhood and school years, particularly literacy and numeracy, are the necessary foundation for developing higher order skills that contribute to a more productive workforce.*

Industry groups in Australia have consistently expressed concern about poor foundation skills across the workforce and resulting costs to industry. For example, in a survey conducted by the Australian Industry Group (in 2010) of employers from 338 companies, 75 per cent of respondents reported that their business was affected by low levels of literacy and numeracy. The most commonly cited issues were poor completion of workplace documents, having to re-do tasks and the waste of materials due to incorrect calculations or misinterpreted instructions. This issue has also been seen internationally.

The US National Commission on Writing notes that the majority of both public and private employers say that writing proficiency has become critical in the workplace and that it directly affects hiring and promotion decisions.

Literacy and numeracy skills are vital for creating and maintaining an inclusive, equal society. Poor literacy and numeracy skills can limit a person’s ability to perform a range of every-day activities, such as using a computer, reading recipes or timetables or communicating via email or text message. These skills can also affect an individual’s ability to access government services and information, particularly as many of these services move online. This, in turn, can prevent a person from fully participating in their community.
The Survey of Adult Skills 2012 collected information on social outcomes including the level of trust in others; political efficacy or the sense of influence on the political process; and participation in volunteering activities. Across the participating countries, reading literacy proficiency was found to have a positive relationship with all of these outcomes, even when the effects of education, socio-economic background, age, gender and immigrant background had been taken into account.

The link between higher reading literacy and these social outcomes is stronger in Australia than in most OECD countries according to a survey by the Program for the International Assessment of Adult Competencies. Results for Australia indicate the following:

- those scoring at or below Level 1 in literacy were more than three times as likely as those with a high level of literacy to report that they do not participate in volunteer activities
- those scoring at or below Level 1 in literacy were almost three times more likely to report low levels of trust in others, and
- those scoring at or below Level 1 in literacy were about two and a half times more likely to report low levels of political efficacy.

Similar results were reported in a paper by the National Endowment for the Arts in the United States. Using data from the 2002 Survey of Public Participation in the Arts and the National Assessment of Adult Literacy, the report analysed the relationship between reading literacy skill level and civic participation, such as volunteering and engagement with current affairs. Results showed 35 per cent of those at a proficient reading literacy level accessed information from the newspapers ‘a lot’, compared with 20 per cent of those at the below basic level. The authors also found voting activity increased in relation to reading literacy level, with 84 per cent of those with proficient reading level voting compared with 62 per cent at basic and 53 per cent of those at below basic levels.

According to the literature, educational attainment can impact on an individual’s health in a number of ways. For example, education can influence employment prospects and income, which in turn affect the options available to individuals to improve or maintain their health (for example, the money they have available for dental care). Education can also play a role in influencing behaviour, including reducing health risks such as tobacco smoking and alcohol consumption. Numeracy skills, in particular, can affect an individual’s ability to understand risk-benefit information, such as deciding between treatment options or assessing the needs for different tests (for example, the frequency of mammography screening).

Results from the Survey of Adult Skills 2012 indicate a link between higher reading literacy and numeracy skills and better health. For example, those scoring at or below Level 1 in literacy were more than two times as likely as those with a high level of reading literacy to report that they are in fair or poor health. This trend was apparent even when examining individual age groups.

A report by the Department for Business, Innovation and Skills in the United Kingdom reached similar conclusions. The report used data from the British Cohort Study, which included self-rated health at age 34 and 38, and then compared this to results from a reading literacy and numeracy assessment undertaken when the participants were aged 34. The analysis found that poor adult numeracy skills are associated with deteriorating self-rated health between ages 34 and 38 for men and women. They also found that adults with lower reading literacy and numeracy skills were consistently more likely to report that their health status limited their daily activities.

Research evidence suggests there is a relationship between education, skills and criminal activity, although most of the research in this area focusses on educational attainment rather than literacy and numeracy skills specifically. It can also be particularly difficult to isolate the effect of literacy and numeracy skills from other factors, such as gender, socioeconomic background, culture and age, when it comes to crime.
A study published by the Basic Skills Agency used data drawn from two groups of British adults born in 1958 and 1970 to explore the association between basic skills and self-reported police contact and offending. The data was collected through a self-completion questionnaire in 1999 and 2000, when the adults were aged 42 and 30 years old respectively. Results were analysed against the literacy and numeracy skills of participants who’d been assessed at an earlier time. It was found that, after controlling for factors such as social disadvantage and low educational attainment, poor reading or literacy or numeracy skills were associated with an increased risk of being stopped and questioned or arrested by the police on a repeated basis.

The NSW Young People on Community Orders – Health Survey 2003-2006 also found young offenders perform well below average in all forms of educational achievement. The sample comprised 683 males and 119 females, with a mean age of 16 years and 6 months. Many participants scored in the borderline or below average ranges on both the cognitive and academic tests. The reading skills of 21 per cent and the arithmetic skills of 64 per cent of young offenders were equivalent to those expected of people with intellectual disabilities. The results suggest that, compared to other adolescents, many young people on community orders have difficulty comprehending, communicating and problem solving using language or numbers.

In conclusion

The teaching of literacy and numeracy is a core responsibility of schools. There are a number of evidence-based practices schools can employ to improve literacy and numeracy outcomes for students. These include intervening early and maintaining the focus; knowing what students can do and targeting teaching accordingly; having clear and transparent learning goals at both the school and classroom level; and focusing on teacher professional learning that improves the teaching of literacy and numeracy. Effective literacy and numeracy skills are important for both individuals and the population as a whole to meet the demands of modern workplaces, increase productivity, undertake day-to-day tasks and engage meaningfully with the community.

That concludes our audio version of this publication. To read the full paper, please visit the CESE website cese.nsw.gov.au. This audio paper was written and produced by the Centre for Education Statistics and Evaluation, and is read by Sally Kohlmayer.

Thanks for listening.