Executive summary

Description of the study

Its purpose

The Pipeline Project addresses three questions concerning the relationship between the classroom behaviour of students and their academic performance. First, to what extent does classroom behaviour explain why students fall behind and fail to meet acceptable standards in literacy and numeracy; second, if student classroom behaviour does influence academic performance, what forms of classroom behaviour are of most significance; and third, are the students whose behaviour has contributed to their underperformance in literacy and numeracy likely to ever catch up?

The design of the study

In order to examine the research questions it was necessary to follow what happened to students over an extended period. It was decided to select cohorts at Years 2, 4, 6 and 8 in 2005, and track the students in each cohort over four years. This meant that over its duration, the study collected data that spanned Year 2 to Year 11.

Teachers described the classroom behaviour of their students twice each year. These results were linked to the students' assessment results on academic performance measures for reading and numeracy. Other relevant information was also linked to the teacher reports of the student classroom behaviour.

The schools

Twenty-one primary schools, six education support centres and four high schools took part in the study. The 31 schools in the project composed four administrative clusters, each including a high school, feeder primary schools, and some special education schools or units.

The Pipeline schools are not statistically representative of schools in Western Australia. The sample is slightly skewed by the inclusion of a disproportionate number of schools drawing students from lower socio-economic status households. This was intentional as there was evidence that such schools would have larger numbers of students who were difficult to teach, and therefore might find participation in the project more relevant and useful.

The teachers

The total number of teachers in the study who provided information about their students during 2005 was 230. In some cases, teachers were involved in the project for more than one year, either because they were assigned responsibility for a new class which contained students participating in the Pipeline Project or, because they taught students from a new cohort. By the end of 2008, 421 teachers had taken part in the study.

The students

The target sample of students included all students in the designated schools in Years 2, 4, 6 and 8. According to school records, the target sample numbered 2,686. In total, the parents or carers of 69.8 per cent of target students gave their written consent. At the end of four years the attrition averaged 44 per cent for each cohort. However, nearly 1300 students who commenced the study in 2005 remained in the study over the four years.

The assessment of academic progress

The West Australian Literacy and Numeracy Assessment (WALNA) results for reading and numeracy were used as measures of student academic performance for Years 3,5,7 and 9 in 2004 and 2006. In 2008, the National Assessment Program - Literacy and Numeracy (NAPLAN) replaced the WALNA tests.

As well as drawing on the test results, the Pipeline Project surveyed all participating classroom teachers at the end of Term 3 and asked them to rate the performance of the students against literacy and numeracy benchmark standards, based on their day-to-day familiarity with the standard of each student's work.

Defining and measuring student classroom behaviour

In the study, the kinds of student classroom behaviours that impede a student's academic progress are referred to as 'unproductive' behaviours.

Teachers were asked to consider each student's classroom behaviour on two occasions during each school year. On the first occasion they completed the Student Behaviour Checklist. On the second occasion they were asked whether the unproductive behaviours reported on the first occasion were still evident; this gave an indication of the consistency or otherwise of the behaviour. They were also asked to rate the severity of the behaviour regarding its impact on the academic progress of the child.

Other evidence

Case studies were conducted in 2008 of students who exhibited exceptional patterns of behaviour or academic performance. Focus group meetings of teachers were also held in 2008 at which participants commented on some of the preliminary findings as well as raising other issues.

The main results

Differences among schools and year levels

In any year about 60 per cent of students were considered by their teachers to behave productively: as far as academic progress is concerned, the classroom behaviour of these students not being considered as an issue. The situation varied within individual schools where some classes were more difficult to manage than others; and among schools. In some schools teachers reported nearly 80 per cent of their students to behave productively whereas in others, as few as 20 per cent were reported to behave productively. While differences among schools were generally related to the socio-economic status of the suburbs from which they drew their enrolments, there were exceptions.

Of the ten categories of unproductive behaviour comprising the Student Behaviour Checklist, inattentiveness was the most frequently reported category with more than 20 per cent of students reported to be inattentive during lessons. In the primary years around 10-12 per cent of students were reported to be unmotivated but the percentage rose steeply in Year 10, reaching about 30 per cent in English classes and 22 per cent in mathematics classes.

Aggressive behaviour was confined to a relatively small proportion of all students, around 5 per cent in the primary years, though less than 3 per cent in English and mathematics classes during Years 8 to11. The highest incidence of non-compliance in primary schools was found to be nearly 11 percent of students in Year 6 classrooms: In all ten categories of unproductive behaviour, the lowest levels were found in Year 8, which in W.A. is the first year of high school.

Less than 1 per cent of students were reported to be unproductive in all ten categories and about 6 per cent were reported to be unproductive in 5 or more categories. Students with multiple categories of unproductive behaviour were more likely to comprise the subgroup of students who, later in the year, were judged by their teachers to be behaving in ways that were having a serious impact on their academic progress.

The pattern of unproductive behaviours was generally consistent across the primary school from Years 2 to 7. There was no marked difference between junior primary and middle and upper primary students. However, the situation in secondary schools was more complex. In the secondary years marked differences were apparent between mathematics and English classes and across year levels. Initially, in Years 8 and 9, teachers reported less unproductive behaviour than in Year 7. However, the incidence rose sharply in Year 10 before declining somewhat in Year 11. In Year 10 the level of unproductive behaviour was considerably higher than any other year level in either primary or secondary schooling, particularly concerning behaviour usually associated with academic disengagement: inattentiveness, lack of motivation, unresponsiveness and lack of preparation.

The level of unproductive behaviour in Education Support Centres was more than twice the level for primary or high schools. This is not surprising as the students who attend

the centres are likely to have severe emotional and medical problems. Students with disabilities who are integrated into regular classrooms also indicated much higher than average levels of unproductive behaviour in most, though not in all cases.

Broad student behaviour groupings

Analyses of the responses to the ten categories of unproductive behaviour in the Student Behaviour Questionnaire revealed four distinctive groups. The first, the largest, was comprised of students who were behaving productively. The other three groups were identified by cluster analyses of the students who were reported to behave unproductively on one or more categories of the Student Behaviour Questionnaire. The members of the first of the unproductive behaviour groups, the largest, were disengaged with instruction but were not aggressive or non-compliant; by way of contrast the members of a second group were principally defined by their aggressive and non-compliant behaviour though commonly they were reported by their teachers to be unproductive on five or more categories. This was the smallest group. Finally, there was a group whose members were reported to show a mix of behaviours of which the most common was disruptive behaviour exemplified by calling out, seeking attention and provoking others.

These four behaviour groups were named the 'Productive', the 'Disengaged', the 'Uncooperative ' and the 'Low-level Disruptive'. The size of each group varied slightly according to the cohort and year of the analysis. In broad terms, there were about 60 per cent of students in the Productive Group, 20 per cent in the Disengaged Group, 12 per cent in the Low-level Disruptive Group and 8 per cent in the Uncooperative Group.

Consistency of unproductive behaviour

The Pipeline Project sought to map the behaviour of students over a four-year period. The analyses of the responses to the Student Behaviour Questionnaire showed the behaviour of about 40 per cent of students to be set on a steady, productive trajectory extending over four consecutive years. Of the remaining 60 per cent, nearly one third (19.5 per cent of all students) were reported to be unproductive during each of the four years. To put it simply, about 40 per cent of students

were consistently productive and about 20 per cent were consistently unproductive. The behaviour of the remainder fluctuated from year to year.

When the severity of the impact of the students' behaviour was taken into account, the percentage of students who were consistently and seriously unproductive shrank to 3 per cent. That is, only a small percentage of students appear to be locked into a pattern of behaviour that is seriously impeding their academic progress. This 3 per cent included students who have mental health problems and are educated in regular classrooms.

Although the group of students whose behaviour was seriously unproductive over four consecutive years is small, the educational significance of a student experiencing even one bad year should not be discounted. If a student has failed to grasp an essential understanding, or mastered a key set of skills during a particular year, then the educational scaffold required for later learning will be flawed. Unless the student is able by some means or other to make up this deficit then the student may struggle, even though he or she attempts to engage with what is being taught. With this caveat in mind, it should be noted that about 20 per cent of students behaved in a seriously unproductive way in any year with about 10 per cent being unproductive over two consecutive years.

There is no simple stereotype or identifying characteristic of the students whose behaviour had a persistent, negative impact on their learning. Students can seriously retard their academic progress by exhibiting any subset of unproductive behaviours measured by the Student Behaviour Questionnaire, though the wider the range the more likely they are to be members of the core with a serious problem of unproductive behaviour. None of the students appeared to particularly like school or engage energetically with their schoolwork.

Impact of behaviour on academic performance

Students who were uncooperative and did not comply with the classroom behaviour norms generally performed at the lowest levels. Typically, these students were unproductive in five or more categories and were usually disengaged from schoolwork. However, their performance was only marginally better than students who do not challenge the class rules but were also

disengaged from their schoolwork. Disengagement appears to be the prime correlate of student underperformance.

Some students behaved unproductively yet performed relatively well on measures of academic attainment. However, as a general rule, students who behaved unproductively were more likely to perform poorly in reading and numeracy, failing to meet proficiency standards. On average they performed in reading and numeracy at a standard between one and two year levels below their counterparts who behaved productively.

Students who were generally compliant and cooperative, though disengaged, constituted about a fifth of the student cohort. This is a large group. Most of these students were unlikely to have mental health problems requiring access to psychological and medical services. They were students who, for example, found their schoolwork uninteresting, were inclined to give up on challenging tasks, looked for distractions, failed to prepare for lessons, and opted out of class activities.

Academic trajectories

Academic progress, like unproductive behaviour, produces irregular academic trajectories for large numbers of students, with their individual results showing dips and peaks. This was illustrated by mapping the results on WALNA and NAPLAN for 2004, 2006 and 2008 of those students who performed at the 2nd and 9th decile in 2004. The results showed that, of the students who were performing at the 9th decile in 2004, more than half slipped down the performance scale in 2006 and 2008; whereas of the students who were performing relatively poorly in 2004, more than half improved their standing relative to other students, some by a margin of more that 50 percentile points.

The Pipeline data showed that the behaviour and academic performance of about half the students did not follow a smooth, steady trajectory; but over a four-year period there were ups and downs, and good years and not so good years. The trend lines based on cohort mean scores belie the fact that the individual pathways of many students zigzagged during the year, and from year to year.

However, it is also important to get off to a good start. Students who consistently behaved in a productive

manner performed on average at a significantly higher level in reading and numeracy and tended to maintain their advantage over the four-year period. On the other hand, the students in the unproductive behaviour group usually did not catch up. The differences between the three groups – the disengaged, the low-level disruptive and the uncooperative behaviour groups, based on the behaviour of students in 2005, tended to lessen/decrease.

The interviews with teachers and the investigations of individual cases revealed that circumstances change from year to year for students and teachers. The behaviour and academic performances of the students can deteriorate sharply because of a traumatic event and improve significantly because of the resolution that problem, or a determined effort by both student and teacher. The exceptional improvement in behaviour and academic performance, in some cases, was due to the commitment of teachers who had been able to establish a special bond with the student.

Gender differences

Sharp differences occurred between the behaviour of boys and girls. Boys were more likely than girls to exhibit unproductive behaviours in every year level from 2 to 11; this was also the case for high school students in both English and mathematics classes.

Teachers nominated inattentiveness, lack of motivation, and disruptive behaviour as the behaviours that most typified the unproductive behaviour of both the boys and girls whose unproductive behaviour persisted throughout the year. Irregular attendance was the unproductive behaviour most differentiating the genders.

Boys were much more likely than girls to be classified as members of the uncooperative behaviour group. This was the lowest performing group on the WALNA and NAPLAN assessments. Boys were three times more likely to be suspended than girls; the suspended students being particularly differentiated from other students by their aggressive and confrontational behaviours.

Although consistently higher levels of unproductive behaviour were shown by boys rather than girls, there were relatively small gender differences in reading and numeracy results. While girls performed better than boys on average in reading, the mean differences were relatively

small. In numeracy, however, the average for boys showed slightly higher tendency than girls, though the differences were not statistically significant.

Student mobility

Many students did not attend their local high school in Year 8. Those who did were less productively behaved, and performing at lower levels in reading and mathematics on average than the students who made the transition to non-Pipeline schools.

It was not possible to establish the particular destination of all the primary students, there being many reasons why the students might have attended other government or non-government schools. However, the diaspora at the end of Year 7 has an important consequence - Pipeline high school teachers found it harder to establish productive behavioural norms and produce satisfactory academic results than if their schools had a homogeneous group which captured the whole of the Year 7 intake. As a result, the high schools must deal with a higher concentration of students who behave unproductively than would otherwise be the case.

The findings outlined in this chapter bear on the metaphor of the 'pipeline'. The Pipeline study set out to test the assertion that regard to academic success, the die is cast in the early years; students who behave unproductively or perform poorly on academic tests rarely recover; they slide inexorably into the 'tail' of low-performing, troublesome students. This is clearly an oversimplification but students are constantly making up or losing ground. Even students who are among the lowest performing and least productively behaved can make remarkable recoveries.

The implications and recommendations

The Pipeline Project confirmed some of the conventional wisdom that informs current educational practice, but it also produced evidence to challenge widely held beliefs.

A number of recommendations are made which can be read in full in Chapter 12. Most are broadly framed and addressed to the central authorities in DET, assuming that appropriate collaborative and consultative processes with schools would be put in place if the recommendations were adopted.

Academic engagement

The most significant findings relate to the large numbers of students who are disengaged from their schoolwork yet otherwise cooperative with their teachers. These students perform at a significantly lower level than students who behave productively. In some year levels there appears to be little difference between the academic performance of this group of students and the smaller group of students who are reportedly non-compliant, aggressive and disruptive. The latter tend to be the students in whom most of the school systems behaviour management resources are invested.

Little comfort can be drawn from the fact that academic engagement is an issue in the school systems of most developed countries; none has found a straightforward and successful way of responding to the problem. Nor has the Pipeline Project discovered a 'cure' for disengagement, many contributing factors of which unfold in different ways in schools.

Because there is no obvious 'quick fix' to this problem, DET is urged, as a first step, to raise professional awareness of disengagement and its consequences. The importance of reducing levels of disengagement should be reflected prominently in Departmental policy statements on curriculum and pedagogy which currently are rarely mentioned. For example, new departmental interventions to improve literacy and numeracy should make explicit reference to strategies that are likely to encourage all students to engage with the teaching matter, and to persevere with the associated challenging tasks. Similarly, DET should ensure that national initiatives, such as the National Curriculum, take account of the current levels of student disengagement. Simply demanding that all students cover the prescribed content in a curriculum designed for academically engaged students would be a counterproductive policy in many schools and classrooms.

In addition to making disengagement a more salient issue, DET should begin to accumulate progressively expertise about successful strategies. While some of the expertise is likely to be found outside the Department in other school systems and in universities, there are teachers and principals within DET who, through their own experience and networking with other practitioners, have acquired a deep understanding about the problem and strategies that are likely to ameliorate it.

Therefore DET has an important leadership role, promoting discussion of the problem, and drawing on international experts. It should also recognise the expertise that exists in schools, thereby enabling a greater sharing of knowledge about how best to achieve a school climate of academic engagement.

Finally, in regard to the topic of academic engagement, DET should launch a series of projects in which schools elect to address engagement issues. The two most pressing issues, arising from the evidence analysed in this study, are the consideration of the early onset of disengaged classroom behaviour, and the adoption of a curriculum and a pedagogy that are more responsive to gender differences. The National Partnerships initiative launched by Australian governments provides a framework and a source of funding that could support such projects.

Case management

A second set of findings related to the consistency of student behaviour and academic performance. There appears to be much more individual student variability from year to year than conventional wisdom suggests. Only a small number of students (approximately 3 per cent) behave in ways that have a serious impact on their learning over four consecutive years. It is more common for students to have 'good' years and 'bad' years. These results can be interpreted in a positive light. It is clear that some students make remarkable recoveries and case studies suggest that teachers play an important role in these recoveries; however, others experience sharp declines. These findings point to the need to ensure that schools have the capacity to track the behaviour and performance of students from year to year as well as from school to school. Hence, a number of recommendations is made which call for the enhancement of information systems and case management practices in schools.

First, there is a need for a project that models what teachers and school personnel need to know about students who behave unproductively if they are to intervene successfully and accelerate an individual student's progress.

Such a project should draw on schools that have made considerable progress in developing their own information systems and case management processes. The results of the project should inform central staff who are responsible for designing departmental information systems. The

results should also be promulgated among schools for their consideration and possible adoption.

The Pipeline Project was reliant on assessments from WALNA and NAPLAN in Years 3, 5, 7 and 9. These assessment programs have been designed to map overall trends in performance from year to year. Schools receive average year level results and individual student results with advice on how the performance data might be used. Unfortunately, no technical details are provided about the reliability and validity of these tests, so individual student results must be interpreted with considerable caution. If teachers are enabled to map the academic progress of students and the consistency of their behaviour in particular classes, they need access to instrumentation designed for that purpose and available when they need it. Further, there should be a means of ensuring that information from such tests follow students when they change schools.

Therefore, the second set of recommendations pertaining to case management call for the development of appropriate assessment instrumentation. Academic performance measures should be developed and made available to schools to enable them to map individual progress through primary and secondary school with greater precision than is currently possible using NAPLAN/WALNA instrumentation. Such new assessment instruments should be used at the discretion of schools, not for school accountability purposes. They are essential for case managing students whose behaviour is unproductive.

Further, to assist the case management process, the student behaviour component of the Student Achievement Information System (SAIS) should be enhanced, and a scale constructed to allow the recognition of significant changes in behaviour over time.

It is also recommended that DET adopt a system of unique identifiers for all students, with appropriate security and privacy safeguards. This would facilitate the mapping of student behaviour and performance, and the linking of records when students change schools.

Finally, professional development of teachers should include the opportunity for them to upgrade their skills in interpreting qualitative and quantitative data describing performance and behaviour, and using appropriate data to case manage students at risk.

Reaching into the home

The final set of recommendations arises from the incontrovertible evidence in the research literature, also reinforced by the feedback from the Pipeline schools, that the home is the source of many of the behavioural problems that impede learning at school. Teachers provided examples of students whose behaviour and academic performance changed significantly for the better or worse because of events that occurred out of school hours.

In most school systems education authorities have found it too difficult to reach into the homes of students to address problems recognised by their teachers, for example, poor nutrition, inadequate supervision, sleep deprivation, low educational expectations, and modelling of dysfunctional social behaviour. Instead, schools have attempted, with varying degrees of success, to compensate such students while at school, in effect temporarily accommodating the underlying problem.

Most schools are not equipped to provide welfare services so that burden of intervening in a difficult home circumstance falls on a school staff member. The alternative, for many hard-pressed schools, is to hope that the situation will be rectified through the involvement of some other government or community-based agency.

In summary the report recommends DET ensures that schools with high levels of unproductive behaviour acquire the capacity to deploy an appropriately trained staff member to maintain contact between the students' carers and the school.

The report also recommends that the State Government launch a parent education campaign, using the mass media to illustrate how parents can contribute to the success of their children at school. Governments currently run such campaigns on various health and social topics and very large sums are invested in programs designed to improve the behaviour of citizens. It is time that parent education was given comparable priority and the public informed of how parents, in collaboration with schools, can assist their children to enhance their life chances substantially.