

QUEENSLAND

Introduction

Following the change of government in March 1996, the Minister for Education endorsed the continuation of previous strategic planning processes such as Partners for Excellence, with the major priority being the achievement of a better deal for teachers and students by providing more resources “through the school gate”. Reviews of Student Performance Standards (SPS) and of the implementation of such programs as Languages other than English and the convergence of general and vocational education were quickly undertaken.

Key initiatives and enhancements announced by the government embraced four priorities: literacy and numeracy; behaviour management; students with disabilities; and convergence of general and vocational education. A major undertaking was the replacement of the Queensland Curriculum Council with the Queensland School Curriculum Council (P-10).

A total of \$2,776.9 million, consisting of \$2,460.4 million in recurrent funds and \$316.5 million in capital funds, was allocated for education in the 1996–97 State Budget. The allocation represented an increase of 8.9 per cent over the comparable appropriation in 1995–96.

Priority objectives for the government sector

Through the Partners for Excellence consultative process, new goals for the organisation were developed: quality curriculum programs for all students; effective teaching; improved learning outcomes for all students; a skilled, confident and responsible workforce; confidence in public education; adoption of technology to enhance learning,

teaching and management; and a safe, supportive and productive learning environment.

In order to achieve these goals, the Department of Education’s core business of teaching and learning focused in particular on:

- the improvement and reporting of student outcomes;
- the implementation of effective behaviour management strategies, which recognise the rights of students to learn and of teachers to teach in an orderly and safe school environment;
- the increased use of information technology for curriculum support and delivery, and for effective and efficient administration;
- the education of Indigenous students and students with disabilities; and
- the convergence of general and vocational education in the postcompulsory years.

During 1996, government schools in Queensland received \$38.44 million in Commonwealth capital grants and \$176.24 million under the Commonwealth General Recurrent Grants Programme to address program objectives.

Major government school priorities for enhancement were in the following areas:

- *literacy and numeracy* – additional funding was provided in curriculum development, support services and teacher inservice training activities, with provision of per capita funding for year 2 and year 6 students identified as requiring additional literacy and numeracy support, and expansion of the Reading Recovery program;
- *students with disabilities* – support was enhanced across a range of programs in primary, secondary and special schools. This support included the provision of additional teachers, therapists, nurses and teacher-aides, and the upgrade of classrooms through the Building Better Schools program;

- *behaviour management* – resources were provided to enhance the delivery of alternative programs for students on suspension or with a history of behavioural problems, and to increase numbers of support staff. The School Constable Scheme, through which a local police officer provides advice and assistance to teachers and students at the local primary school, was introduced;
- *convergence of general and vocational studies* – funding was provided in the areas of facilities development, professional development, and teacher placement in industry;
- *non-contact time* – funds were allocated to meet the costs of the first hour of non-contact time for primary, special and preschool teachers to allow them more time for lesson preparation and marking, and to commence implementation of a second hour of non-contact time for these teachers; and
- *information technology* – installation of the School Management System (SMS) in government schools continued, with training for school staff and support to schools on the NSN.

Resourcing

Government schools

Detailed information on funding for government schools in Queensland appears in the *National Overview*.

Catholic schools

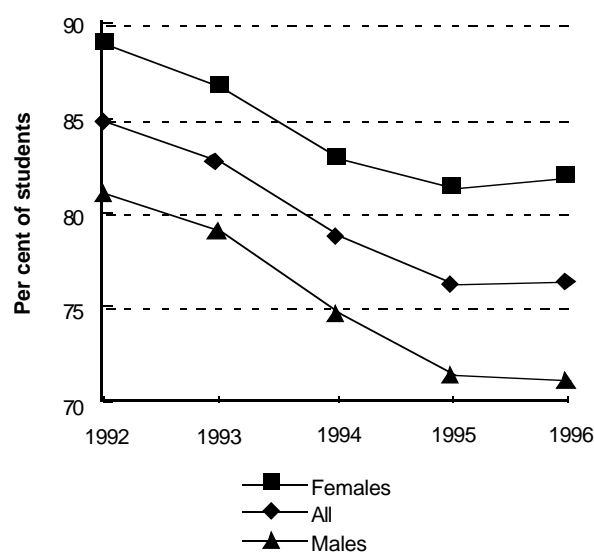
Commonwealth Capital Grants Programme funding in 1996 to the Queensland Catholic school sector totalled \$11.43 million. The General Element portion was \$7.73 million and the QCATS Element was \$3.7 million.

In 1996, the State Government provided \$12.4 million towards capital projects at non-government schools which are associated with the Queensland Catholic Education Commission. This funding enabled a total of 53 Catholic schools to undertake capital works and equipment-related projects.

Independent schools

Commonwealth Capital Grants Programme funding in 1996 to schools associated with the Independent Schools of Queensland Block Grant Authority totalled \$5.38 million. The General Element portion was \$3.63 million. The

Figure 16. Apparent retention rates to year 12, 1992–96



Source: Department of Education, Queensland

QCATS Element totalled \$1.74 million, of which \$912,000 was allocated towards implementation of the Finn and Carmichael Reports.

In 1996, 26 capital projects funded by the Commonwealth were completed both physically and financially. The most common types of work undertaken were the provision of technical work areas and related equipment for secondary students, and the provision of primary and secondary classrooms, science laboratories, libraries and other specialist secondary facilities. In addition, there were administration areas, including staff facilities, which took account of increases in student enrolments.

The State Government provided \$4.82 million towards capital projects at non-government schools which are associated with the Independent Schools of Queensland Block Grant Authority. Forty capital projects were supported by the State. The most common types of facilities provided were primary and secondary classrooms, libraries and secondary specialist facilities.

Apparent retention rates

The apparent retention rate from year 8 to year 12 for all Queensland students was 76.5 per cent in 1996, which appears to be stabilising after a period of decline since 1992. The rate for male students continued to fall behind that for female students. For Indigenous students the rate was 41.2 per cent, a slight increase over the 40.0 per cent in 1995.

Student attitudes to the social objectives of schooling

The Educational Outcomes Research Program conducted by the University of Melbourne provided information on the quality of learning experiences in schools and on student perceptions and attitudes. Almost 35,000 senior secondary students in years 10, 11 and 12 from 144 government schools were surveyed (University of Melbourne funding was for government schools only in 1996). The large numbers of students who participated in the survey allowed disaggregation of outcome information by gender, Indigenous status, language other than English status, geographic location, school location, student disability and social group (based on parental occupation).

Student perceptions of the social objectives of schooling

Students took a comprehensive view of the purpose of schooling. At least three-quarters of year 12 students endorsed objectives such as gaining good academic results and job skills, building self-confidence, improving communication skills and their knowledge of the world, developing friendships and personal maturity, and learning respect and care for others.

Aboriginal students perceived the objectives of schooling in much the same terms as other students, as did students from non-English speaking backgrounds, students in rural areas and students from low socioeconomic backgrounds.

Student perceptions of the success of schools

The great majority of students (over two-thirds) agreed that schools were successful in achieving a range of academic, vocational, developmental and social objectives, particularly in relation to the cultivation of friendships and the achievement of academic results. Schools were seen to be relatively less successful in developing self-confidence, providing interesting activities or improving students' knowledge of the world.

Overall measures of satisfaction with school

Student views of schooling tended to become more positive in the transition from year 10 to year 12, reflecting in part

student attrition and student maturation and adjustment.

Male students were inclined to have a less positive attitude to school than females; they preferred work to school to a greater extent than females; and they indicated that they had less rapport with teachers.

Attitudes to English and mathematics

Almost two-thirds of students enjoyed English. Male students experienced less enjoyment in English than females and were more inclined to say that there were more important subjects. One interesting trend was the relative lack of diverse opinion among target groups, although rural students and Indigenous students held slightly more positive attitudes to English than did other groups.

Overall, student attitudes to mathematics were less positive than those to English, with just on half the students enjoying mathematics, finding mathematics problems interesting and challenging and being confident of success. Almost half the students had trouble coping with mathematics, yet less than one-fifth intended to drop the subject. There were more similarities than differences in student attitudes across the target groups.

Social learning achievements

Schools are generally providing opportunities for social learning to all students. The perceptions of target group students were not greatly divergent from those of other students. Eighty per cent or more of students claimed that they were learning to:

- take pride in personal achievement;
- have confidence in their own abilities;
- organise themselves;
- value knowledge and ideas;
- take responsibility for their life decisions;
- have consideration for others;
- work well with others; and
- respect people from other backgrounds.

Less than 80 per cent, but still a majority of students, gave endorsement to participating in society as an informed citizen and taking care of the environment.

Educational provisions for geographically isolated students

Students and schools which are part of the Priority Country Area Programme (PCAP) were identified as being geographically isolated, this definition being the only one common to Queensland government and non-government schools. The PCAP is intersystemic and community-based, and responds to the identified needs of students in geographically isolated areas throughout the State. PCAP provides the funding, coordination and resourcing for a range of projects such as research, transport, technology, vocational and career awareness, marine studies, the arts, music, cultural pursuits, technical support, sports programs, environmental and citizenship education, and professional development. There is a particular emphasis on promoting the sharing of resources.

Funds are pooled at a Statewide level by the three education sectors and then distributed proportionally to the four PCAP areas. The combined State allocation for 1996 was \$4,125,000 and was used to enhance the educational opportunities of 33,017 students in 218 government and 28 non-government schools.

The Priority Country Area Programme in government schools

In 1996, 204 primary and 14 secondary government schools received PCAP funding for 3,210 preschool, 19,518 primary and 7,614 secondary students. In primary and secondary schools, 3,900 students (14.4 per cent) had a main language other than English, and 5,866 students (21.6 per cent) were Indigenous. Each PCAP area further devolved funding, ranging from 15 per cent to 90 per cent of funding, to local area committees with the balance retained at area level to support larger projects.

The program provided advocacy and resource support for:

- appropriate and broad curriculum choices for students;
- intersystemic cooperation and exploration of alternative and appropriate modes of delivery, including telecommunications;
- initiatives promoting the positive aspects of teaching and learning in geographically isolated areas;
- encouragement to communities to identify needs and develop strategies to address these at a local level; and
- initiatives which promoted inclusive and aware communities in relation to impact of socioeconomic, cultural

and ethnic diversity, Indigenous communities, students with disabilities and students learning in isolation.

Data on teacher retention and turnover showed that, for the five-year period 1992–96, the average time spent by teachers in the same government PCAP school was 2.27 years. The retention of teachers in other schools for the same period was 3.03 years.

The Priority Country Area Programme in Catholic schools

There were 28 Catholic schools in declared isolated areas (27 primary schools and one secondary school), representing just over 12 per cent of all students in isolated areas in Queensland. The number of isolated students in Catholic schools represented just over four per cent of all students in Catholic schools. The degree of school isolation ranged from 250 to 1,500 kilometres from a major town (population 20,000).

Catholic schools in isolated areas catered for a higher proportion of students from low socioeconomic backgrounds and from Indigenous cultural backgrounds, but a lower proportion of students from non-English speaking backgrounds, than schools in other areas.

Geographically isolated students in independent schools

A significant number (1,241) of geographically isolated students were enrolled in Queensland independent boarding schools. These schools had specialised induction programs for their rural students. The AISQ actively supported the endeavours of the Queensland Branch of the Isolated Children's Parents Association.

In determining schools which would be targeted for funding under the Disadvantaged Schools Element of the NEPS in 1996, geographic isolation was factored into the ranking formula. Programs were developed through AISQ consultancy and support under the STAR Programme for isolated Indigenous students enrolled in Independent Aboriginal Community schools. These programs focused on improved literacy outcomes and on tailored vocational education courses.

Geographically isolated students attending non-PCAP schools were supported by including these schools in professional development programs funded through NEPS. AISQ also supported the Unicorn Project which aims at identifying and providing learning opportunities for underachieving gifted and talented students. This project had a specific focus for geographically isolated students.

Students living away from home

Support was provided to students in years 1–12 who were compelled, by geographic isolation, to board away from home in order to attend approved primary or secondary schools, special education facilities or agricultural colleges. Living away from home allowances comprised: Remote Area Tuition Allowance; Remote Area Travel Allowance; Remote Area Allowance; and Remote Area Disability Supplement.

In 1996, the total expenditure for 2,183 students (0.38 per cent of all government and non-government students in years 1–12) for living away from home allowances was \$4.16 million. The number of students in boarding schools decreased steadily from 2,179 in 1989 to a low of 1,770 in 1993. Since then, the numbers have risen each year to a total of 1,889 in 1996.

Distance education provisions for isolated students

The Department of Education provided for over 6,000 students in eight Schools of Distance Education, the vast majority of whom were students from isolated areas. Specific initiatives and outcomes included: monitoring of ongoing performance of preschool to year 7 students and the extent to which materials met their needs; review of current and new secondary programs to meet the needs of individual students; development and provision of kits to enhance the learning experiences of students identified as gifted and talented; purchase of high frequency radio communication sites, equipment and supplies; and trials of modems and telelearning in small groups.

Outcomes for students in isolated schools

In relation to the Year 6 Test:

- students in PCAP schools did not achieve as well as students in non-isolated areas in literacy or numeracy in 1995 and 1996;
- male students in PCAP schools did not perform as well as female students, which is consistent with Statewide trends;
- Indigenous students, and in general, non-English speaking background students, performed at a lower level than other students in PCAP schools;
- the pattern of performance of target group students in PCAP schools mirrored that for all target group students; and

- performance in all strands of numeracy (number, measurement and space) was higher in PCAP schools in 1996, but was slightly lower than that for 1995 in reading and writing. These trends were consistent with those in non-PCAP schools.

Data on the levels of performance of year 12 students in 1996 in PCAP schools showed that:

- PCAP school students, in general, did not achieve as well as non-PCAP students; and
- male students in PCAP schools scored lower than female students in all subject areas (except in languages other than English) which was consistent with population trends.

Provisions for achieving outcomes in numeracy

Curriculum initiatives and developments

In March 1996, the Minister for Education asked the Office of the Queensland School Curriculum Council (P–10) to manage a review of the implementation of the Student Performance Standards. As a consequence of this review, the Minister announced in August 1996 that there would be a trial during 1997 of a proposed alternative reporting framework (Queensland Levels of Student Performance - QLSP) in volunteer schools.

Following its trial implementation during 1995, the Year 2 Diagnostic Net was officially implemented during 1996. An evaluation report of the trial was published and the Department of Education conducted an internal review of the 1996 implementation.

There has been greater attention given to the creation of appropriate intervention programs in schools as a result of the provision of information on student performance on the Year 2 Net and the Year 6 Test.

After a phased introduction beginning in 1993, all high schools are now offering senior secondary courses based on the Mathematics A, B and C syllabuses. The old Mathematics I and II courses are no longer offered.

Changed emphases in the provision of numeracy initiatives

While the implementation of Queensland's version of the national profile in mathematics (SPS) has been placed on hold, there has been renewed activity from a large

percentage of government schools to update their mathematics programs and to review a range of practices relating to monitoring student progress and assessment. As a consequence of such initiatives as the Year 2 Net, SPS, and regional inservice courses, teachers' views about numeracy are changing. Their assessment practices, for example, are now generally more focused on determining what the student knows and how well that is understood. There is more attention to the application of mathematics learning in a range of contexts.

In Catholic schools, there has been sector-wide commitment to implementation of curriculum and reporting of student achievement using the national statement and profile as foundation documents. Participation is widespread in trials of profile-based levels of student performance at the primary school level. At the secondary school level, there is growing awareness of the national statement and profile and this is yet to be broadly applied to curriculum programs within schools. There is extensive commitment to numeracy activity in the early years with the implementation of the Statewide Year 2 Diagnostic Net. Diagnostic (formative) assessment is also becoming characteristic in secondary schools.

In 1996, many independent schools adopted an outcomes framework for assessment and reporting based on the national mathematics profile. Through a sharing of collated strategies for intervention in numeracy, strengthened local area networks, and a series of professional development activities, improved numeracy outcomes in the sector will be achieved.

Curriculum time allocated to mathematics and participation rates

For government school students to year 10, the mathematics courses are based on the *Years 1 to 10 Mathematics Syllabus*. While no set amount of time has been stipulated for the study of mathematics in these years, schools commonly allocated between 3.5 and five hours to this learning in their programs. The participation rate is very high, evidenced by the fact that almost 97 per cent of students received ratings for mathematics for the Year 10 Certificate. For senior secondary students studying mathematics, three main courses were available, based on the Mathematics A, B and C syllabuses published by the Board of Senior Secondary School Studies (BSSSS). Participation rates in year 12 for the senior secondary

courses were: Mathematics A – 57 per cent; Mathematics B – 51 per cent; and Mathematics C – 12 per cent.

In Catholic schools, primary school allocations for mathematics were in the range of 5 – 6 hours per week, and were designated as core and compulsory. In secondary schools, mathematics was compulsory in years 8–10, and elective in years 11 and 12. Time allocations in years 8–10 for mathematics ranged from 33 hours per semester to over 60 hours per semester in some cases, with variation due largely to the number and nature of mathematics subjects studied. In years 11–12, formal time allocations were laid down in the relevant BSSSS syllabuses. In some schools, mathematics was compulsory in some form in years 11–12. The larger proportion of secondary students (over 60 per cent) studied mathematics at an advanced level (for example, Mathematics A and B). Between 10 per cent and 20 per cent studied Mathematics C. Between 10 and 30 per cent (depending on the school) studied basic mathematics (Application Mathematics or TAFE-embedded mathematics modules) in years 11–12.

Teacher training and the availability of trained teachers

In the government sector, information collected throughout regions in 1996 pointed to the need for the skilling of teachers interested in teaching Mathematics A, B and C courses in years 11 and 12. The need was greatest away from the larger metropolitan centres and invariably involved those teachers for whom mathematics was not their major teaching area. The Department's Workforce Management Branch initiated discussion with the Queensland University of Technology in relation to establishing a twelve-month Graduate Certificate course. Open Access Learning facilities would be used to overcome distance learning difficulties where appropriate.

In the Catholic sector, all employing authorities reported a growing emphasis in professional development for teachers of mathematics. There appeared to be, in the view of most employing authorities, an adequate pool of four-year trained teachers capable of teaching mathematics. Two concerns were reported as significant: firstly, some reported a dwindling pool of teachers able to teach more advanced mathematics programs at senior level and, secondly, the pool of mathematics teachers appeared to be more adept as mathematics specialists rather than specialist mathematics teachers.

The AISQ presented a two-day workshop for early childhood teachers and administrators to develop and share expertise

in intervention strategies designed to improve student outcomes in numeracy. In all, 125 participants contributed to the production of a collated resource folder. The special needs of students identified in the target groups were addressed. Independent schools in Queensland maintained a commitment to this goal throughout 1996.

Emerging or continuing issues in numeracy

Large numbers of government schools continue to evaluate the appropriateness of their school mathematics programs. While attention is still firmly focused on the placement and sequence of teaching 'input', more consideration is being given to significant factors such as the specific learning needs of various groups of students at the school. Some schools have also turned their attention to the identification of reasonable expectations in relation to learning outcomes for students at specific year levels. The relationship between school mathematics and numeracy continues to be an issue for discussion. However, the focus on, and interrelationship between, literacy and numeracy is gaining greater recognition when any kind of curriculum or syllabus development takes place. There is also a growing recognition that every key learning area must acknowledge its role in contributing to students' development of literacy and numeracy.

In the Catholic sector, future directions identified by authorities included: greater emphasis on problem solving; work on communication criteria in mathematics; continuing professional development in relation to the national-level documents, particularly in secondary schools; cooperative learning strategies; investigation of the strengths of competency tests similar to those in TAFE; development of lateral thinking with respect to mathematics; mathematics policy development with respect to specific curriculum connections concerning technology and the Internet; and improved bridging courses.

Significant numeracy initiatives by the Queensland School Curriculum Council (P-10)

During 1996, the Queensland School Curriculum Council (P-10) continued the development and implementation of a number of literacy and numeracy initiatives including the conduct of a parent information project, titled Hand-in-Hand, further development of the materials and processes for the Year 2 Diagnostic Net, and the second annual administration of the Year 6 Test. These initiatives

incorporated a significant focus on the development of numeracy knowledge, skills and abilities.

In the case of the Year 2 Diagnostic Net, the developmental continuum in Number that had been trialled in 1995 was completed and published for use in schools. Also during 1996, a report was prepared on the numeracy development of year 2 students based on an analysis of certain key indicators identified in the Net.

The Queensland School Curriculum Council (P-10) also continued to focus attention on the importance of literacy and numeracy, and sought the preparation of a position paper on these aspects of the curriculum. The Council also proposed the appointment of literacy/numeracy specialists to each of the Council's Syllabus Advisory Committees. These initiatives were considered to be major features of a literacy/numeracy strategy plan for the Council.

Student outcomes in numeracy

Year 6 students in Queensland schools, both government and non-government, participated in an external testing program in literacy and numeracy. The results indicate that in 1996:

- male students performed as well as female students in Space, better than females in Measurement, but not as well as females in Number;
- students from non-English speaking backgrounds performed slightly above the Statewide levels of achievement for all numeracy strands; and
- Indigenous students performed well below the Statewide levels of achievement for all numeracy strands.

Comparisons of 1996 performance with that in 1995 showed that:

- overall, the mean scale scores in all numeracy strands increased significantly;
- the levels of performance in 1996 were considerably higher for males, females and non-English speaking background students in all numeracy strands; and
- Indigenous students scored higher in 1996 in Number and Space, but not in Measurement.

A study was undertaken of 8,944 government school students identified as requiring additional support from the Year 2 Net and 6,275 government school students identified from the Year 6 Test, with 88 per cent and 73 per cent respectively showing improvement as a consequence of intervention programs.

Year 10 student achievement

Levels of achievement data for mathematics subjects in year 10 for government and non-government schools showed that, for the two most popular subjects, Mathematics and Advanced Mathematics, very few students were achieving at a limited level. Over 45 per cent of students in Advanced Mathematics were high achievers, and more than a quarter of students taking Mathematics achieved at a high level.

Year 12 student achievement

Data on those year 12 students (in all Queensland schools) who took one or more mathematics subject in 1996 indicate that, overall:

- the proportion of year 12 students not participating in any area of mathematics has increased since 1992 with the percentage increase slightly greater for males than for females; and
- levels of achievement were lower for students in isolated schools than for students in non-isolated schools, and lower for students in disadvantaged schools.

Male students generally did not perform as well as female students, whatever the isolation or disadvantaged status of the school.

Provisions for achieving outcomes in science

Significant science initiatives and achievements

In mid-1996, work commenced on the development of the Years 1–10 Science Syllabus-in-Development. The document will be distributed in May 1997 for use in 60 Queensland (40 government schools) primary and secondary schools which nominated to participate in the formal trial/pilot developmental phase from May 1997 to June 1998. The Syllabus-in-Development emphasises the importance of critical and creative thinking, social and cultural understandings and cooperative processes.

The Schools Animal Experimentation Ethics Committee (AEEC) was formed in 1996 to assist all schools to comply with the Animals' Protection (Use of Animals for Scientific Experiments) Regulations of 1991. The AEEC makes recommendations to the Department of Education, the Queensland Catholic Education Commission and the AISQ on the care and use of animals in schools.

Safety in science was an issue which has been targeted through the release in July 1996 of the publication, *Aspects*

of Science Management: A Reference Manual for Schools and through the extensive inservice activities for teachers of science within the regions. The major issues addressed included risk management and the management of hazardous substances in schools.

Officers of the Queensland School Curriculum Council (P–10) assisted the Department of Education with the preparation of questions to be included in a survey of science education provisions in government primary and secondary schools. Together with the information contained in the 1994 Science Assessment Performance Program (APP), this survey provided additional information that informed the ongoing development of science curriculum materials. An external evaluator was appointed by the Queensland School Curriculum Council (P–10) and independent reports of the trial/pilot materials and processes will also influence the final drafts of the syllabus, sourcebooks and inservice training materials.

In the Catholic sector, schools reported that the national statement and profile on science, together with professional development opportunities focused on these documents, has been influential in changing teachers' thinking about science education. However, changes in science programs have been delayed for two reasons. Firstly, the work of the BSSSS to embed competencies in syllabuses has meant that teachers have been reluctant to make changes until the implications of the competency approach have been clarified; and secondly, the Queensland School Curriculum Council (P–10) has commenced work on a science syllabus with a focus on outcomes, which will require significant changes in the years 1–10 science program. Nevertheless, some schools reported continuing development of their programs with emphasis on analysis, interpretation and application; from simple to complex reasoning (and in the manner of its assessment); and from individualistic approaches by primary teachers to the more planned approaches represented by Primary Investigations.

In the independent sector, support through the AISQ was provided for schools undertaking curriculum development to align their programs with the national statement and profile on science. A number of schools developed outcomes assessment and reporting in science in line with the national profile. It is anticipated that most independent schools will either trial the new syllabus to be developed by the new Queensland School Curriculum Council (P–10) or implement it when it is completed. The AISQ will provide information sessions for schools and parents and deliver inservice activities and support in the future.

Students from Dirranbandi State School in Queensland apply physical and chemical tests to samples of river water.

Curriculum time for science

For students up to year 10, the Queensland School Curriculum Council (P–10) in December 1996 endorsed an indicative time allocation as a guide to syllabus writers. For the purpose of syllabus development, the indicative time allocation to achieve the core learning outcomes will be:

- years 1–3, 180 hours across three years;
- years 4–7, 180 hours across four years; and
- years 8–10, 180 hours across three years.

Primary schools are expected to devote at least one hour per week to science, while secondary school programs are based on 150 hours of study and assessment over three years in years 8–10.

In endorsing the indicative time allocations for the core curriculum, the Queensland School Curriculum Council (P–10) acknowledged that discretionary time would be available for schools. This discretionary time is: 240 hours over years 1–3; 480 hours over years 4–7; and 840 hours over years 8–10. Discretionary time can be used by schools to meet their particular needs and circumstances.

Emerging or continuing issues

In government schools, science curriculum priorities included the enhancement of student numeracy and literacy skills which were addressed through components of the Working Scientifically framework in the Syllabus-in-Development, sourcebook support materials and initial inservice education packages. Primary schools have indicated that they have based ongoing science literacy programs on Primary Investigations. The Department's science curriculum survey showed that the majority of

secondary science teachers felt confident to adopt the new science syllabus. However, the majority of primary teachers reported that more extensive professional development in the area was required.

In Catholic schools, a change in emphasis was discernible in the schools' and colleges' science programs, towards greater organisation and sophistication. In primary schools, where resources have been somewhat limited, the structured framework provided by Primary Investigations was very influential in assisting teachers to have a more organised approach to science education. In secondary colleges, there was considerable evidence of increasing linkages with TAFE colleges in courses that deal with areas such as engineering, and linkages with universities in the promotion of the Science Centre, for example, James Cook University of North Queensland. Community groups, such as the environmentalists, have also been active in assisting schools to expand their traditional science programs.

Professional development in science curriculum

A number of professional development projects were implemented through the Science Teachers Association of Queensland, focusing on enhancing the implementation of the Australian science profile and related key competencies, and on the teaching of science in the early childhood years.

Participation in these professional development activities ranged across government and non-government schools, metropolitan and non-metropolitan areas, teaching and non-teaching personnel, and industry representation. Activities focused on the national statements and profiles, key competencies, equity issues, and teacher competencies.

Significant science initiatives by the Queensland School Curriculum Office

In 1996, the Years 1–10 Science Curriculum Development Project was established. This project is an intersystemic initiative of the Queensland School Curriculum Council (P–10) to design, develop and publish a Years 1–10 Science Syllabus, sourcebooks and initial inservice education materials. These materials will be produced through a process of consultation and partnership with all education systems, teachers, and other stakeholders, including unions and professional associations. Through the processes of consultation and trial/pilot, the team will identify and address issues regarding science education.

The Years 1–10 Science Syllabus will describe: the place and context of science in the whole curriculum; the scope and sequence of learnings; desired learning and teaching experiences; how courses of study can be planned to meet a variety of needs in different school settings and for different kinds of students; possible learning and teaching strategies; and principles of assessment and reporting.

Content of the syllabus will be presented under the organising titles Working Scientifically, Energy and Change, Natural and Processed Materials, Life and Living, and Earth and Beyond. Suggested learning experiences within the sourcebooks will provide explicit linkages to other key learning areas and or subjects to allow the widest opportunities for varying campus-based decisions to be made for integrated approaches.

The Years 1–10 Science Syllabus, sourcebooks and initial inservice education materials also will contain explicit requirements and exemplifications that support the development of literacy and numeracy and life skills.

Participation and outcomes in science

Year 10 students

Science is part of the common curriculum to year 10. The vast majority of year 10 students were assessed by

government and non-government schools in 1996, with 36 per cent of students being rated as high or very high achievers in science.

Year 12 students

Data from the BSSSS for year 12 student participation in science showed that:

- the proportion of year 12 students not participating in any area of science has increased since 1992, with the percentage increase being slightly greater for females than for males;
- the participation rate in science was higher in isolated schools than in other schools, for both male and female students;
- the participation rate for male students in disadvantaged schools was lower than that for other schools and for female students it was higher;
- female students scored slightly higher than male students overall, regardless of school contexts (isolation, degree of disadvantage); and
- both male and female students in isolated schools and disadvantaged schools scored lower than students in other schools.