



Information literacy: evidence that school libraries can lead the way

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Abstract

There is evidence from research that there is a positive link between school libraries and improved learning outcomes for students. However, the "case" for school libraries still needs to be put. For some of the research relating to staffing and resourcing levels, another layer of quantitative information is required before it can be successfully applied. Research about instructional intervention needs to be undertaken by practitioners so that local decision makers can see the effects of school libraries on student learning outcomes. The Information Literacy Project at Santa Maria College is an example of how the "case" for libraries can be put by practitioners to local decision makers. Leadership, evidence based practice and project management techniques combine to ensure the success of the Project. In this way, evidence is provided that school libraries can lead the way in information literacy.

There is a wealth of research data that establishes the positive link between school libraries and improved student learning outcomes. The publication in March 2003 of an Australian Council for Educational Research (ACER) report commissioned by the Australian School Libraries Association (ASLA) provides ample proof of this. However, Lonsdale concludes this report on the *Impact of School Libraries on Student Achievement: a Review of the Research* on a quizzical note. She asks "if research over the past five or six decades has consistently shown a positive relationship between student achievement and school libraries, then why does the "case" for libraries still need to be put?" (Lonsdale 2003, p. 33)

The answer to this question lies in considering three associated questions: Is it possible to apply the research that has been undertaken overseas in the Australian setting? How widespread is the application of the research? Is there evidence that the research has been applied?

The link between research and practice

One of the benefits derived from research is that it assists practitioners to reflect on and improve practice. Research findings should be able to be applied either at the system level or by practitioners at the local school level. There should be implications stemming from research, otherwise it remains of academic interest but of no real significance for systems or local practitioners. It would be true to say that much of the research into school libraries and student achievement carried in the past five or six decades has been undertaken by researchers at the system level, tertiary academics and in a few cases, partnerships between researchers and practitioners. Lonsdale reviews research since 1990 and she states that many of these studies are based on overseas data. (Lonsdale 2003, p.1). Gradually this

situation is changing. For the past five years teacher librarians have been involved in evidence based practice and this means researcher practitioners are now able to demonstrate how their work is making a difference to student learning outcomes. This paper suggests that in Australia, findings from research at the system level has been difficult to apply because it is often based on overseas data and there is a lack of Australian quantitative information about funding and staffing levels. At the school level, teacher librarians are only just starting to demonstrate that their programmes do make a difference.

Available research

As a means of analyzing why the "case" for libraries still needs to be put, some of the available research will be considered. Ross Todd's categorization of the research evidence into macro-research and micro-research is a useful concept. Macro-research looks generally at the relationship between libraries and learning outcomes and is *large scale, broad based studies involving large samples*. Micro-research usually encompasses studies of small groups of students in local settings and these studies focus on a range of specific information and learning situations. (Todd 2002, p32) Generally, it is qualitative research.

The work of Keith Curry Lance and his associates at the Colorado Department of Education is a good example of macro-research and it is highly regarded as ground breaking research in Library circles around the world. Their work includes a number of statewide studies in Colorado, Alaska, Pennsylvania, New Mexico, Oregon, and Texas and involves both primary and secondary schools.

A summary of the findings of the initial Colorado study makes three major points about the effects of school library media centers on academic achievement:

- Students at schools with better-funded Libraries tend to achieve higher average reading scores, irrespective of the community's socio economic status and the level of education of the parent body
- The amount of staffing and the size of the collection are factors that influence reading test scores.
- Students where library staff played an instructional role tended to achieve higher average test scores. (Prestebak 1999, p. 1)

There are other studies at this macro level, however the Curry Lance study is typical and it provides sufficient information to analyse the findings and consider the issue of applying the research. The large sample and statistical analysis techniques used in macro-research require the researcher to hold a position within an educational system or to be a tertiary academic. Macro research could not be undertaken by a practitioner at the local level. Can macro research, such as the Curry Lance study, be applied at either the system or the local level in Australia? If not, does this in part explain why "the case" for libraries still needs to be put?

Applying the research: staffing and resourcing levels

The findings outlined above relate to funding, staffing levels and instructional intervention. All of these issues are important to practitioners, however the first two are national, big picture considerations for school libraries at a system level. It could be argued that national Library associations such as ALIA and ASLA could use the Colorado study data to lobby federal and state governments for increased funding and staffing. Or could they? It appears that there is another layer of information that is necessary for any lobbying to be effective: current national system or sector data on funding and staffing levels in school libraries. Unless this data is available and can be compared with national benchmarks such as those published in *Learning for the Future*, then lobbying for increases in funding and staffing will be ineffectual because there will be no specific target or goal, other than *more*. Administrators want to know what the system will get for the *more* funding or staffing. It is only when collection sizes and staffing levels are quantified, comparisons made with benchmarks and deficits are highlighted, that lobbying for specific increases can take place.

At a sector level, the Catholic Education Commission of Victoria gathered data about collection sizes and staffing in parish primary schools for nearly a decade between the late 1980s and mid 1990s. A preliminary survey established the size of collections in parish primary school libraries. The data on collection sizes was compared with quantitative benchmarks available initially from *Books and Beyond* and later, *Learning for the Future*. From *Books and Beyond*, the concept of a "basic book stock" was used for comparison. The basic book stock was calculated on a per capita formula and linked to school population. Trends were analysed and the Director as well as regional and school administrators were given specific feedback on progress towards the schools' achievement of basic book stocks levels. Over this period of time collection sizes grew at a steady rate as illustrated by Table 1.

Table 1: Catholic School Victoria: Percent of Primary School Libraries at basic size or above 1987-1993. Adapted from Primary School Library Resources: Survey Results, Librarians' News, 10 (4) p.11

Year	1987	1989	1991	1993
Percent at basic size or above	35.5%	41.6%	47.7%	59.2%

The explanation for this growth is twofold: schools increased library budgets from local resources once they realized that their book stocks did not reach national benchmarks and, in some instances, grant money from within the sector was deployed to extremely needy school library collections. The data provided the Library Advisors with evidence for their lobbying for increased funding at the sector and local level. Without the comparative data and analysis of trends, it is highly unlikely that these increases would have occurred and if they had, no one would have known.

The data on staffing allocation was not compared with a national benchmark, rather, the comparison was made within the sector. The data from the 1994 Survey was presented as the number of hours allocated to staffing libraries in schools with similar populations. In addition, these hours were aggregated. What emerged was that staffing allocations correlated positively with enrolment size, however there was a wide variation in time allocations for any given enrolment range. The aggregated hours demonstrated an increase in hours from 5,560.4 hours in 1992 to 6017.3 hours in 1994. Once again, the Library Advisors were able to provide evidence about trends and make suggestions about suitable staffing levels. (1994 Survey, *Librarians News* 12 (1), p.28)

The data cited is a sample of what was collated and analysed by the Catholic Education Commission of Victoria for a set period of time. It is only when this type of data is available at a national or sector level that effective use can be made of the findings of the Colorado study or similar studies. The findings from macro-research about collection size and staffing are best suited to national or sector lobbying, although it could be used and applied by individual practitioners. However, without data about the current state of collection sizes and staffing allocations, opportunities to use or apply the findings for national, sector or individual lobbying purposes are limited. Currently, this information is not available in Australia. This in part accounts for why the "case" for libraries still needs to be put.

Applying the research: instructional intervention

The other finding from the Colorado study relates to instructional intervention. Clearly this is useful information for the practitioner to apply. It is definitely possible that Australian practitioners have applied information from macro research about instructional intervention. What has been lacking up to this time is evidence that the application of the findings has occurred or that the application has made a difference to student learning outcomes. Unless teacher librarians design programmes that use an evidence based practice approach, then applying the findings will have little or no effect in terms of administrators or teaching staff at the local level. The students may or not benefit, but unless the programs are designed with accountability as a design feature it is impossible to know and the "case" for libraries will still need to be put.

Evidence based practice

As mentioned previously, micro research for Todd (2002 p.32) is about studying small groups of students using instructional intervention with information literacy strategies in specific learning and information situations. His own work in this field goes back to 1990 when he worked with a teacher librarian, Celeste McNicholas (1994 p.20) on a major action research project at the Marist Sisters' College at Woolwich, NSW. The project demonstrated the effects of information skills based teaching and learning on self-esteem and academic achievement. This study is probably the earliest example of evidence based practice in Australia and it was completed well before the term was applied to teacher librarians

The term evidence based practice has been used in a range of fields other than education for some time however, it was first used about teacher librarians in 2001 by Ross Todd during a Conference of the International Association of School Libraries (IASL). Todd argues that it is critical to the future sustainability of teacher librarians. (Todd 2002, p.30) He explains that evidence based practice happens where teacher librarians are able to demonstrate that their day to day practice contributes to the school's learning goals: "...teacher librarians need to engage actively in more carefully planned strategies that gather evidence about the impact of their instructional role". (Todd 2002, p.37)

Accountability

Increasingly in Australia there is a trend towards self managing schools and the devolution of decision making about budgets and staffing. This is especially true of the situation in Victoria. Across the country therefore it is at the school level rather than the system level that decisions are made about funding and staffing for school libraries. These factors are essential to the well being of a school library. Accountability is one of the most important keys to influencing decision makers to sustain, support and develop school libraries. Accountability has to be evident at the school level so that benefits for the community from libraries that are well staffed, well stocked and that have well designed programmes are immediately apparent. When this is happening, the "case" for libraries is being put on a day to day basis in a most effective way. This is happening at Santa Maria College, Northcote.

Information Literacy Project at Santa Maria College

Santa Maria College is an inner city Victorian Catholic Secondary College with a multicultural population of 930 female students.

The Information Literacy Project at Santa Maria College is an example of how evidence based practice can be used to demonstrate positive learning outcomes for students. It is based on theories relating to style of leadership, educational philosophies and teaching strategies that reflect global, national and local trends, the application of the principles of successful project management in an educational setting, documentation of practice and data collection. (Ryan and Hudson 2003, p.29) That the project has been successful is without doubt.

Leadership style

Transformational leadership as described by Caldwell and Spinks (1992) pertains to principals and has vision and

collaboration as cornerstones. There are four facets of the role of the transformational leader: "cultural leadership, strategic leadership, educational leadership and responsive leadership". (Caldwell and Spinks 1992, p.50) The culture of a school can be described as the way in which day to day activities are carried out. Underpinning the activities are the values held by the community and these determine excellent outcomes for students. Strategic leadership is concerned with the development of a long-term improvement plan. Educational leadership refers to the image of the leader nurturing a community of learners. Responsive leadership is essentially about accountability. The Library team at Santa Maria College applied this style of leadership to the Information Literacy Project as it provided a systematic structure for their practice and complemented the methodology of evidence based practice. (Ryan and Hudson 2003, p. 30, 31)

Educational philosophies reflecting global, national and local trends

Lifelong learning: we live in an Information Age which some would argue has become a Knowledge Age. Either way, the rapid changes confronting society require the development of the skills for lifelong, independent learning. . The Information Literacy Project uses a range of techniques to support students in their growth towards independent learning. These include:

- Developing a sequential, skills based programme that is practiced in the context of real units of work.
- Using a revision, reinforcement and extension cycle over a four year period.
- Supporting students of varied ability with scaffolding tools for the learning process, the organization of information, thinking skills and literacy.
- Insisting that activities based on higher levels of Bloom's taxonomy are included in all units of work, assignments and assessment tasks in the project. (Ryan and Hudson 2003, p. 33)

Middle years strategies: concerns about lack of engagement for students in the Middle years of schooling in Australia have lead to the development of a range of curriculum initiatives, student welfare programmes and classroom strategies designed to foster and nurture student engagement. Some of the strategies used in the Project are: identifying learning outcomes and indicators, including a range of learning experiences, explicit modelling of the learning process, providing scaffolding and modelling tools to assist learners with varied abilities. (Ryan and Hudson 2003, p.33)

Learning technologies: the incorporation of learning technologies into unit planning is another feature of the Project. Printed and electronic resources are used by students to gather information. There is a strong emphasis on the need to synthesize information and to translate it into original work and thus avoid plagiarism. For their final product or presentation, students are encouraged to use a range of electronic formats and techniques.

College priorities: the Project is cognizant of local priorities. As directions and priorities emerge for the College, these have become important to the Project: CSF11, Middle Years and the strategic plan have all influenced the Project and in turn been influenced by it. The work of the Library team is seen as part of the overall teaching and learning programme of the College.

Project management principles

From its inception the Project has been managed according to sound, current principles in that it has

- addressed learning challenges important to the school,
 - focused on improvement,
 - articulated explicit outcomes,
 - highlighted the importance of reflection
 - engaged in a team approach
- (Ryan and Hudson 2003, p.34)

Documentation

A feature of the Project has been the documentation available to the Administration, staff and parents. Regular reports have provided aims, analyzed student results, documented all units of work in the Project and made recommendations about future directions. "In short, the documentation provides evidence of the way we do things around here and the contribution of the library staff to that process." (Ryan and Hudson 2003, p.35)

Data Collection

Crucial to the ongoing support for the Project has been the collection, analysis and publication of data related to the improvement in students' learning outcomes. The Project commenced in 2000 with the Year 7 intake of approximately 150 students and finished in December 2003 when that group of students completed Year 10. In each year subsequent to 2000 and up to and including 2003, the Project took on board the Year 7 intake. This means that by the end of 2003 longitudinal data on the Year 10 students had been collected for four years, the Year 9 students for three years, the Year 8 students for two years and the Year 7 students for one year. Each of these year levels has a student population of between 150-160, therefore the College has data on more than 600 students over periods of time varying from four years to one year. In terms of Todd's distinction between macro and micro research, this project possibly falls between the two. For ease of identification the different groups of students will be described in the following way:

Cohort 1: Year 7 2000, the Year 10 2003 group

Cohort 2: Year 7 2001, the Year 9 2003 group

Cohort 3: Year 7 2002, the Year 8 2003 group

Cohort 4: Year 7 2003 group

It has been a huge amount of work to maintain and extend the Project over these four years. To say that the Project is finished is not to say that the programme will no longer run. The teacher librarians will continue to work with teachers and survey the students however, data will be gathered from a sample of students at each level rather than the whole cohort. The data that has been received from the surveys has been essential to the programme in that it has provided information about the strengths and weaknesses of each group of students. In this way the data has guided the teacher librarians as to which information literacy skills to emphasize in the teaching programme and it has enabled them to have an ongoing improvement cycle in place. In this cycle, units of work have been planned, implemented and reviewed in light of the data that has been collected and analysed about each particular group.

The Information Literacy Project 2000-2003

2000

In March 2000, before commencing a programme designed to explicitly teach the six stages of the information process, the Year 7 students were surveyed. The survey asked the students to explain how they would go about completing a particular assignment. Their responses were marked using a forty point scale based on the information and cognitive skills required to complete each stage in the information process. The six stages or steps that were used are as follows: defining, locating, selecting, organising, creating/sharing and evaluating. (Learning for the Future 1993, p. 50). The marking scale was developed by Vicki Hudson using the work of a range of authors that included Gawith, Morris and Stewart-Dore, Dalton, Deriwanka, Cambourne, Turbill and Egeberg. (Ryan and Hudson 2003, p.36)

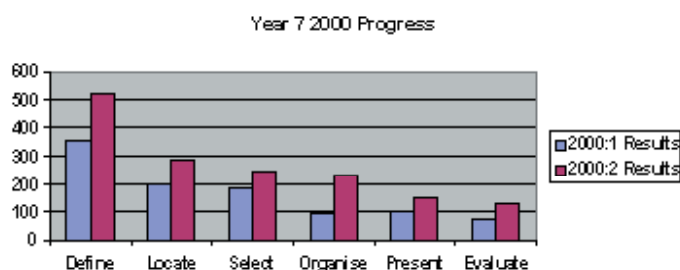
The marking process was carried out as follows:

- Each student response was read and marked against the forty point checklist
- Student recognition of the various stages of the information process was recorded on a class profile spreadsheet to establish a class hit rate for each stage
- Student knowledge of appropriate skills and strategies for each stage of the information process were also recorded on a class profile spreadsheet to establish a class hit rate
- An individual student grade out of forty was assigned. In addition, a list of skills to be developed by individual students was compiled. (Ryan and Hudson 2003, p.36)

The teaching programme

Throughout the Project, the six stages have been explicitly taught within the context of the curriculum. In 1999 the Curriculum Committee at the College had agreed that the Project should run for one year and that a unit of work incorporating information literacy skills should be developed for each Key Learning Area (KLA). The units and assignments were planned by teams of subject teachers working with the teacher librarians. The assignments contained scaffolds such as note taking grids and higher order thinking questions. By November 2000 an assignment template had been developed. This template showed the six steps and guided the students through each step. At the end of that initial year the students were re surveyed using the same task and the same marking scale. Once the second survey had been marked, collated and analysed a significant improvement was apparent. The Curriculum Committee agreed that the Project should be maintained and extended until the Year 7 class of 2000 had completed Year 10.

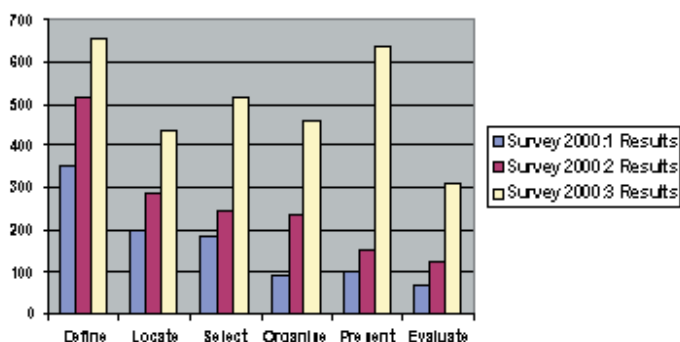
The following graph shows the progress in the acquisition of information literacy skills of the Year 7 2000 cohort from the first survey in March to the second survey in November. The graph shows their progress for each of the six steps. The vertical axis is an aggregated score derived from the 40 point scale.



2001

Cohort 1 moved into Year 8. Their survey from November 2000 also established their skill level for the beginning of 2001 and once again they completed a series of assignments that required them to explicitly work through the six steps in the information process. In November they were re surveyed using the task from the previous year and the same marking scale was applied. Once again important progress in acquiring the skills was apparent.

Year 7 2000, Year 8 2001 Information Literacy Results



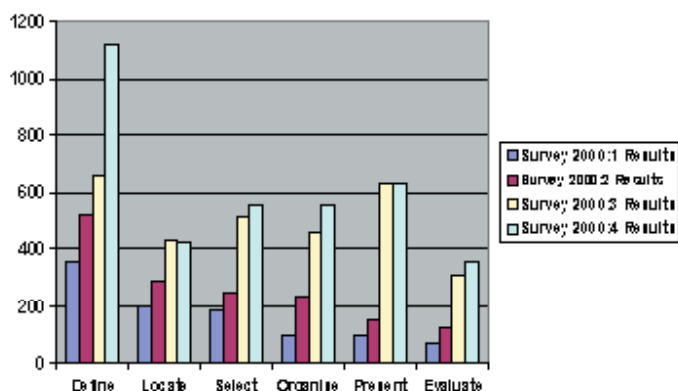
2002

Cohort 1 moved into Year 9. This was their third year of involvement with the Project. To cater for and extend their improved skill base, the scaffolds were slowly withdrawn to mark the transition from tasks that were largely teacher assisted to those that were students directed. To reflect this shift, a new survey was designed to monitor their development as independent learners. In this task, students were asked to complete a Research Organiser which was designed to test their ability to manage the research process independently. They were given a Science assignment that involved the investigation of one eye condition and the preparation a brief written report. Before commencing their research the students completed the Research Organiser and it required them to:

- Analyse the task and prepare an overall plan
- Create a research process plan that listed and explained the activities required for each stage of the process
- Identify key words and develop research questions
- Devise higher level thinking questions
- Identify relevant resource types
- Design a note taking grid

This Organiser was used as the information literacy assessment tool in 2002. It was marked using the forty point scale as well as on a rubric with a five point scale for each task. The rubric was included on the students end of year report along with the teacher's assessment. Once again there were gains in the students' learning outcomes. (Ryan and Hudson 2003, p.37)

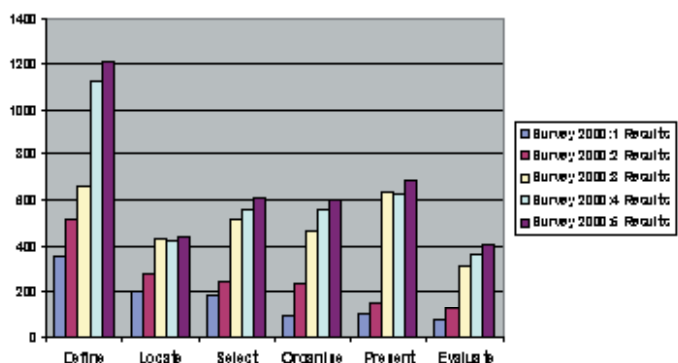
Year 9 2002 Results

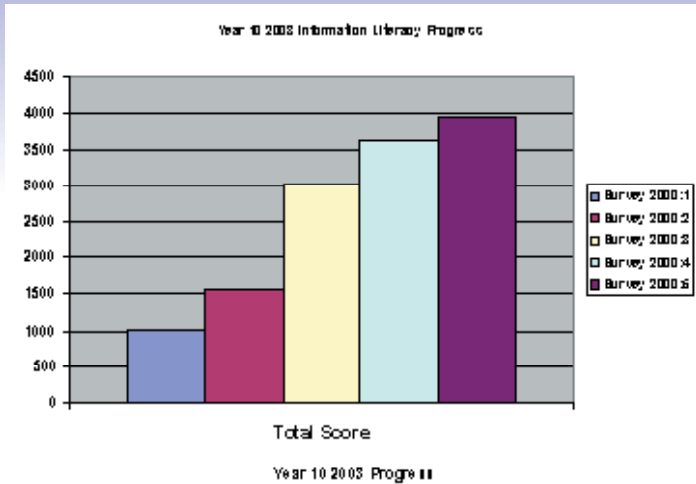


2003

Cohort 1 moved into Year 10. The fourth year of the Project was especially challenging for the library staff. Cohorts 2, 3 and 4 had joined the Project. Data was being collected and analysed for each of these groups of students. As well, new units of work and assignments were being developed and existing assignments refined. The Year 10 classes were not required by their subject teachers to undertake any research tasks in Semester 1. In addition, up to two thirds of the Year 10 students had opted to accelerate and undertake a Unit 1 VCE subject. This was another challenge as the cohort was more dispersed within the curriculum. Work experience for Year 10 was scheduled for the end of Semester 1. All these factors combined and it was not until Semester 2 that they were involved in research. Once again the Research Organiser became the tool that was used to monitor their progress. This was completed for an assignment on the Universe undertaken as part of the Science curriculum. Their results show that over the four year period from the commencement of Year 7 to the conclusion of Year 10 there has been measurable improvement in their information literacy skills.

Year 10 2003 Information Literacy Progress





Teacher librarians

Participation in evidence based practice has been the source of immense satisfaction for the teacher librarians. To see students approach tasks with interest and purpose and to see the improvements in students' skill levels shown in their work and portrayed graphically is gratifying. The analysis of the data/evidence provides a focus for improvement when units of work and assignments are being developed or reviewed. The evidence has provided the teacher librarians with a diagnostic tool that enables them to adjust their practice. They know about particular cohorts of students and are able to design curriculum tasks to develop and extend specific skills that are required. Their professional standing and credibility has been enhanced because they have paid attention to student learning outcomes and can demonstrate that these have improved. They are supported by the teaching staff which understands that the teacher librarians are colleagues and partners in the joint enterprise of engaging learners in meaningful tasks. The Principal and leadership team are attentive to and supportive of initiatives.

Principal and leadership team

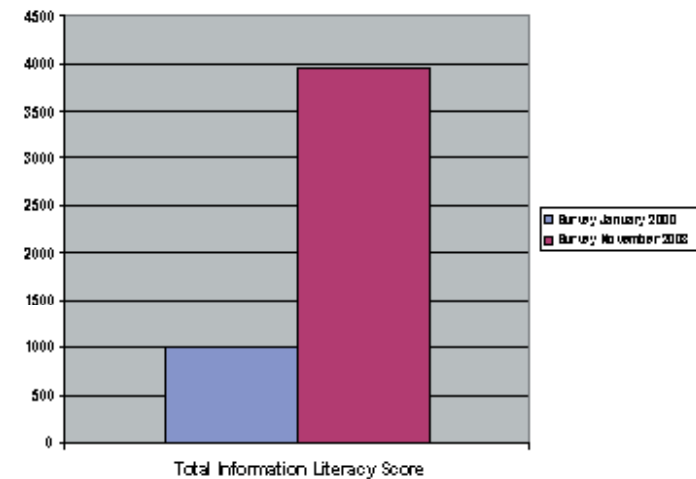
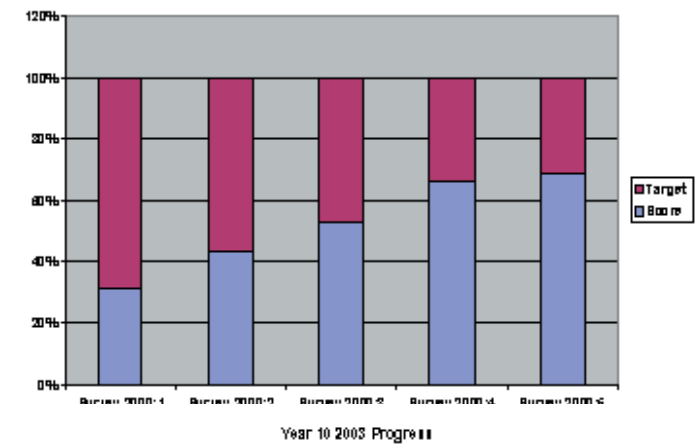
They appreciate that the teacher librarians have a developed structured programme for Years 7-10 which has as its main purpose improvement in student learning outcomes. They are kept informed about student progress through the accountability measures that are part of the Project's structure. They are confident that the human and financial resources allocated to the Library are well utilized. They also appreciate that the Project is attractive to prospective parents.

Teaching staff

Members of the teaching staff are no longer alone in planning units of work and assignments, they are part of a team. They have reflected on the philosophies underpinning the Project and discussed pedagogy and new approaches with their colleagues. They have received feedback about the skill level of students at different year levels and are supported by the teacher librarians in assessing the students. They have tried new ideas and can see that their students are more confident learners. They have a systematic approach to planning assignments and use the style and scaffolds that have been developed and published as part of the Project.

Parents

Regular articles in the College Newsletter have kept parents informed about the skill development of their daughters. Parents have made positive comments to Library staff on College Open Days and Information Evenings. They are appreciative of the programme that is offered and in the case of parents new to the College, see it as an incentive to enrol their daughters.



There have been benefits for all the participants and stakeholders in the Information Literacy Project at Santa Maria College.

Students

Student learners are supported with note taking and literacy scaffolds to complete research assignments that contain logical step by step instructions and achievable tasks. They have developed a range of skills to help them work systematically through tasks that engage them with higher level thinking. They are used to having conversations about learning and thinking in the Library and having the learning process explicitly modelled. They have experienced success and are proud of their improvements.

Conclusion

By applying the theory of transformation leadership, using evidence based practice and effective project management techniques, a spirit of working together to improve the curriculum for students has emerged. The project has been successful in demonstrating that school libraries can lead the way with information literacy because:

- The learning dilemmas being addressed are understood and valued by the school community.
- The library team has articulated the educational benefits of the project in the context and language of the College's strategic plan.
- The work and progress has been appreciated and celebrated as a result.
- The purpose has been communicated in clear, brief language.
- Achievable goals have been set.
- The scale of the project has been matched to the library team's skills, staffing levels and service base.
- The team is implementing the plan.
- The data has provided evidence that educational outcomes for students have improved. (Ryan and Hudson 2003, p.40)

Keywords: evidence based practice, leadership, research, Santa Maria College

References

- 1994 Survey, *Librarians' News*, 12 (1) p.27-37
- At the cutting edge: a profile of Celeste McNicholas, *Scan*, 13 (3) 1994 p. 20-26
- Books & Beyond* second edition, Schools Commission, ACT 1979
- Caldwell B J and Spinks J (1992) *Leading the Self-managing School*, London: Falmer
- Learning for the future: developing information services in Australian schools* (1993) Carlton, Curriculum Corporation
- Lonsdale M (2003) *Impact of School Libraries on Student Achievement: a Review of the Research: Report for the Australian School Libraries Association*, ACER, Melbourne
- McNicholas C (1994) At the cutting edge: a profile of Celeste McNicholas, *Scan*, 13 (3) p. 20-26
- Prestebak J (1999) *Research on the relationship between school libraries and student achievement* at <http://www.mnlink.org/k12/researchbib.htm>
- Primary School Library Resources: Survey Results, *Librarians' News*, 10 (4) 1993 p. 9-18
- Ryan S and Hudson V (2003) Evidence-based practice, transformational leadership and information literacy at Santa Maria College, *Synergy*, 1 (1) p.29-41
- Todd R (2001) Transitions for preferred futures of school libraries: knowledge space, not information space; connection, not collections; actions, not positions; evidence, not advocacy. Keynote address International Association of Schools Libraries (IASL) Conference, Auckland, New Zealand, 2001.
- IASL conference 2001 virtual session: paper from Ross Todd**, available online at **IASL: school libraries online** [website] <http://iasl-slo.org/virtualpaper2001.html>
- Todd R (2002) Evidence based practice: the sustainable future for teacher-librarians, *Scan*, 21 (1), p. 30-37