

Student learning through Australian school libraries

Part I: A statistical analysis of student perceptions

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Introduction

Throughout the world, the need for evidence-based practice in education has been highlighted as a priority. Teacher-librarians in Australia have acknowledged and, in many cases, are now adopting evidence-based methods to highlight that *the work they do* in schools actually does make a difference. A substantial body of scientifically-based research from North America has shown a positive relationship between school libraries and student achievement (Lance & Loertscher, 2001; Haycock, 2003; Lance & Russell, 2004; Todd, Kuhlthau & OELMA, 2004).

In the Australian School Library Association (ASLA) commissioned review, *Impact of School Libraries on Student Achievement*, Lonsdale highlights the need for local research to be taking place rather than relying solely on US-based research findings:

Several recent trends suggest that a review of the literature on the impact of school libraries on student achievement in an Australian context is urgently needed. . . . While there is a substantial body of research since 1990 showing a positive relationship between school libraries and student achievement, many of these studies are based on overseas data. If practitioners in Australia are to mount a strong case for recognising the positive impact of school libraries and school librarians on student learning, however, then it is important to know how applicable the existing research is to an Australian context and what kind of additional research might be needed to demonstrate the positive relationship between school libraries and student achievement. (Lonsdale, 2003, p. 1)

Furthermore, the increased emphasis on accountability within education systems makes the demonstration of school library impacts on

student learning outcomes an imperative for the Australian teacher-librarianship profession (Oberg, 2001). This article provides an overview of a research project designed to provide local evidence of how Australian school libraries support student learning, and present findings based on the analysis of quantitative student survey responses.

Purpose of the study

The *Student Learning through Australian School Libraries* project was conducted in July 2004 through to June 2005. This study was a replication of the 2003 United States study, *Student Learning through Ohio School Libraries*, conducted by the Center for International Scholarship in School Libraries (CISSL) at Rutgers, the State University of New Jersey (Todd, Kuhlthau & OELMA, 2004).

Todd and Kuhlthau's work with the state of Ohio was designed to "examine the multi-dimensional dynamics of student learning through effective school libraries, and specifically from the perspective of students" (Todd, 2004, p. 1). This 'student voice' approach was adopted in preference to the work of Dr. Keith Curry Lance and colleagues' analyses of school library demographic data with standardised test scores to identify predictors of academic achievement (Lance & Loertscher, 2001). Opportunities for comparative analysis of the Australian and US results, as well as the development of a simple online survey programming shell to be used to support future replications at national, state, district or individual school level were also planned outcomes of this Australian research project.

Identifying best practice

Findings from North American studies in the 1990s show that a direct correlation can be made

This article is the first part of an extensive report into recent research by Lyn Hay into the relationship between student learning and school libraries in Australia. It is a replication of the 2003 United States study, *Student Learning through Ohio School Libraries*, conducted by the Center for International Scholarship in School Libraries (CISSL) at Rutgers, the State University of New Jersey by Dr Ross Todd and Dr Carol Kuhlthau.

This is a refereed article

between student achievement and school library programs led by school library professionals whose dual teaching and library training qualifies them to: teach information skills; promote reading and facilitate literary learning; assist teachers and students to locate and critically evaluate information and synthesise their findings into new knowledge; effectively use technology tools to support teachers and students information seeking and knowledge creation; organise and maintain an update-to-date and relevant collection, and

provide equitable intellectual and physical access to resources; and maintain a supportive and nurturing information environment to increase student satisfaction and learning achievement (Woolfs, 2004; Haycock, 2003).

An assumption of the study being reported here is that a "school library program that is adequately staffed, resourced, and funded can lead to higher student achievement regardless of the socioeconomic or educational levels of the community" (*School Libraries Work!*, 2004, p. 6).

TABLE 1: SELECTION CRITERIA

CRITERIA 1 – Supporting Learning and Teaching

The school library effectively contributes to the school's program for integrating the development of information literacy and ICT literacy, and works with teachers to support the learning needs of students:

- By developing school library policies and programs that reflect the philosophy, goals, policies and priorities of the school community and education system;
- By providing time, space, electronic, physical and human resources for resource-based learning activities;
- By providing a school-wide program that addresses information literacy and ICT literacy skills development across key learning areas;
- Having the teacher-librarian collaboratively plan, implement and evaluate with classroom teachers to expose students to resource-based inquiry, and process learning through thinking and problem-solving activities;
- By applying assessment processes to provide evidence of student progress, and promoting reflective practice to improve learning and teaching;
- Through engaging teachers and students in a range of literacy and literature-based activities to promote free voluntary reading and foster a love of literature; and
- By providing training opportunities for teachers in the use of new information resources and ICTs and their use in curriculum contexts.

CRITERIA 2 – Resourcing the Curriculum

The school library provides a relevant, dynamic and responsive collection of information resources to support the school curriculum, and facilitates access to information through school library systems and services:

- By providing teachers and students with up-to-date resources in a variety of media formats and readability levels that are aligned with the curriculum;
- By providing users with a range of access services through library and information management systems such as automated library catalogues, intranets, web pages, resource lists, etc;
- By continually monitoring collections and developing directions and priority areas to effectively resource the curriculum within budget targets;
- By providing access to information resources beyond the existing school-based collection, including the use of technologies to acquire and disseminate information, and the school library functioning as a gateway to information, eg. Internet resources, resource-sharing networks;
- By ensuring that assistance is available to teachers and students in using information systems and ICTs, including clear and inviting signage and navigation instructions.

CRITERIA 3 – Providing a Learning Environment

The school library acts as the information centre or 'hub' of the school:

- By providing adequate space and facilities to accommodate users, information resources, equipment and ICT systems;
- By providing space and facilities that suit resource-based learning and teaching programs;
- By developing activities to promote the use of information resources and services for both curriculum and recreational purposes, including independent reading, viewing and listening, and literature-based initiatives; and
- By providing access to a resource-based learning environment that is open and staffed adequately to accommodate class groups, small groups and individuals, and outside of normal class hours where appropriate (eg. before/after school, lunch etc).

. . . a direct correlation can be made between student achievement and school library programs led by school library professionals . . .

Thus the schools selected for this study needed to reflect these 'hallmarks' of an effective school library program. A set of selection criteria was developed with the assistance of a consultative panel of sixteen Australian school library 'experts' consisting of school library practitioners, academics and consultants representing all states within Australia. Panel members were also recruited for their expertise across both primary and secondary school sectors, public and independent education systems, and state and national professional association interests.

Their task was to assist in the development and validation of a set of selection criteria representing best practice in the provision of school library programs for Australian schools that support student learning. The selection criteria was based on the concepts and language adopted in the Australian standards document for school libraries, *Learning for the Future* (ASLA & ALIA, 2001) and was used to assist schools in determining their eligibility in nominating their school library and community to participate in the study. (See Table 1: Selection Criteria, opposite).

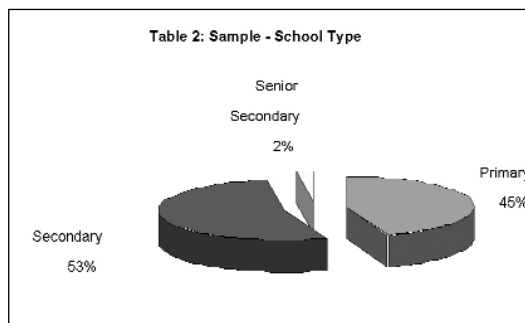
In addition, nominating schools were required to meet the following specifications to be eligible for inclusion in the study, including:

- Istudents in grades from within the ranges of Year 5 primary through to Year 12 in upper secondary;
- Ithe existence of a physical school library building or designated space as part of the school's facilities;
- the employment of a full-time teacher-librarian possessing dual qualifications in teaching and library/information management (as recognised by the Australian Library and Information Association); and
- a school library program where the teacher-librarian works with both teachers and students as part of an information literacy instructional program.

For the purposes of this study, schools were also required to have either networked computer access and/or library facilities that could provide access to the Internet to support the successful completion and submission of web-based teacher and student questionnaires. Involvement of schools was also dependent upon the teacher-librarian staff at each school agreeing to liaise with the researcher as the school's contact person for the purposes of the study, and to coordinate the school's submission of student and teacher questionnaires.

Research sample

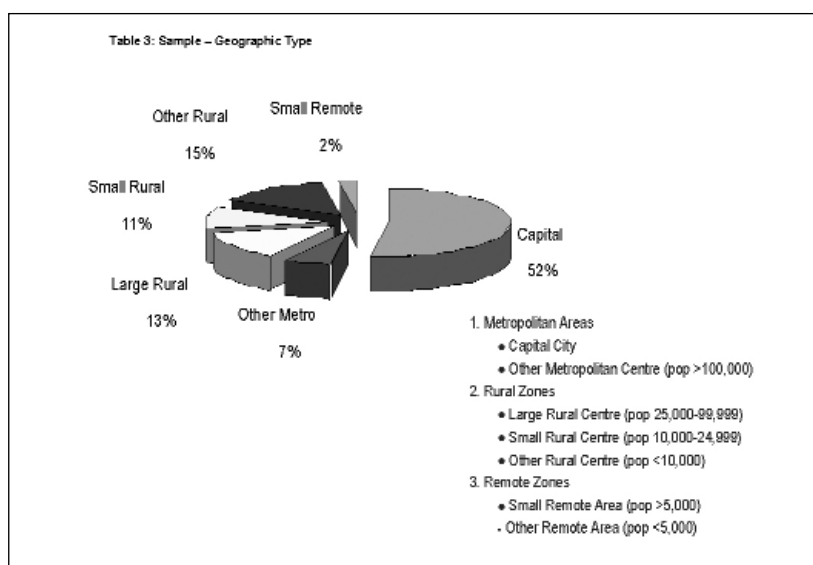
A call for nominations across the states of Queensland and Victoria resulted in a nomination pool of 63 public schools who believed their school library program met the selection criteria of an effective library program that supports student



learning. State-based selection panels with 'local knowledge' then employed the set of criteria (as per Table 1) to evaluate and select schools from this nomination pool for sample inclusion. A total of 47 schools were originally selected, with one school dropping out during the data collection phase, resulting in a final sample of 46 schools.

Of the 46 schools in the sample, just one was a senior secondary school (Years 11-12 only), and another in the sample had both a primary and secondary school campus as illustrated in Table 2: Sample – School Type (above).

Participating schools were coded by geographic type using two Australian classification schemes – the Rural, Remote and Metropolitan Area Classification (RRMA) (Victorian Department of Primary Industries & Energy/Department of Human Services 1994; School of Rural Health, Monash University 2004) and the ASGC Remoteness classification scheme (Australian Bureau of Statistics 2001). These classification schemes determine remoteness scores for Australian towns based on their population size and metropolitan/rural/remote location. The ASGC Remoteness classification scheme provides less detail for metropolitan and rural areas outside capital cities, and with 48% of the school sample located in areas other than capital cities, the additional metropolitan category



within the RRMA scheme (as illustrated in Table 3 below) proved useful when analysing demographic data with students' perceptions of particular forms of school library 'help'.

Survey design

Two web-based survey instruments were designed to collect data, one for students and the second for teaching staff. The *Impacts on Learning Survey* was designed for Year 5 to Year 12 to identify how the library has 'helped' them with their learning. This instrument consisted of Likert responses to 48 statements of 'helps' (based on the Ohio study's 48 statements of 'helps') and an open-ended critical incident question asking students to recount recent experiences when their school library helped them with their learning, including the type of help they received, and what this assistance enabled them to achieve. While modifications were made to the language used for some statements, eg. the term used for assignment 'grades' was changed to the word 'marks', the intent of each of the 48 statements were not changed. The 48 statements were grouped according to seven different 'blocks' of help, these included:

1. How helpful the school library is with getting information you need (GETTING INFORMATION)
2. How helpful the school library is with using the information to complete your school work (USING INFORMATION)
3. How helpful the school library is with your school work in general (KNOWLEDGE)
4. How helpful the school library is with using computers in the library, at school, and at home (COMPUTING)
5. How helpful the school library is to you with your general reading interests (READING)
6. How helpful the school library is to you when you are not at school (INDEPENDENCE)
7. Now, some general things (ACADEMIC ACHIEVEMENT)

Upon examination of the findings of the Ohio study, two additional demographic questions were introduced to the student survey instrument. As Lance and Russell (2004, p. 15) observe "Successor studies are best designed when they seek to answer some . . . new questions as well as confirm the answers to the original ones".

For example, in Block 4 (Computers) students are asked to rate how helpful the school library has been with their use of computers in the library, at school, and at home. This raises such questions as "How many students also have access to a computer and Internet access in their home to support their learning?", "Are responses to Block 4 questions significantly different between those students with access to a PC and the Internet at home versus those students without such access?",

"Is the school library 'help' with regard to digital information access and use viewed as less helpful to students with a PC and Internet access at home, or is the school library's 'help' perceived as fundamental to these students' ability to effectively use digital information?" Therefore, Australian students were asked to select one of three possible options in response to the statement 'I have a computer with Internet access at home', by answering with either 'Yes', 'No' or 'A computer, but no Internet access'.

Secondly, an examination of statements in Blocks 4, 5 and 6 also begs the question, "Do students seek library-, reading- and information-based support beyond their school library?" For example, in Block 5 (Reading) students are asked to provide a rating for statements such as 'The school library has helped me find stories I like' and 'The school library has helped me read', while in Block 6 (Independence) students are asked to rate how much the school library has helped them in finding information even when they are not at school. Therefore, Australian students were asked to answer 'Yes' or 'No' to the statement: 'I also use the public library to support my school work'.

These two additional demographic variables were also designed to test for significant differences (if any) between students living in city versus rural and remote locations with regard to physical access to information and computer technology in the home, differences between city and regional students' use of public library facilities, and to test for differences with regard to the impact of school library 'help' across these demographics.

Online data collection and analysis

The student and teacher surveys were mounted as part of an online data collection facility hosted on Charles Sturt University's ISPG server. This facility used ZOPE, an open source web application server primarily written in the Python programming language. ZOPE features a transactional object database which can store not only content and custom data, but also dynamic HTML templates, scripts and relational database (RDBMS) connections and code. It has a high level of security, and once the necessary data collection facility objects have been created, it provides non-programmers with easy access to the edit, management and view functions for files and data stored on a web server (Fellows)¹. The intention is to employ this online data collection facility at CSU for further replications and/or future survey-based adaptations of the Ohio and Australian student learning research projects.

As per the Ohio study (Todd, 2003), the central feature of the survey was soliciting students' perceptions of the extent to which the school library has helped them at school and at home. The survey was estimated to take about 20 minutes of a student's time. No names appeared on the survey, and for the purposes of analysis, once

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data were cleaned up, all individual school and student identification numbers (unique numbers assigned by each school's teacher-librarian) were removed. During the data collection process the ISPG server also recorded the IP address of the computer or network used by respondents to submit their surveys. These IP addresses proved useful in matching 'stray' responses (those survey submissions entered without a correct school identification number entered) with their assigned school. Again, once data were cleaned up, all IP addresses were removed. This was done to ensure the highest level of anonymity in the responses and reporting of data.

The administration of the surveys in schools conformed to strict ethical guidelines. Charles Sturt University Ethics in Human Research Committee, Queensland and Victoria education system, individual school and parental/student approval was required. Student participation in the survey was voluntary, and individuals could withdraw from the survey at any time by simply closing the web browser on the computer terminal.

In order to answer the survey questions, students were instructed to think of all the times they have used the school library, including library classes, to support their learning. They were also asked to think about the help they have received from their teacher-librarian, and how this help has benefited them. As per the Ohio study, the collective label 'school libraries' was used to encourage students to think widely of all school library services, rather than focusing solely on the role and/or personality of their teacher-librarian (Todd, 2003).

For each of the 48 statements in the survey, students were asked to reflect on each statement and select one of the ratings (below) that best matched how much they thought the school library has helped them:

- | | |
|------|---|
| ✓✓✓✓ | = most helpful (you think you got a great amount of help) |
| ✓✓✓ | = quite helpful (you think you got a good amount of help) |
| ✓✓ | = some helpful (the help you got was OK, so so) |
| ✓ | = a little helpful (you think you just got a bit of help) |

If you do not know an answer, or if something does not apply to you, click the box 'Does not apply'.

To enable data analysis, the following coding was set up:

most helpful	4
quite helpful	3
some help	2
a little help	1
does not apply	0

The quantitative data was carefully examined and prepared for analysis using SPSS ("Statistical Package for the Social Sciences") Version 13.0 for Windows. SPSS was used to calculate frequency distributions and used the chi-square test to identify significant differences for demographic data such as age, year level (or grade), school type (including geographical classification), student access to Internet at home, and student use of the public library. Cross tabulations were also calculated to identify correlations between student age and school type; grade and geographical classification; grade and home Internet access; grade and public library use; geographical classification and home Internet access; geographical classification and public library use; and home Internet access and public library use.

For each of the seven blocks of school library help, Analysis of Variance (ANOVA) tests were conducted to identify any significant differences across scores in all blocks between students from different geographical locations, between students with/without Internet access in their home, and between students in different grades. T-tests were used to identify any significant differences across each of the blocks between students who identified themselves as a public library.

Student demographics

The following quantitative findings and conclusions are based on a data set of 6718 valid student responses. Students from Years 7, 8 and 9 provided the highest number of responses (54.8% of the total sample) with Year 7 being the largest group (21.1% of the total sample). Years 11 and 12 provided the lowest number of responses (9%); this was largely due to the timing of the data collection phase (October-November) when many of these students were sitting for final exams. The majority of the student sample consisted of 11-15 years age range (78.6%), with 13.1% of students 16 years and over, and students aged 9-10 making up 7.8% of the total sample.

According to three major categories identified by the Rural, Remote and Metropolitan Area Classification (RRMA), of the total student sample of 6,718, 64.5% of these students came from metropolitan areas, 34.9% from rural zones and 0.5% of the student sample could be classed as living in remote locations. This distribution is comparable to the projected national average of Australia's population living in capital cities (63.8%) in 2004 (Australian Bureau of Statistics, 2005).

The difference between the numbers of students with computer/Internet access was significant in that the majority of students (80.3% of the total student sample) had access to both a PC and the Internet at home, whilst a further 11.8% had access to a computer with no Internet connection, and 5.4% of the students without access to any computer in the home. According

“The information in the school library has helped me work out the questions for the topics I am working on.”

to Department of Communications, Information Technology and the Arts (DCITA, 2005) figures, by September of 2004, 68% of Australian households owned PCs while 61% of households had Internet access at home. Based on March 2004 figures (DCITA, 2004), the average number of Australian children between the ages of 0-17 years using the Internet, regardless of location of access (eg. home, school, etc), has been calculated at 78.3%. This suggests that the student sample with home Internet access for this study is above the national average.

Over half of the students (53.1%) with a PC at home with Internet access and 54.3% of students who own a PC without Internet access at home stated that they use a public library. In contrast, just over half (51.8%) of the students who did not have access to a PC or Internet at home stated that they also did not use a public library – this equates to just under 3% (188 students) of the total sample having no access to library support, or PC/Internet resources beyond that provided by their school. Although a small percentage of the total sample, this group has been identified as an ‘at risk’ group requiring further investigation.

Overall results for student help

Only 42 respondents out of 6718 indicated that none of the 48 statements applied to them – this was 0.60% of the total sample. In other words, 99.40% of the sample (6,676 students) did indicate that the school library and its services, including roles of the teacher-librarian, have helped them in some way, regardless of how much, with their learning in and out of school as it relates to the 48 statements. This is similar to the results of the Ohio study, with 99.44% of Ohio students indicating that the library has helped them in some way with their learning (Todd, 2003, p. 21).

A number of overall results from this Australian study mirror those of Ohio’s results. Namely, the overall top three levels of help rated by the Australian students related to forms of school library ‘help’ to do with ‘getting information’ (from Block 1). These included (in rank order):

- 1st Q12 “The information in the school library has helped me work out the questions for the topics I am working on” (96.3%);
- 2nd Q11 “The school library has helped me know the different steps in finding and using information” (95.7%); and
- 3rd Q13 “The school library has helped me find different sources of information (such as books, magazines, CDs, websites, videos)” (94.8%).

While in a different order, these three forms of school library ‘help’ are exactly the same as those ranked by Ohio students as the top three levels of help they have received from the school library to support their learning. Table 4 (opposite page) summarises the complete rank order of all

48 school library ‘help’ statements and corresponding percentage as rated by Australian students.

One-third of the statements listed in the top 12 levels of help were from Block 1 which confirms the important role the school library and teacher-librarian play in providing students with access to an up-to-date and diverse range of resources to meet their information needs, and providing instruction in effectively using information technologies and tools to locate relevant resources (eg. Q11 and Q13).

Responses acknowledged the important role of the school library in providing students with the intellectual scaffolds necessary to facilitate informed inquiry in the initial stages of an information search process such as ‘focus formulation’ (Kuhlthau 1993), for example, helping them work out the key questions they need to explore for a certain topic was rated the most highly by students (Q12 with 96.3%). This means that only 3.7% of the total sample indicated the library had *not helped* them with regard to the facilitation of informed inquiry (Q12). School library help with regard to the ‘locating’ and ‘selecting’ phases of the information process (ASLA 1998) was also rated highly by students with regard to the critical evaluation skills necessary to determine the quality and authenticity of information found and be able to discard information that is irrelevant or extraneous to a specific information task (Q14).

Statements from Block 2 also comprised one-third of the statements listed in the top 12 levels of help. This suggests that a school with a dually qualified teacher-librarian plays a significant role in assisting students construct new knowledge by helping them evaluate, interpret and analyse the main ideas presented in the information found (Q22), providing students with the skills and understandings to make informed decisions and develop independence in meeting their own information needs when faced with future problems, questions or tasks (Q21 and Q26), and understanding the multiple dimensions (cognitive, affective) and complexities when engaging with information and creating new knowledge (Q27).

The remaining third of the top 12 levels of help also highlights the critical role the school library plays in students’ learning experiences with regard to knowledge construction (Block 3), and the effective use of technology and digital information (Block 4). The school libraries in this study show that a well-resourced facility with an information-based instructional program in place helps student learn more about their topics (Q34 ranked fourth overall), and is an information environment that supports students in their endeavour to find relevant factual information when being introduced to new concepts and ideas (Q33). Students also regarded highly the technology support provided by the school library in helping them locate relevant information both inside the school and

Responses acknowledged the important role of the school library in providing students with the intellectual scaffolds necessary to facilitate informed inquiry.

Table 4: Rank Order of Statements & Corresponding Percentages

Statement of Help	Percent
Q12: The information in the school library has helped me work out the questions for the topics I am working on	96.3
Q11: The school library has helped me know the different steps in finding and using information	95.7
Q13: The school library has helped me find different sources of information (such as books, magazines, CDs, websites, videos) for my topics	94.8
Q34: The school library has helped me learn more facts about my topics	94.7
Q22: The school library has helped me work out the main ideas in the information I find	93.7
Q43: Computers have helped me find information inside and outside of the school library	93.3
Q41: Computers in the school library have helped me do my school work better	93.0
Q21: The school library has helped me know how to use the different kinds of sources (such as books, magazines, CDs, websites, videos)	93.0
Q33: The school library has helped me get the first facts about my topics	92.9
Q26: The school library has helped me think about how I should go about finding information next time	92.5
Q14: The school library has helped me know when I find good information	92.2
Q27: The school library has helped me know that research takes a lot of work	92.1
Q35: The school library has helped me when I do not understand some things	91.1
Q16: The school library has helped me feel better about finding information	90.8
Q72: The school library has helped me get better grades on my projects and assignments	90.8
Q17: The school library has helped me feel better about asking for assistance when I go there	90.7
Q71: The school library has helped me do my school work better	90.7
Q46: Computer programs (like Powerpoint, Word, and Excel) in the school library have helped me do my school work	90.4
Q15: The school library has helped me find different opinions about my topics	90.3
Q24: The school library has helped me put all the ideas together for my topics	89.9
Q28: The information I have found in the school library has helped me become more interested in my topics	89.7
Q51: The school library has helped me find stories I like	89.1
Q44: The school library has helped me search the Internet better	88.3
Q23: The school library has helped me get better at taking notes	88.0
Q63: The things I ve learned in the school library have helped me study at home	87.8
Q39: The school library has helped me connect different ideas I already have	87.6
Q37: The school library has helped me change my mind about some things I thought I knew	87.5
Q47: The school library has helped me feel better about using computers to do my school work	86.7
Q38: The school library has helped me figure out my own opinions on things	86.7
Q25: The school library has helped me put ideas in my own words	86.6
Q45: The school library has helped me be more careful about information I find on the Internet	86.1
Q68: Information in the school library has helped me decide what I need to do next with my school work	85.5
Q74: The school library has made me think harder about my school work	85.5
Q52: The school library has helped me read more	85.0
Q36: The school library has helped me figure out if my own ideas are good or bad	84.9
Q75: The school library has helped me more feel confident about doing my school work	84.5
Q31: The school library has helped me remember my school work	84.3
Q61: The school library has helped me discover interesting topics other than my school work	80.0
Q42: The school library has got me more interested in computers	82.9
Q73: The school library has helped me get better grades on tests and quizzes	84.1
Q66: The school library lessons have helped me solve problems better	83.1
Q54: The school library has helped me enjoy reading more	81.9
Q53: The school library has helped me get better at reading	81.6
Q64: The school library has helped me get more organized with my homework	80.5
Q3A: The school library has helped me talk more in class discussions	80.2
Q55: The school library has helped me be a better writer	79.6
Q65: The school library has helped me find information even when I am not at school	75.2
Q67: The school library has helped me when I have a personal concern or issue	66.7

. . . school libraries in this study show that a well-resourced facility with an information-based instructional program in place helps student learn more.

beyond (Q43), as was access to computers to help them complete their school work (Q41).

Key findings per block of school library help

Analysis of students' responses to the 48 statements from different grades (Years 5-12) identified a number of significant differences across all seven blocks of school library help. This section presents a series of tables plotting mean scores by grade level for each block, accompanied by summaries of key findings and patterns in the data. Across all blocks student scores in Year 5 were significantly different from all other year groups. Specifically, the Year 5 means were significantly higher than the means of all other grades. The tables presented below and opposite (Tables 5, 6 and 7) illustrate this overall trend across all seven blocks.

Block 1 included statements describing the different ways the school library helps student 'getting information'. Table 5 shows that overall Year 5 students rated the school library as *quite helpful* across all seven help statements within Block 1.

The statement "The school library has helped me feel better about asking for assistance when I go there" (Q17) was the most strongly endorsed of all Block 1 statements, with 1773 students (26.4% of the student sample) indicating the library had been *most helpful* (mean = 4) in this area. This suggests that these students feel very comfortable when seeking assistance from the teacher-librarian and library support staff, and feel confident that the school library's resources and services with help satisfy their information needs.

The statement "The information in the school library has helped me work out the questions for the topics I am working on" (Q12) had the highest mean for Block 1 (mean = 2.69), and was the highest overall ranked statement (fourth highest mean) that did not involve computer use in the library. In contrast, the statement "The school library has helped me find different opinions about my topics" (Q15) scored the lowest mean for Block 1 (mean = 2.26), however the most common help rating for this statement was *quite*

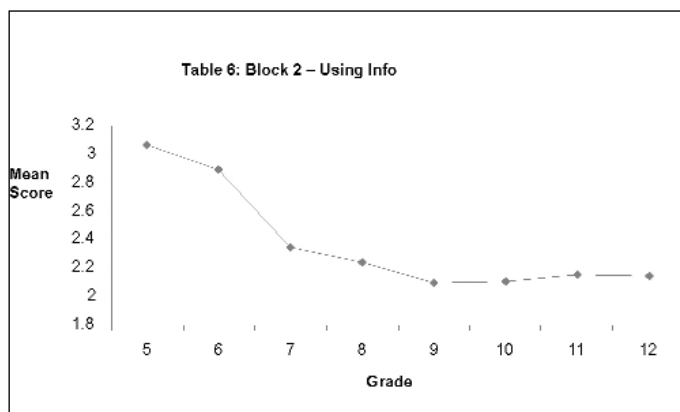
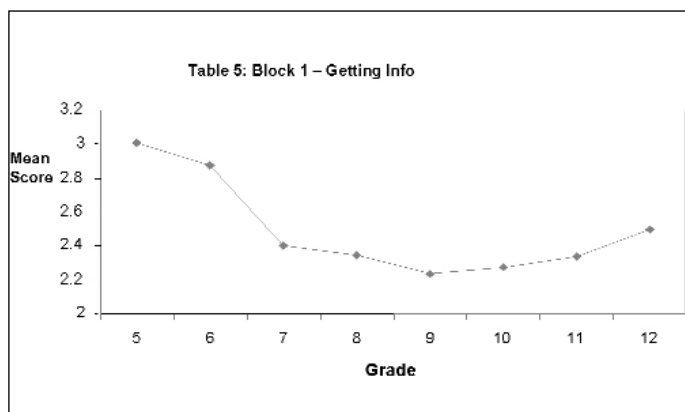
helpful. This suggests that overall the library offers significant assistance to students in providing multiple viewpoints of a variety of topics or subjects.

Block 2 statements explored with ways the school library helps student with using information to complete their school work. The statement "The school library has helped me work out the main ideas in the information I find" (Q22) was valued by a large proportion of the sample, with only 6.3% of students indicating that this help did not apply to them. In addition, the statement "The school library has helped me put ideas in my own words" (Q25), while having the lowest mean for Block 2 (mean = 2.17), was still rated by over 85% of the total student sample as being a form of assistance the school library provided to support their learning. This statement highlights the pivotal role the teacher-librarian plays as a teacher of critical thinking and problem-solving skills, assisting students interrogate, evaluate, analyse and interpret ideas and issues they encounter through resource-based activities, and helping them synthesise these ideas into their own words, hence contributing to the creation of new knowledge.

Students also strongly endorsed that the school library has helped them understand the complexities of completing research tasks, ie. it "takes a lot of work" (Q27). This statement had the highest mean for Block 2 (mean = 2.59) with the lowest proportion of students indicating the library provided only a *little help* in this area (only 12.9%).

Block 3 statements asked the students to comment on how helpful the school library was with completing their "school work in general". The analysis of responses showed that the school library has played a strong role in helping students get the first facts for their topics (Q33), with 92.2% of the total sample in agreement that the school library had helped them in this aspect of learning.

Even stronger views were voiced by students with regard to the school library helping them learn more facts about topics they explore as part of their school work (Q34) with 93.7% of



students indicating that the library has helped them. This statement also scored the highest mean for Block 3 (mean = 2.66). In addition, 86.5% of students believed the school library has helped them change their opinion about things based on the presentation of facts and viewpoints, enhancing their understandings (Q37) – again, an example of the teacher-librarian’s expertise in knowledge building.

Block 4 statements focused on how helpful the school library has been in supporting students’ use of technology in the library, at school, and in the home. Australian students saw a very strong role of the school library’s computers in helping them to do their school work better (Q41). 92.4% of the Australian students (compared to Ohio’s 84.9%) indicated that school library computers have helped them do their school work better. This dimension also had the second highest mean score in the data set (mean = 2.81), with almost 40% of students indicating the library had been *most helpful* in this area. This difference when compared to Ohio may be as a result of Australian students living in rural and remote areas being more dependent on the school for providing access to computer technology and resources.

The statement “Computers have helped me find information inside and outside of the school library” (Q43) was one of the strongest statements in the data set, with 92.2% of students agreeing that computers have helped them find information inside and outside the library. Over 42% of the total sample indicated that this dimension was *most helpful*. This statement has the highest mean of all statements in the study (mean = 2.85), and suggests that the school library plays a leadership role in assisting students develop the skills necessary to effectively use information and communication technologies to support their learning.

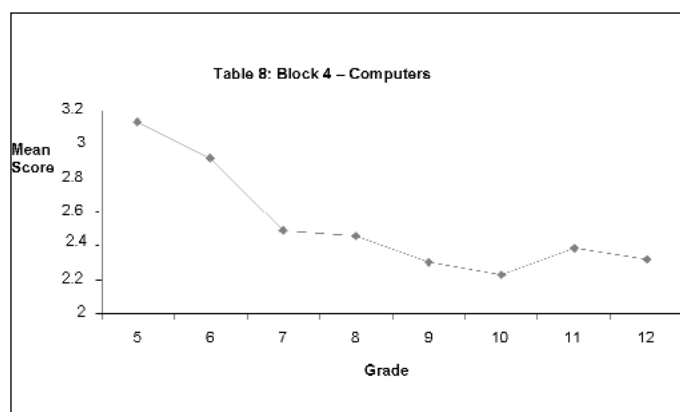
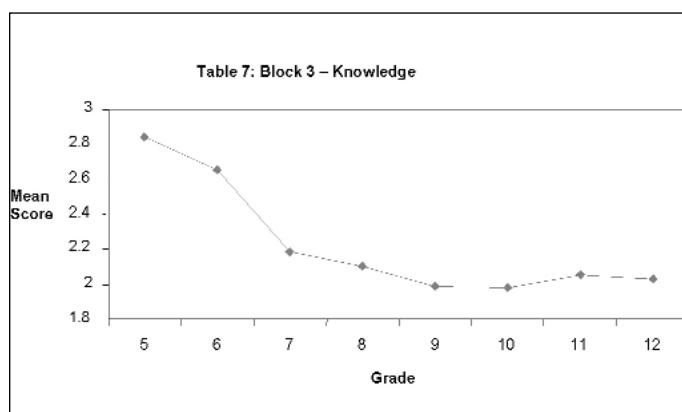
87.4% of the students indicated that the school library has helped them search the Internet better (Q44), with 30.3% agreeing the school library have been *most helpful* with this aspect of their learning. And while almost half of the student responses (49.3%) indicated their school library plays a

strong role in helping them be more careful with finding information on the Internet (Q45), this result suggests that more attention may be required within the school curriculum to further support students in their critical evaluation of information found, and to reinforce a range of strategies that students can employ when locating information independently, both during school time and when conducting information seeking activities by themselves when online at home.

Almost 40% of the sample indicated that computer programs (such as PowerPoint, Word, and Excel) in the school library has been *most helpful* in completing their school work, with 62% of the sample indicating that this was *quite or most helpful*. This dimension had the third highest overall mean for the study (mean = 2.72), suggesting that the school library plays an important role in the provision of technology tools to support students in the creation of information artefacts and in the publication of their school work.

In addition, 85.5% of students acknowledged that the school library has helped them feel more positive about using information and communication technologies to support their learning (Q47). It is also interesting to note (in Table 8) the sudden increase in Year 11 students’ perceptions of the school library’s helpfulness when using technology to support their learning in comparison to the ‘downturn’ in perceived help from Year 8-10 students. This could be due to the fact that a large number of subjects in senior secondary schooling demand higher levels of problem-solving and information-based inquiry to complete curriculum outcomes. Another contributing factor may be that some senior students are allocated timetabled ‘independent study periods’ in the library during each week, giving them greater access to the school library’s technology production facilities.

Statements in Block 5 asked student to comment on how helpful the school library has been in supporting their general reading interests. The statement “The school library has helped me find stories I like” (Q51) had the highest mean



rating for Block 5 (mean = 2.63), with over 60% of students indicating that the library has been *most helpful* or *quite helpful* in assisting them find stories to read. Almost 85% of students indicated that the library has offered help in relation to increasing their reading (Q52), with 81.1% of students indicated that the library has contributed to their progress in reading (Q53), and 81.4% of the students said that the library helped them enjoy reading more (Q54).

As Table 9 shows, the school library was rated very highly by Year 5 and Year 6 students as contributing significantly to their literacy and literary learning experiences at school, whereas senior secondary students' learning experiences with the school library program, as one would expect, predominantly does not involve reading support and literature-based initiatives.

Students were asked to rate how helpful the school library supports their learning when they are working independently from the school environment in Block 6 questions. 86.8% of the students said that the school library does support their studies at home (Q63) – this was the most strongly endorsed 'independent' statement in Block 6 (mean= 2.31). 84.1% of students indicated that the library has helped them in deciding what to do next with their school work (Q68), with over 40% suggesting the library was *most helpful* or *quite helpful* in this regard.

In contrast to these, students ranked the statement "The school library has helped me when I have a personal concern or issue" (Q67) lowest (mean=1.52) of all the 48 statements, with almost one third of the students indicating that this did not apply to them. This result also reflects the Ohio study's result for this statement, where nearly 40% of Ohio students stating that this form of school library 'help' did not apply to them.

The final group of statements in Block 7 asked students to consider how the school library has helped them with their overall academic achievement. Over 90% of students rated the school library as helping them do their school work better (Q71), with over 55% of students indicating the library was *most helpful* or *quite helpful* in this

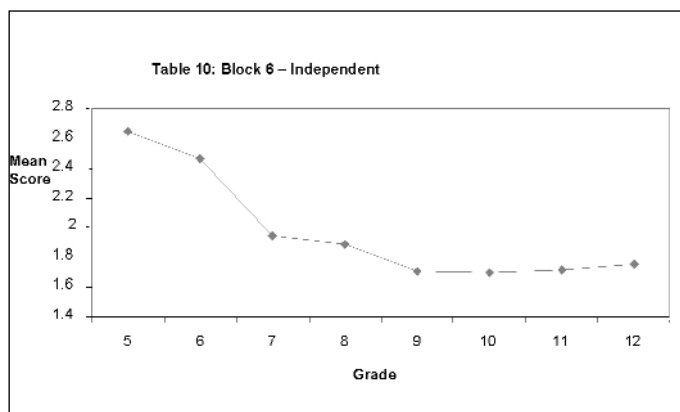
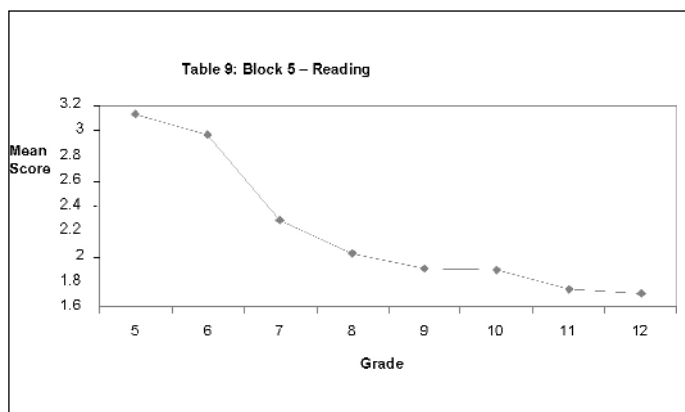
area (with a mean rating of 2.50). Almost 90% of students believed the library has assisted them in some way to improve their grades for assignments and projects (Q72), and this was the most strongly endorsed statement in Block 7 (mean = 2.58).

Similar to the Ohio study, students saw a clear link between the school library support they received and the grades they were awarded for project and assignment work. However, students did not make as strong a connection between school library support and being awarded better grades on tests and quizzes (Q73). This statement had the lowest mean ranking for Block 7 (mean = 2.11) and received the ninth lowest ranking overall across all 48 statements. It is interesting to note that the Australian students still saw the library as supporting them greater (over 65.2% based on the ratings *most*, *quite* and *some help*) compared to the Ohio students (50.7%). While the majority of the Ohio students said that it *does not apply* (24.6%), this rating was actually the lowest percentile (15.7%) of the Australian students' responses with regard to the school library's contribution to student achievement in examinations.

The school library's assistance in developing their confidence to complete school work (Q75) was also ranked significantly by Australian students (82.9%), with just under 50% agreeing that the library was *most helpful* and *quite helpful*.

As shown in Tables 10 and 11, overall Year 5, and to a lesser extent Year 6 students continued to rate the school library's help as being more significant with regard to their learning, even when working independently (away) from school. The mean plots across all seven blocks (as pictured in Tables 5-11) clearly illustrate the emergence of overall pattern where by the time students reach Years 9 and 10 they perceive the school library as helping them less than student in the lower and higher grade levels. This finding supports research by Burks (1996) and Lance (2001) who suggest that the impact of the school library support is reduced as students progress through high school.

This raises the question, "Why this middle



year 'dip' in perceived school library support?" Could it be that students, once they enter secondary school, find they have less access to the school library during class time and less opportunities to engage in resource-based learning tasks due to increased pressures of a larger school population on the library's facilities than in the primary school? What are the implications of this in terms of diminished opportunities to interact with the teacher-librarian as the school's information-based learning specialist? Or is it that as students in secondary school develop more independence as information users that they support they feel confident to find other sources and services to meet their information needs? Or do they find their lives become far too busy with personal, social and work-related demands impinging on their time? Burks (1999) found the main reasons to be a lack of time and motivation, and found that high teacher usage was linked to an increase in student use.

While the study being reported has asked more questions than provided answers, it does highlight the complexities underpinning this trend and confirms the need for further research in this area. As Lonsdale (2003, p. 31) states, "It is important to know why the influence of school libraries on the learning of students in upper secondary school is apparently less than at the junior levels so that appropriate strategies could be adopted to maximise the school library contribution to the learning of these senior students."

Other important patterns in the data

For each of the seven blocks of school library help, ANOVA tests were conducted in an attempt to identify any significant differences across each of the blocks between students from different geographical locations, between students with/without Internet access at home, and between students who use/do not use their public library. Some important patterns emerged in the data due to the inclusion of these additional demographic variables.

Country kids

With regard to geographical location, students from rural zones rated help from their school library significantly higher than students attending schools from metropolitan zones across all seven blocks except Block 5 (general reading interests), and both rural and remote students rated school library computer support higher than metropolitan students (Block 4). This suggests that students living in regional Australia who have access to school library facilities and the professional expertise of a dually qualified teacher-librarian use the school library in a multiplicity of ways that significantly contributes to their learning. Whilst schools in this sample exemplified best practice in school library and information service provision,

what can be said for those students in regional Australia who are not as fortunate to be attending a school with a well-resourced and well-managed school library facility with a staffing complement that can deliver an information literacy instructional program?

Culture of public library users vs non-users

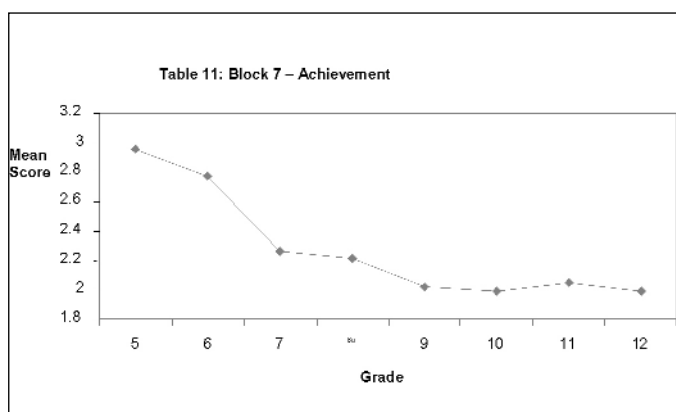
Students were asked to answer 'Yes' or 'No' to the statement: "I also use the public library to support my school work". As reported earlier, 51.5% of the total student sample stated that they *did* use their public library to support their school work.

The t-tests revealed that across all seven blocks there was a significant difference between students who use a public library and those who do not use a public library. For all blocks, students who use the public library reported that the school library was significantly more helpful compared to students who do not use their public library. Even with the exponential growth of information and communication technologies in schools and in homes over the past 15-20 years, it appears that 50% of students continue to supplement their school library support with the services offered by the public library system (Burk's 1996 study resulted in a similar finding). Thus, further collaboration between school libraries and public libraries may help increase student use across both sectors.

PC and Internet@Home

The same result was obtained across all seven blocks for the analysis that compared mean scores for each student 'group' relating to computer access at home. Specifically, for all blocks the following pattern of results were obtained:

- Students with a PC at home with Internet access had a significantly lower mean score for all seven blocks compared to those students without a computer at home or students who have a computer at home with no Internet access; and
- There was no significant difference in mean score across all seven blocks between those



students who did not have a PC at home versus those students who had a computer but without Internet access.

This suggests that students with Internet access at home perceive school library support as contributing less to their learning compared to students without Internet access or a PC at home.

Based on the many reports concerning the 'digital divide' in the past 10 years, one might assume that those students without PC or Internet access at home may be considered an 'at risk' group, and that teacher-librarians need to be mindful of developing programs or strategies to provide these students with greater access to computer technology and digital information resources at school so they are not disadvantaged. However, these lower results across all seven blocks from the PC/Internet home users in this study suggests that these students may in fact be 'at risk' because of the perceptions they hold regarding the 'value' or impact of the school library on their learning.

This conclusion is supported by Lenin and his colleagues findings (2002) where they conclude:

"Virtually all [school students] use the Internet to do research to help them write papers or complete class work or homework assignments . . . they use the Internet for school . . . as virtual textbook and reference library . . . For the most part, students' educational use of the Internet occurs outside of the school day, outside of the school building, outside the direction of their teachers."

However, research examining students' ability to use the Web have found that while students might believe they are adept information seekers using the Internet, many end up selecting inappropriate sites when looking for academic information (Broch, 2000; Ebersole, 1999 in Haycock, 2003, p. 45). While teachers and teacher-librarians may be available to work with students during school hours to critically evaluate Internet information and develop the skills and understandings required to detect misinformation from pertinent and authentic information, how can the school library support students' information searching behaviours and decisions while 'connected at home'? The development of virtual library collections with remote access to a school's intranet along with quality online databases and pre-selected authentic digital resources is a good starting point, however, what information literacy scaffolds can the school library develop to support these PC/Internet@Home users who could potentially become learners 'at risk'?

These additional patterns raise some serious questions with regard to physical as well as intellectual access to information for Australian students including the implications for student learning in regional and remote schools where

library facilities and staffing are under-resourced, or even worse, non-existent. Schools with large student populations that have Internet access at home also need to consider ways their students can be supported beyond school hours when completing information seeking activities.

Conclusion

The *Student Learning through Australian School Libraries* project has generated a substantial data set and there is further and significant analysis and reporting to be done over the coming months. The qualitative data collected as part of the student surveys is currently being analysed and will form the basis of a follow-up article (Part 2) to this report. Analysis of survey data collected from 518 teacher and 51 teacher-librarians from the 46 Australian schools in this study will also be forthcoming, as will analysis of student, teacher and teacher-librarian responses across schools, in an attempt to provide further insight into how school libraries exemplifying best practice work with regard to supporting student learning and achievement.

The findings from this study clearly demonstrate that the school library plays a critical role in supporting student learning. Findings from this study will be disseminated to support school library associations and state education systems to improve school library development, support and reform. Australian teachers, teacher-librarians and school administrators need to consider how best to use this evidence to support local action within their schools and districts.

Lance and Russell observe that replication is "essential for research findings to put down roots. It is too easy to dismiss studies . . . that were pursued in a unique setting . . . Most public policymakers are certain that their locality, state, or even nation is so unique that the findings of a study done elsewhere might or might not be true for their jurisdiction" (2004, p. 15).

The results of this study, along with the results of the Ohio study, clearly shows that such beliefs held by policymakers may in fact be ill-conceived. It is interesting to note that irrespective of different curriculum priorities, pedagogical methods, technology infrastructures and/or school library standards in the public schools surveyed across the states of Ohio, Victoria and Queensland in the *Student Learning through School Libraries* studies, that the top 12 levels of school library 'help' rated by the Australian students match those rated by students in the Ohio study (Todd, 2003, p. 21).

Similarly, in the 12 levels of school library 'help' rated the least helpful by Australian students, 10 out of these 12 levels were also rated overall by the Ohio students as being least helpful, with students from both samples rating "The school library has helped me when I have a personal

. . . one might assume that those students without PC or Internet access at home may be considered an 'at risk' group . . .

concern or issue" (Q67) as the least relevant form of school library support (66.7% of Australian students and 60.42% of Ohio students).

The significance of these initial comparisons supports the case for further replication, and suggests that further comparative analyses should be conducted in the future in an effort to 'dispel' the policymakers' myth.

Evidence shows that an effective school library program managed by a dually qualified, full-time teacher-librarian contributes significantly to student learning.

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