Featured articles by Professor Ross J. Todd

Articles:

1. Interventions that matter: Student learning through effective school libraries (2004)

2. **Learning as reflective practice - Ten principles for the future (2009)**

Interventions that matter: Student Learning Through Effective School Libraries

Dr Ross J Todd

In this paper, Dr Ross Todd provides an overview of the findings from the 2002-3 study titled 'Student Learning through Ohio School Libraries'. The paper aims to highlight the important findings from this study that illustrate the crucial link between the school library and student learning.

This paper provides a brief overview of the *Student Learning through Ohio School Libraries* research study, undertaken from October, 2002 through December, 2003. The findings of this study are comprehensive in scope, and this paper does not seek to address all aspects; rather, it gives attention to the nature of teaching and learning that helps students most with their learning through the school library.

Detailed reports of the findings are available at the CISSL website: <www.cissl.scils.rutgers.edu>. This state-wide study was funded by the State Library of Ohio grant to the Ohio Educational Library Media Association (OELMA) and was coordinated through Leadership for School Libraries (L4SL), a coalition of OELMA, INFOhio (the state K-12 network), the Ohio Department of Education and The State Library of Ohio. The research was undertaken by Dr. Ross J. Todd and Dr. Carol C. Kuhlthau of Rutgers University and the Center for International Scholarship in School Libraries (CISSL).

Aims of the study

Student Learning through Ohio School Libraries sought to identify how students benefit from effective school libraries by elaborating conceptions of 'help' and providing a measure of these helps as perceived by students. It collected both quantitative and qualitative data from the students, and specifically provided a mechanism for the students to voice their experiences on how school libraries help them with their learning in and out of school.

On the basis of the findings, the study sought not only to make recommendations for improving professional practice and shaping educational policy development, but also to provide focus on evidence-based practice to further encourage continuous improvement in effective library services which support academic content; and to identify professional development opportunities for continuing to develop effective school library programs.

The study was shaped by two environmental factors. First, the broader educational climate is putting increasing focus on standards-based education, accountability, performance excellence and school improvement, and there are increasing pressures for school librarians to more clearly demonstrate the link between school libraries and student learning outcomes.

While there is considerable evidence that professionally trained teacher-librarians, integrated information literacy programs, quality collections and access to networked information technology services impact on student achievement in statewide standardised tests (Lance, 2001), there is not a comprehensive picture of how school libraries help students with many other dimensions of their learning.

Second, in an increasing climate of cutting school library services, and a prevailing public perception that school libraries are marginal rather than integral to student learning outcomes, understanding how school libraries actually help students is critical. In addition, identifying dimensions of these helps provides a strong student-centered framework for continuous improvement and development, particularly in relation to the instructional dimension of school libraries.

In this context, a key role of this study was improvement of practice, rather than simply advocacy. Accordingly, the study did not explicitly explore how school libraries do 'not help', rather,

its emphasis was given to understanding the multi-dimensional nature of help.

This paper focuses on what this study from Ohio informs us about the teaching and learning role of the school library and the teacher-librarian. This learning-centered role stems from a long history of libraries being involved in bibliographic instruction. Bibliographic instruction dates from the 1870s when Melvil Dewey promoted the notion of librarians as educators, and librarians began programs of library instruction. These typically focused on acclimatising users to the

> library's system of organizing materials, the structure of the literature of the field, research methodologies appropriate to the discipline, and specific resources and finding tools such as catalogs, indexing and abstracting services, and bibliographic databases (Fry, Malone, & Rise, 2002).

Beginning in public libraries, bibliographic instruction then moved into the school libraries and college libraries in the 1960s, to capitalise on growing collections and developments in information retrieval systems. Since the 1990s, information literacy instruction has been the preferred term, and broadened to focus not just on the operations and processes of specific libraries, but to the development of a broad range of competencies relating to accessing and using information in appropriate and meaningful ways.

The teaching and learning role of teacher-librarians has traditionally revolved around two concepts: 'mediation' and 'intervention'. Kuhlthau defines mediation as the "human intervention to assist information seeking and learning from information access and use. . . . A mediator, however, implies a person who assists, guides, enables, and otherwise intervenes in another person's information search process" (Kuhlthau, 2004, p 107). Kuhlthau further distinguishes between mediator and intermediary, the latter being something that "intercedes between the information and the user, but this interchange may not involve any human interaction" (p. 107). Intervention centers on the way in which "mediators become involved in the constructive process of another person . . . in information seeking and use" (Kuhlthau, 204, p. 127).

Kuhlthau's extensive research on the information search process indicates that most intervention tends to be based on a source orientation and a certainty orientation, that is and, matching a person's query with the organised collection, and often with little attention to the user's process of construction through engaging with and using information.

She suggests that effective intervention needs to accommodate the holisitic experience of users in the information search process, particularly addressing evolving information needs and considerable uncertainties to accommodate initiating, selecting, exploring, formulating, collecting and presenting information as a process of constructing new understandings and meanings. She identifies Zones of Intervention, areas in which an information user can do with advice and assistance with what he or she cannot do alone or can do only with difficulty. These interventions enable users to progress in the accomplishment of their task (Kuhlthau, 2004, p. 129).

The model of the information search process and its associated Uncertainty Principle provide a framework for matching the level of mediation to the user's zone of intervention to ensure effective source and process intervention. Kuhlthau's longitudinal studies of undergraduates indicate a critical need for process intervention. The nature of these interventions are explored more fully in the Student Learning through Ohio School Libraries research.

Research methodology and sample

Thirty-nine schools across Ohio participated in this study, and were selected on the basis of providing an 'effective school library program'. The criteria for selection centred on meeting guidelines for effective school libraries based on building-level presence of credentialed staff, curriculum-centredness, adequate, appropriate and diverse resources, information technology infrastructure for accessing and using information in diverse media and formats, information literacy instruction and reading enrichment programs.

An international experts panel comprising distinguished leaders in school librarianship around the world validated these criteria. Following a nominations process across Ohio public schools, an Ohio Experts Panel – leaders from the school library and educational community of Ohio – made the sample selection.

Student data were collected through the *Impacts on Learning Survey*, made available online for students from Grade 3 to Grade 12 to identify, from their perspective, how the library has 'helped' them in their learning. The survey consisted of 48 statements of 'helps' derived from the literature. These were grouped into seven conceptual categories (blocks):

1. *How helpful the school library is with getting information you need.* This block focused on process of finding and using information: steps students equate with doing library-based 'research'.

2. *How helpful the school library is with using the information to complete your school work.* This block focused on the cognitive and meta-cognitive dimensions of engaging with and using information.

3. *How helpful the school library is with your school work in general.* This block more explicitly

Kulthau suggests that effective intervention needs to accommodate the holisitic experience of users in the information search process

focused on cognitive information utilization – understanding some of the cognitive drivers and outcomes of engaging with information.

4. *How helpful the school library is with using computers in the library, at school, and at home.* This block focused on the school library's provision of a technological infrastructure, instruction in its use, and the provision of information technology tools to create and produce representations of their learning.

5. *How helpful the school library is to you with your general reading interests.* This block focused on tapping into perceptions of how the school library supports wider reading interests and fosters the development of reading literacy.

6. *How helpful the school library is to you when you are not at school.* This block focused on understanding how the school library fosters independence and transfer of learning in and to other contexts and situations

7. *General school aspects.* This block sought to gather perceptions on the school library's links to academic achievement.

The study also provided an open-ended, critical incident question to enable students to articulate specific instances of 'helps' and their outcomes, in their own voice. This free writing question asked: *Now, remember one time when the school library really helped you. Write about the help that you got, and what you were able to do because of it.* This question provided opportunity for students to give witness, if possible, in their own way about the relationship between the school library and student achievement, as well as serving to identify perceptions of help and its outcomes not identified in the 48 statements.

The findings and conclusions were based on a quantitative data set of 13,123 valid student responses, and 10,315 responses to the free writing question. Six thousand two hundred and ninety-four boys (48%) and 6,702 girls (51.1%) participated in the study, with 127 respondents not signifying their gender. The age of students ranged from age seven to age 20 with an average age of 14.2 years. Most were 12 to 18 years of age. Grades 9, 11 and 12 provided the highest number of respondents and grades 3, 4, and 5 provided the lowest number. The students were primarily White (78.5%), with smaller groups of African Americans (5.5%) and Mixed Race (4.1%). Sixty-two per cent of the students came from school districts with an Ohio Department of Education Report Card Performance Category of 'Excellent', 22.9% from 'Effective' school districts; 12.8% from 'Continuous Improvement' school districts, and 2.3% from 'Academic Watch' school districts. Four out of five (80.9%) of students came from urban/suburban districts,. 9.8% from rural areas, 7% from small cities, and 2.3% from large cities.

> ... the school library plays a major role in helping students with their learning. An effective school library is clearly and unequivocally helpful to students in Ohio

Some key findings

Of the entire sample, 99.44% (13,050 students) indicated that the school library and its services, including roles of school librarians, have helped them in some way, regardless of how much, with their learning as it relates to the 48 statements. Only 73 students indicated that none of the 48 statements applied to them.

A quarter (25.54%) of the sample (3352 students) said that the library has helped them, regardless of how much, with their learning on *all* 48 statements. This would indicate that the school library plays a major role in helping students with their learning. An effective school library is clearly and unequivocally helpful to students in Ohio, and several student comments even questioned why this research was being done: *I'm in grade 8. I don't get it. Why do I need to do this survey? Isn't it obvious to everyone that we have to have our school library to do all our school work. It's impossible to do it without it, that's for sure.*

Table 1 (at right) shows the percentage of the sample that indicated that the school library helped them, either in terms of Most Helpful, Quite Helpful, Some Help, or a Little Help, ranked from highest to lowest percentages. The first digit in each statement refers to the Block number. For example, Q43 was the third statement in Block 4. A breakdown of the perceived level of helps for each statement is available at http://www.oelma.org/studentlearning/default.asp

When Table 1, Table 2 (over page) and Table 3 are analysed together, they show that overall, the students perceive that an effective school library helps the strongest as a resource agent and a technical agent, providing access to information resources necessary for students to complete their research assignments and projects successfully. These are the helps identified in Blocks 1, 2, and 4 – the blocks ranked the overall highest of the blocks. In terms of finding and locating information (Block 1) which had the highest overall mean scores, 95.1% of the students indicated that the school library has helped them (regardless of level of helps) with finding different sources of information.

77 The school library helped me when I was doing a research project dealing with poetry and I needed to find specific sources for my topic. Since I could find the sources that I needed, I was able to do a better job on the project.

171 One time, I was doing a project in History class and I had a very difficult topic . . . one that I couldn't find much information on using the internet. Someone helped me and I found more information in books and encyclopedias and ended up getting a pretty good grade on the project.

Students clearly value the role of information

Table 1 Ranked statements of help

Q11: The school library has helped me know the different steps in finding and using information.	96.84%
Q12: The information in the school library has helped me work out the questions for the topics I am working on.	95.95%
Q13: The school library has helped me find different sources of information (such as books, magazines, CDs, websites, videos) for my topics.	95.10%
Q43: Computers have helped me find information inside and outside of the school library.	94.35%
Q34: The school library has helped me learn more facts about my topics.	94.27%
Q21: The school library has helped me know how to use the different kinds of sources (such as books, magazines, CDs, websites, videos).	93.74%
Q14: The school library has helped me know when I find good information.	92.81%
Q41: Computers in the school library have helped me do my school work better.	92.41%
Q26: The school library has helped me think about how I should go about finding information next time.	92.36%
Q22: The school library has helped me work out the main ideas in the information I find.	92.07%
Q33: The school library has helped me get the first facts about my topics.	92.05%
Q27: The school library has helped me know that research takes a lot of work.	91.05%
Q15: The school library has helped me find different opinions about my topics.	90.94%
Q17: The school library has helped me feel better about asking for assistance when I go there.	90.73%
Q16: The school library has helped me feel better about finding information.	90.58%
Q35: The school library has helped me when I do not understand some things.	90.02%
Q44: The school library has helped me search the Internet better.	89.63%
Q28: The information I have found in the school library has helped me become more interested in my topics.	89.21%
Q72: The school library has helped me get better grades on my projects and assignments.	88.51%
Q46: Computer programs (like PowerPoint, Word, and Excel) in the school library have helped me do my school work.	87.53%
Q24: The school library has helped me put all the ideas together for my topics.	86.65%
Q47: The school library has helped me feel better about using computers to do my school work.	85.84%
Q45: The school library has helped me be more careful about information I find on the Internet.	85.72%
Q39: The school library has helped me connect different ideas I already have.	85.16%
Q37: The school library has helped me change my mind about some things I thought I knew.	84.87%
Q71: The school library has helped me do my school work better.	84.65%
Q51: The school library has helped me find stories I like.	84.53%
Q42: The school library has got me more interested in computers.	83.88%
Q63: The things I've learned in the school library have helped me study at home.	82.51%
Q25: The school library has helped me put ideas in my own words.	82.11%
Q38: The school library has helped me figure out my own opinions on things.	81.37%
Q36: The school library has helped me figure out if my own ideas are good or bad.	80.37%
Q52: The school library has helped me read more.	79.37%
Q61: The school library has helped me discover interesting topics other than my school work.	78.68%
Q68: Information in the school library has helped me decide what I need to do next with my school work.	78.19%
Q23: The school library has helped me get better at taking notes.	77.89%
Q74: The school library has made me think harder about my school work.	77.41%
Q65: The school library has helped me find information even when I am not at school.	77.17%
Q54: The school library has helped me enjoy reading more.	76.71%
Q75: The school library has helped me more feel confident about doing my school work.	76.56%
Q73: The school library has helped me get better grades on tests and quizzes.	75.41%
Q66: The school library lessons have helped me solve problems better.	75.39%
Q56: The school library has helped me be a better writer.	74.90%
Q64: The school library has helped me get more organized with my homework.	74.71%
Q53: The school library has helped me get better at reading.	74.42%
Q3A: The school library has helped me talk more in class discussions.	73.15%
Q31: The school library has helped me remember my school work.	72.42%

... students perceive that an effective school library helps the strongest as a resource agent and a technical agent, providing access to information resources

Table 2 shows the mean score for each block and the rank from highest to lowest mean score.

Table 2: Block mean and rank

Blocks	Student Mean	Rank ofMeans
Block 1: Find and locate information	2.5354	1
Block 2: Use information to complete school work	2.2508	3
Block 3: School work in general	2.0701	4
Block 4: Using computers in the school library, at school, and at home	2.5293	2
Block 5: General reading interests	1.9069	6
Block 6: Outside school	1.7723	7
Block 7: Some general reactions (academic achievement)	1.9656	5

Table 3 shows the percentage of students who indicated 'most helpful' in the top 15 dimensions of help.

Table 3: School Libraries as 'most helpful'

Q43: Computers have helped me find information inside and outside of the school library.	49.01%
Q41: Computers in the school library have helped me do my school work better.	41.58%
Q46: Computer programs (like PowerPoint, Word, and Excel) in the school library have helped me do my school work.	39.67%
Q13: The school library has helped me find different sources of information (such as books, magazines, CDs, websites, videos) for my topics.	34.02%
Q44: The school library has helped me search the Internet better.	33.18%
Q27: The school library has helped me know that research takes a lot of work.	32.26%
Q21: The school library has helped me know how to use the different kinds of sources (such as books, magazines, CDs, websites, videos).	31.51%
Q34: The school library has helped me learn more facts about my topics.	31.33%
Q47: The school library has helped me feel better about using computers to do my school work.	29.49%
Q51: The school library has helped me find stories I like.	29.35%
Q17: The school library has helped me feel better about asking for assistance when I go there.	28.79%
Q12: The information in the school library has helped me work out the questions for the topics I am working on.	27.21%
Q72: The school library has helped me get better grades on my projects and assignments.	26.10%
Q11: The school library has helped me know the different steps in finding and using information.	25.75%
Q42: The school library has got me more interested in computers.	24.92%

technology in finding and using information. Table 2 shows that overall, the information technology dimensions of an effective school library are perceived as helpful by many students (second highest rank of all the categories of helps). Table 3 shows the percentage of students who indicated 'most helpful' in the top 15 dimensions of help. In this top ranking, six of the seven statements that related to information technology provided in the survey are represented in this list. Illustrative statements below show that there are high levels of help not only in relation to using technology for finding information, but in the critical and constructive use of information technology to do their school work better:

1236 The one time I remember when the school library helped me is when we learned about places you can go on the internet for information. They told us some sites to go to like the Infonet or infoOhio. They taught us that we can even do this at home too which I often do now. This is how the school library has helped me.

9467 One time the library really helped me was when I had to write my research paper. I found a lot of help in how to find good sources and how to use those sources. I learned how to find the best places to get information and how to best put that information together and could search at home and in the public library better.

5342 I remember one time when I needed a lot of help on a project for Math and English and I came down here and I got a lot of help from the computers. If it wasn't for the computers I wouldn't have gotten that project done and I would have gotten a really bad grade in those two classes.

2204 I used the library when I do English assignments, or when I have to do research for history. It helps because of the internet access, and I can research my projects and get a bunch of information on my topics. I was able to write and present to a class on Powerpoint about the combat tactics of the Vietnam war,

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and the library helped me very much in putting that together with lots of research tips.

5243 We had to do a research project on a topic that we could choose and I chose the topic lightning. I found many books that had information about lightning and there were many internet sites that the library had suggested and they gave a lot of good information. I was then able to finish my research paper at school because I was shown how to get on the Internet to get good info and I didn't have waste my time trying to deal with the bad sites.

The data show that in relation to the help dimensions of finding information, the highest number of students saw help related to knowing the different steps in finding information – the research process (96.84%) and working out the questions for the topics they are working on (95.95%), slightly above the number who indicated help in terms of finding sources. Students' comments indicate that finding information is not enough in their research endeavors and in their quest to get 'good grades' – they know that they have to engage with the information they find, and to create products that show the output of their engagement. In order to achieve this, they recognize the importance of understanding stages and processes of doing research, and see help in this areas as vital to their success:

811 One time when I was studying Nez Perce Indians, I needed to have a bibliography. I didn't know what I was supposed to write on this 'bibliography' so I went up to Mrs.X, to see if she could help me. She gave me a piece of paper with instructions as she carefully guided me through each in every step. If I couldn't find the information needed to do one of the steps, she showed me where in the book I could find it. Then to top it all off, and make sure I got it she had me teach someone else. Making me feel like I was making a difference!

2343 When I had to write a term paper for English class, the school library was very vital in helping me along the way to doing my paper at all the different steps in the research and write up. Because of the school library I got a pretty good grade on my paper

1330 In a large Social Studies project we had to do a lot of research in the library. What had learned about looking up information and finding proper resources and following the research guides really helped me there

Students also acknowledge that getting a 'good start' on their topics – seeking direction, clarification of the topic, and providing guidance in moving forward with their investigations – is important in the early stages of their research.

789 When you go to the librarian for help, the librarian gets you to explain in your own words the questions you have to answer in your project. She makes sure you understand what you are going to do and then helps you get into it

1257 The Library helped me the most when I was looking for topics and books to get my ideas started! The librarians were helpful at pointing out books and places for me to look! They were very informative in helping me find work out the parts of my topic (20 questions!) and make sense of it so I could begin.

Mediation and intervention

In an analysis of the qualitative responses, several key patterns stand out. The statements posed to the students centered around the 'school library', and made no explicit reference to the teacher-librarian; however, the students' comments repeatedly identified the teacher-librarian as the source or focus of help. Most often referred to as 'the library teacher', the teacher-librarians were clearly and specifically acknowledged in the role of formal human mediator. Indeed, they were often considered to be a major contributor to their completion of and success in information tasks, with an outcome expressed in terms of achieving learning goals. This is illustrated in the following statements:

3098 I've been at the library many times this year for several projects. The library teacher was extremely helpful and showed the class EVERYTHING we could use in the library and how to use it. It helped out a lot because I found the information I needed quicker and it was more accurate.

1542 I could not figure out how to look up periodicals, and I asked one of our librarians that greeted me with a warm smile. She was most helpful in the process of researching for a debate unit I was doing in school. She showed me exactly how to look up what I was looking for, and helped me in my process of research. I was able to have convincing evidence for the topic I was debating and she was so nice, so it wasn't intimidating to come up to ask questions.

1812 I remember one time where I couldn't find any information on a certain school topic. I was looking at different books, and searching websites. Finally I decided to settle on finding a book on my topic. The librarian had to help me find the book, and when she helped me get into it, It helped me find information on my topic and lots of it, and to work out what was the best info to choose. I got a good grade on that assignment, also.

1999 In language class one time, I decided to do a report on the country of Israel. Through my school library, I was able to find the necessary information on my topic. My school's librarian taught me and the whole class how

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to look for and find the right information. I did all of my research in my school library, and got an 'A' on the project. I am really grateful for our school library.

2732 When I was researching for abortion I needed a lot of different opinions from books and the librarian helped me to find everything I needed, and I think I now understand the two sides

777 When I was working on a project about science I had no idea what I was doing I asked my library teachers for help they helped and by the end of the day I felt so much better!!! And from that day on I knew what I was doing on that project and I got a A I was so proud of myself and my confidence went up a whole lot and now when ever I do a project I know I have a lot of power now to do well on projects!!!

511 I remember one time when I had to do write an assignment for Spanish class in the library. Their computers and resources helped me complete it successfully. Thank you, faculty and staff of the school library. Without your help, I would have given up long ago out of frustration from school work.

2783 Once, earlier this semester, we were doing a persuasive essay on discrimination. I wanted to do my essay on discrimination against musically and theatrically talented students and adults. Through the library's help, staff, and resources available I was able to narrow my topic down to discrimination against the fine arts. I pin-pointed it down to every detail I was able to find, and the librarian gave me pointers on how I could find specific information on what I was looking for. My essay turned out to be an A+ paper, and I couldn't have done it without the library's help. That took the pain out of finding the info and writing the paper.

3819 In American History class, we have to do a big final project. I was researching the history of serial killers. There was not a lot if information to be found, so I asked the librarian for help in finding the information. She directed me right away to where I could find information on my topic. I found a lot of information from these books and could do my project without stress

These statements illustrate the importance of human mediation, its value to the students in terms of what it enables them to do, as well as the rich diversity of the interventions provided to the students. It is noteworthy that high levels of help were expressed by the students in relation to information technology. The availability of large digital networks of information does not replace a teacher-librarian, indeed, the intellectual demands of using this technology to locate and effectively and appropriately use this information in the knowledge construction process places

considerable emphasis on the teacher-librarian to humanize this often hostile and confronting environment and intervene with the development of intellectual and technical scaffolds to enable students to effectively master and manage this environment for their learning.

Students clearly value the formal, learning-centred interventions in their information experiences. Structurally, this intervention happens in three clear ways, as made evident in the students' comments. These were: formal classes with planned, targeted interventions that develop information scaffolds for using information, working with groups, and working with individuals at point of need. The strongest representation of intervention was in terms of formal classes, and this appeared to serve the full spectrum of information scaffolds, targeting skills, attitudes, search process and curriculum outcomes. The following statements illustrate the sheer diversity of this intervention across the stages of the research process:

290 Well the best time was during my research paper in my English class. And I was able to get all of my information that I needed in the school library. The librarian was real fun as she taught us all the steps in doing a good research paper.

1015 I had to find information for my history paper. The librarian helped me search for info in the library by looking through the rows of books, helping me search on the internet for sites, and even looking through what books the city library had on the topic through her computer. I would have never have found the sources I needed for the paper if not for the school library, the public library, and the helpful people who staff those places. They even showed me steps to work through to do the research and complete it. They ran some classes specifically for us and they were very very, very helpful

1339 When I was searching for information on my science project on hydropower they helped me find all the good websites about my subjects and they helped me find good books with interesting information and pictures. Our library classes have helped us understand the good websites

2477 They helped me on my project for English a lot, and got me through it – not just teaching me about doing good research, but dealing with my frustrations and anxieties and not having a clue.

3210 While I was looking for papers on my research report, I found way too many so it was hard to find the one that I needed. I remembered a class that we had in the library and I remembered 'narrowing down your search'. So, I did and I found what I needed!!

The availability of large digital networks of information does not replace a teacher-librarian

899 I really didn't know how to do reading and I was getting bad grades then we started doing main idea reading which we learned in library classes that help me a lot and now I know how to do main idea, and put my other ideas together around it.

1539 When I needed to do a time line on the computer and I got help at the school library. We had a class which showed us how to sort out all the facts into something good rather than gobbledegook

3171 One time I was doing a report for sociology class. I needed to find information on a famous criminal. The school library helped me find all the information that I needed. It made my research much, much easier to do. Also, I was able to put together a better report. The librarian was very helpful in selecting the books that I needed to do the research report, and teaching me how to arrange my idea to be logical.

While students value instructional intervention at the class level, it is important to acknowledge that significant intervention happens at the small group and individual level – that is, working with individuals to address their learning needs, to provide instruction and guidance, and to monitor their progress. Such individual intervention is often unseen or overlooked, and often uncharted as well. In an evidence-based practice context, here is an opportunity for teacher-librarians to develop ways of documenting intervention at the individual level, and to trace its impact in terms of learning outcomes. The following statements indicate both the richness and impact of individual and group interventions:

2607 The one time I needed an assignment in chemistry. They helped me out right away with a topic I had to research about and they ended up finding the topic in a matter of minutes. The librarian kept asking us all about our problems and questions with research and was there to give us help. Once a group of us came early in the morning and the librarian worked with us on how to write a better paper.

220 I asked librarian where to find book and she explained to me the Dewey Decimal, much more information than I needed. But I know where all the types of books are.

2342 One time when the school library really helped me was when I was doing my case study for my Anatomy/Physiology class. In fact I am still doing this case study now. The librarians helped me find book sources, helped me sift through my information, and help me distinguish between answers. This is a very confusing case study and many of the answers are similar. The librarians helped me through the process of elimination. They also helped me searching the web more efficiently.

789 When you go to the librarian for help, the librarian gets you to explain in your own words the questions you have to answer in your project. She makes sure you understand what you are going to do and then helps you get into it

1257 The Library helped me the most when I was looking for topics and books to get my ideas started! The librarians were helpful at pointing out books and places for me to look! They were very informative in helping me find work out the parts of my topic (20 questions!) and make sense of it so I could begin.

This intervention appears to be effective at all stages of the research process: from an initiating process of questioning, to enabling students to start their research, to focus their searches, to get input on the scope of their projects, to identify information needs, to provide resource pathways, and to enabling them to engage in the process of building their own understanding, positions and viewpoints.

The study indicated that some students come to recognize that effective information searching is not a superficial activity; that it involves time and effort, as well as reflecting on the research experience and learning from it. Information reflection and information action from that reflection is developed through instructional intervention:

3915 I had to do a huge decades project on the 1940s. We came to the school library everyday for an hour during class. The librarians helped us all they could and it was very beneficial, and they checked up on our progress and gave us feedback. When we come into the library next time they remember what they have shown you and expect you to do it, so we try to remember and do it.

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5812 One time, I was looking for a lot of books and I didn't know how to find the books. So a librarian helped me to find the books by teaching me to look at the name of the author and the genre of the book. also, it became easy to find other books for me. I also found all the books I was looking for. The next time I came, I found all the books I wanted by doing the steps I'd been shown before.

8275 I remember one time in the library when I had to do a project(book project) and I couldn't find anything on the person I wanted to do it on, but the librarian helped me and I got a really good grade because I like my project. When you come into the library to do another project, not necessarily a book project, you remember what did last time to get a good grade and try to do it right again, like finding the best stuff

Emerging issues with instruction

A small number of students indicated that the school library did not help in any of the ways identified in the 48 statements. Some of these students took the opportunity in the free writing task to tell why. Some of these statements explicitly target aspects of instruction and mediation. These indications of non-help are few in number as identifying these was not the purpose of the study, and will need to be validated in further studies that focus explicitly on that construct. Consequently, the ideas raised here need to be interpreted with care and caution – clearly school libraries in the sample do help students, and in very strong ways.

Students saw little value in library instruction that was repetitive, not building on existing knowledge and skills, not contextualized by specific curriculum content and required learning tasks, and which was not clearly and explicitly linked to their goal of completing the research efficiently and successfully. Students appear to value instructional intervention when it meets a need understood and valued by the students, and when the instruction makes clear and explicit links to the outcomes – both content and product. Students indicate that the annual library tour, the repetitive spiels on Dewey, the dos-and-don'ts of the Internet are meaningless unless it conveys to them clearly and concretely how it helps them reach their objectives, particularly the successful completion of their research:

2830 I would rather not have any information at all than to come to this library and listen to the same speech on how to use computers over and over again. I waste more time listening to these speeches than I do looking up information!

2926 I don't really use the library much because I don't have much free time to. When we are down here I fell that the librarian spends much more time explaining books than allowing us to research.

Students appear to value instructional intervention when it meets a need understood and valued by the students, and when the instruction makes clear and explicit links to the outcomes

9364 If anyone says, "Be careful what you read on the Internet" one more time, I'm going to die. We know how to judge the accuracy of information! Anyway, that's the end of my tirade – hopefully change will come out of this . . . we need drastic reform here.

Students value professional, respectful and courteous mediations, and appear to engage more readily with library services when their needs are met in a supportive, constructive and pleasant manner, and provide and environment of trust and empowerment:

3131 I'm usually not one to hang out in the library all that much so they don't do all too much for me as they are such control freaks.

9793 I can't remember the last time the librarians helped me. The librarians are mean and I am too afraid to talk to them because they intimidate me. They have unjustly yelled at me in the past so I am not going to them for help when I could go to the public library or use my own computer at home.

2583 All the censorship issues the student encounter really hold back much of the possible research we can do. IT is really annoying that I can vote, be sent to war, and I can't even look at any pages on the internet.

Conclusion

Collectively, the students comments suggest that an effective school library is not just a passive information supply and exchange agency, rather, it is one which is actively engaged in student learning by focusing on the cognitive and affective dimensions of information access and use to ensure meaningful student learning and satisfaction with the learning outcome.

This does not happen by chance. For the school library to be an agent for individualised learning, knowledge construction and academic achievement, formal and intervention at all stages of the information seeking and using process is essential. This is not just intervention in terms of resources, rather, interventions in terms of meaning making – a holistic intervention in the information-to-knowledge journey of each student. Targeted instructional intervention, set within the context of achieving curriculum tasks and meeting curriculum standards emerges as the key. The study shows that an effective school library, lead by a learning-centred teacher-librarian who has a clearly defined role in information-centered pedagogy, plays a critical role in facilitating student learning for building knowledge.

Students value the role of a teacher-librarian as an information-learning specialist, and the personal engagement with students at class, group and individual levels to initiate and enable the 'helps' is a critical component of an effective school library. This instructional intervention

affords students with significant opportunities to learn and to succeed with their research. What this conveys is the notion of an effective school library as not just an information place, but also as a knowledge space where students develop the appropriate information literacy scaffolds to enable them to engage with information and build new knowledge. An effective school library is not just informational, but formational.

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