

Hearing the Voices of those We Help: Finding the Natural, Multidimensional Perspectives on the Value of School Libraries

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The Editor of School Library Media Research (Daniel Callison) asked Ross Todd to comment on his recent research projects and his perspectives on the research agenda for future work by others at various universities. Todd's efforts to reveal the value of school libraries on various levels of learning are well documented in studies in Ohio, New Jersey, Delaware, and Pennsylvania. Access to his work in collaboration with Carol Kuhlthau and the Ohio Educational Library Media Association can be located at www.oelma.org/studentlearning.

Triple Research Foci

At a broad level, my research primarily focuses on the engagement of people and their information worlds, and how this interaction can be understood to facilitate professional action and change and make a difference to individuals, organizations, societies, and nations. Drawing on an intellectually diverse and rich multidisciplinary base, it focuses on understanding the interconnectedness of people, information, and knowledge, and the development of creative and responsive information and knowledge infrastructures that can make a difference to individuals, social groups, institutions, and organizations, and facilitate professional action and change. Against this broad backdrop, my research specifically focuses on the transformative role of school libraries in twenty-first-century schools, their integral role in the learning fabric of schools, and their role in ongoing school improvement and reform. At the center of this is children—understanding how they connect with, interact with, and utilize the information world to learn and how they build knowledge of the world around them and of themselves. So my research starts with children, and takes on three foci.

Understanding How Children Learn

Understanding how children learn and build new knowledge from information is, to me, at the heart of education. This stems from a key question that drives my work: when children make use of a school library to investigate a topic or undertake a research task, or want to find out about something that is of personal interest to them, how do they go about doing this, what do they come to know, and do they learn anything? So I am interested in their information seeking and use; how they engage with the myriad ideas that they encounter; how they build a deeper knowledge and understanding of that which they are investigating; what does this deeper knowledge and understanding actually look like; and how do we know that their knowledge and understanding has changed.

Information Utilization for Learning

By understanding the complexities of how students build new knowledge and understanding through engaging with school libraries, I believe we have a much firmer basis for understanding how school librarians and classroom teachers can more effectively intervene in and empower student learning, how they can provide meaningful instructional interventions and service infrastructures that really help students in their learning through school libraries. This brings me to the third focus of my work.

Evidence-based Practice for School Libraries

This stems from my long-held belief that school libraries and school librarians must move beyond the advocacy rhetoric that school libraries contribute to the intellectual and social good, the development of information literate people, the growth of democracy, and the development of knowledgeable and creative society. It is important to ground this advocacy and rhetoric on strong research evidence, as well as evidence born in and derived from professional action (on a day-by-day basis, and at the local school level) that demonstrates this in tangible and meaningful ways. To me, evidence-based practice is not questioning libraries as a basis of a knowledgeable society, not questioning their social good, not questioning their role in learning; rather, it is an approach to articulating the basis of our beliefs and the claims we can make about the value and role of libraries. I see it is a move from a rhetorical warrant to an evidential warrant for school libraries; from a tell me framework to a show me framework, from a persuasive or advocacy framework to a declarative framework.

At a practical level for school librarians, it revolves around evidence FOR practice, evidence IN practice, and evidence OF practice. Evidence for practice refers to how the research evidence of our profession can inform and shape day-by-day practice of school librarians; evidence in practice refers to how school librarians can gather evidence during the performance of their roles; and evidence of practice refers both to the outcomes of the role of the school library in student learning, as well as working iteratively to constantly improve and transform daily practice. Evidence-based practice asks us to question what school librarians do and to carefully consider how the actions of professional practice, if at all, contribute to the mission and goals of the school. I have been somewhat influenced by the work of Gore, Griffiths, and Ladwig (2004) on productive pedagogy and for school librarians, productive pedagogy and their instructional role is part of a broader framework of productive practice.

Recent Research in Ohio and Delaware

The research that I (together with my colleagues at Rutgers University) have done in the state studies, “Student Learning through Ohio School Libraries,” “Student Learning through Delaware School Libraries,” and the smaller New Jersey study funded by IMLS, “Impact of School Libraries on Student Learning,” has sought to integrate these three foci in various ways. First and foremost, they have sought to gather data primarily from the students themselves rather than primarily from school administrators and school librarians, although the perspectives of school faculty and school librarians have been gathered as well. We wanted to hear the voice of the students, whom we have viewed as the primary stakeholders.

Second, we wanted to build on and yet take a different direction from the previous state studies to date, which have identified the infrastructure and inputs necessary for impact, such as ensuring adequate and appropriately credentialed staff and support staff, involving school librarians in collaborative learning and instructional design centering on information literacy, developing print and digital collections and identifying resources for classroom teachers, motivating students to read, administering a curriculum-centered library program, and facilitating access through responsive school library hours, flexible scheduling, and information technology.

These are very important findings for our profession, as they give clarity to the infrastructure dimensions for developing and reinventing school libraries of the future. However, these infrastructure dimensions were not the focus of our state studies; rather, they were foundational, forming the basis of the criteria for selecting the participating schools that we have used in our research. We wanted to understand, from the perspective of the students, when these infrastructure dimensions are in place in a school library how the library figures in their learning at school, and to somehow endeavor to measure their perceptions.

Defining Help and Its Value

Accordingly, we focused on the “helps” construct, particularly seeking to identify how students benefit from school libraries through elaborating conceptions of help and providing a measure of these helps as perceived by students. The central concept of “help” was derived in particular from the work of Brenda Dervin at Ohio State University, Joan Durrance from Michigan, and Karen Fisher from the University of Washington. Dervin’s Sense-Making theory, (Dervin 1998) particularly the “gaps,” “helps,” and “uses” framework she articulates, focuses on how people are helped in their information experiences and the steps they take to inform themselves and to construct sense out of their worlds, and how they can be helped in this process.

Durrance and Fisher (2004) explored the concept of help through a series of in-depth case studies of community-focused information services and programs in order to understand how the work of librarians and the services they provide in their information agencies and libraries affect people’s lives. They conceived of “help” in terms of “benefits to people: specifically, achievements or changes in skill, knowledge, attitude, behavior, condition, or life status for program participants” (2004, 306). For example, in one of their case studies—the Wired for Youth Program—at the Austin Public Library, which was a drop-in, after-school program aimed at providing access to computers and instruction in computer and Web skills to at-risk youth aged nine to thirteen, they documented outcomes that included skills that foster independence with learning, information use skills, and oral and written communication skills. They also documented outcomes that related to perception and attitude changes, including fostering a sense of self and personal worth, self-importance, and self-expression, as well as changes in their perception of the library and librarians.

The Valued Outcomes for Learning

They also identified affective outcomes, such as increased self-confidence, self-sufficiency, and pride, as well as increased sense of responsibility and respect, and a broadening of worldview. These outcomes intrigued me, and led me to ask myself, ok, so we know school libraries affect test scores, but what else do they do? This encouraged us to go beyond student achievement as measured by standardized test scores and to examine the impact on other dimensions of student

learning in an effort to gain a more holistic picture of the contribution of school libraries to student learning. Certainly, I believe that it is of critical importance to demonstrate the relationship of school libraries to student achievement as measured by standardized test scores; however, the value-added contribution of school libraries beyond test scores on any large scale is little understood, so we wanted to reach beyond the substantive accumulation of data on test scores, and try to capture a wider, multidimensional perspective of the impact of school libraries on students and their learning.

Kuhlthau's Research

Of course, shaping this work has been the significant work of Carol Kuhlthau, who has been an enormous source of inspiration and guidance for me, and the greatest privilege I have had in my academic career was to work with her at Rutgers University. Her research provides an understanding of the cognitive, affective, and behavioral dimensions of students' encounters with information and their information-to-knowledge experience, and how they might be supported in this endeavor to build personal knowledge and understanding. This work is particularly significant in the context of help, as it emphasizes how people may be enabled and supported in their quest to seek meaning and develop understanding, but it also articulates mediation and intervention as key help mechanisms, with school librarians becoming involved in the constructive process of another person. While I think that most instructional interventions of school librarians tend to focus on access to resources—that is, finding stuff—we also wanted to give some attention to understanding more fully help in the context of the students engaging with information to meet curriculum content objectives, both in terms of source and access helps, as well as in terms of using information to build new knowledge of curriculum topics, and to explore some of the cognitive, behavioral, and affective dimensions of engaging in the information search process.

What Was Found in Ohio and Delaware

In our Ohio and Delaware studies, then, “help” was conceptually defined as institutional involvement through advice and assistance in the information seeking and use experiences of people (helps-as-inputs), and the effect of the institution's activities and services on the people it serves (helps-as-outcomes/impacts). We made a decision to collect both quantitative and qualitative data, driven by a belief that a combination of numerical data supported by the voice of the students in the form of stories would hopefully provide some compelling data on school libraries' impact on students' lives. Given our focus on students, we did not want the students to be lost in myriad statistics, to be reduced to sets of numerical data where their humanity is lost.

Given the evidence-based practice focus of this study, and our goal to enable schools to use this study—both methodology and findings—to improve practice at the local school level, we also wanted to create a relatively simple data collection instrument that individual school libraries could manipulate, reconstruct, and use to replicate the study as a whole or in part or to develop instruments to gather local quantitative and qualitative evidence. We wanted the instrument to work on one school, a district, a state. When we negotiated the research with both agencies in Delaware and Ohio, one of their goals was to clearly empower action and change at the local level, provide a platform for schools to engage in discussion about their school libraries, and examine ways that they could gather some data, compare it with state data, and focus on a cycle of continuous improvement.

Methods for Data Collection

We collected the data in two ways. First, we operationalized “help” in terms of set of statements of help grouped into seven categories, and asked the students to rate their perceptions of the extent that the school library helped them on a helpfulness scale. The seven categories of help were:

1. How helpful the school library is with getting information you need? This group focused on the process of finding and using information; steps that students equate with doing library-based research.
2. How helpful the school library is with using the information to complete your school work? This group focused on the cognitive and metacognitive dimensions of using information.
3. How helpful the school library is with your school work in general? This group more explicitly focused on cognitive information utilization and 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 group focused on the school library’s provision of a technological infrastructure, instruction in its use, and the technical tools to create representations of their learning.
5. How helpful the school library is to you with your general reading interests? This group focused on 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 group focused on understanding how the school library fosters independence and transfer of learning to other contexts and situations.
7. General school aspects. This group to gather perceptions on the school library’s links to academic success

Help, No Help or No Help Needed

In Ohio, we used forty-eight statements of help, and in Delaware we used fifty statements, with the addition of statements focusing on public library use. In the Ohio study, the helpfulness scale was from “most helpful” to “a little help,” with an additional category for “Does not apply.” This approach has emerged as the most contentious aspect of the Ohio study. We did not measure perception of “no help,” a decision made because we saw the goal of the study was to understand conceptions of “help” rather than how a school library does not help. This was based on the study’s broader goal to improve day-by-day practice of school librarians, rather than just advocacy. Knowing how effective school libraries actually help provides an empirical base for developing effective practice and making improvements to services; knowing how school libraries do not help tells school librarians what not to do, but does not provide any clear basis for what to do.

SLMR: There are aspects of how the survey was structured and the specific schools surveyed that can lead to some misunderstandings. For example, without room or encouragement for students to feel free to offer constructive criticism, comments that might actually lead to improvement of services are missed. Students really had no choice other than to indicate at least

some level of “help” and such tabulation of the responses can lead to misleading “headlines” in school library trade publications that imply all students found help regardless of level of need.

The target schools selected for the survey often get lost in the popular reporting of the “Ohio” study. In reality this is a survey of thirty or so highly regarded school libraries selected as the “best” in the state. In reality this represents under 10% of the Ohio potential pool of school libraries and students, and yet this “best of the state” is presented as representing the entire state. Knowing what the best offer and deliver in terms of “help” certainly is useful in developing the wonderful model for modern library programs that evolves from the student survey and the expert insight Todd and Kuhlthau add, but it does little to show that most school libraries fall far short of such a model. Even in these exemplary Ohio programs, it was evident in the student comments that they turned to others for guidance in reading selection, for example, rather than to their school librarian. Readers of the Ohio “state” study should examine the report very carefully and critically.

While seeking out positive testimony is helpful in “evidence-based” exercises, most administrators will find presentation of such selective comments as biased and not providing a true representative picture of the full population. Evidence should tell us both the positive and the negative so that, as you very clearly promote, can put our best stories forward, but we should not deceive ourselves by believing that there are no problems to be addressed. Student interviews, for example, tell us very little about the leadership role school media specialists should be playing in instructional design and delivery. For a clearer idea of the potential for such a curricular leadership role, beyond simply help services, the reader should examine the Wisconsin Study by Smith (SLMR 2006).

We listened carefully to feedback—that is one of the great things about belonging to a scholarly community, where there is a sense of learning and building and refining. In the Delaware study, we introduced “No help” in the helpfulness scale, and the results were informative. In Delaware, 105 respondents out of 5,733 (1.8 percent of the total sample) indicated that they got no help from the school library. The students’ replies revealed four basic categories of “no help”: (1) students who do not go to the library and do not make use of the library, (2) students who prefer to find information elsewhere, (3) students who were aware of the range of services available in the school library, but did not use since they did not experience the need of it (“I can do it myself”), and (4) students who identified personnel or other barriers to receiving help from the school library. What we found was that a “no help” response should not necessarily be interpreted solely as a negative response; that it may well indicate capability and independence.

Libraries or Librarian

Both the Ohio and Delaware studies used the generic label “school library,” rather than focusing specifically on the school librarian. A number of school librarians around the country have questioned us on that, perhaps a little offended that we seemed to be measuring help from an inanimate object, and that inanimate objects can not, of themselves, provide help, and that the school librarian is the enabler. This is a good point. However, we did not want to make this a study of school librarians, and we wanted to provide opportunity to identify helps from both human intervention and non-human mediation, and to focus on a broader range of potential helps. The students clearly told the story that the school librarian was pivotal in all of this, and a

few of the students took us to task in their comments, saying that it was not the school library per se, but the work of their school librarian.

SLMR: A problem with not clearly showing that the professional school media specialist was the key or important helper, rather than the “generic” school library is that many can derive for this study that trained, experienced and efficient library assistants can deliver much of what is described as “help” in place of the professional. While library assistants are important in the operation of the school library, the certified, professional librarian is not readily identified in the survey. Therefore, it is problematic to assume the students recognized the difference between the certified professional and the library assistant, and one might conclude that a school library can provide such help services, staffed with professionals or not.

Hearing Stories of Success

As a researcher, I really am interested in listening to the voices, stepping into the minds of people to try to see what is going on there, and hearing it from their perspective. In our data-driven world, it bothers me that the human spirit, the human voice, is lost, and we wanted to bring together both the quantitative and qualitative dimensions. To gather qualitative data in both the Ohio and Delaware studies, we provided an open-ended, critical incident question (based on Flanagan 1954) 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.

Our goal here was to provide opportunity for students to give witness, if possible, in their own way to the help statements provided, and the statements served to prompt the students in identifying concrete examples. We also used this qualitative measure to identify additional conceptions of help and their outcomes not identified in the forty-eight statements. As with the quantitative part of the study, we saw this question as a tool that local school librarians could ask as part of their evidence-based practice initiatives. In just Ohio and Delaware alone, we have collected more than 15,000 stories. To me they are the most exciting and compelling parts of the study.

I could easily spend the rest of my days doing multiple qualitative analyses of these. In fact, if I had my druthers, I'd love to do a national study just asking that question, gathering hundreds of thousands of stories, even tracking how stories of students changed over the years of their schooling. As I have talked about these stories in many forums, people do want to hear them. They are compelling and evocative, emotive, and so deeply personal. They get to the heart of the student experience, providing such interesting windows into what is going on in their minds.

It bothers me that, in the era of “gold standard” research, the voices seem to be lost. I hope we never ever lose sight of such stories as:

Because of the school library, I was able to research the African Hindu Tribes of my native country. This proved extremely helpful in my search for self acceptance. I have searched many months through books of all sorts never stumbling upon anything remotely near what I needed. Even the tour I took to the museum and the Epcot center

couldn't clearly explain in full detail what it felt like to be a true African. I would have never felt in place without this necessary information.

I used to not read very well and after I used the library for research and information about homework I was reading more and more from the information and that had helped me become a better reader! Now I can read a lot better than I was in the beginning of the school year and understand better in class! I would not be here without the library.

Relevant New Studies

Since these studies have been completed, various people have picked up on them and have taken them forward. Lyn Hay at Charles Sturt University in Wagga Wagga, Australia, replicated the study in the states of Queensland and Victoria, collecting data from forty-six public schools and collecting 6,718 valid student responses, and 525 teacher and 51 teacher librarian responses. Ruth Small at Syracuse University, in a study funded by IMLS, is currently building on and extending the Ohio study by surveying sixty schools, thirty with exemplary libraries and thirty others, in New York. She also is grouping the schools by elementary or secondary and controlling for needs and resource level (high, medium, low needs). Because of the size of New York City, she also is looking at needs levels in urban and rural areas of the state. She is targeting students, school librarians, teachers, and principals. Unlike Delaware and Ohio, she is targeting one grade per level (fourth, eighth, eleventh) for both teachers and students, and mapping results to achievement scores for that grade only. Once this part of the New York research is completed, Small plans to select twenty-four schools where focus groups and interviews with school librarians, teachers, students, principals, and parents will be undertaken. The final part of her research will be a comparative case study of a library with exemplary inclusive services for students with disabilities, and one that does not provide such services.

I think these are important and exciting directions. Having constructed a picture of the helps that appear to emerge from what are deemed to be effective school libraries, it is important to compare findings with those school libraries that do not necessarily exhibit these qualities, and to unpack deeper and richer understandings of the dynamics that are at play. It is also important to unpack the variations in helps, from many perspectives—students with special needs, of different cultural and ethnic backgrounds, and from different learning and study styles. We might discover that there is no difference in the perceptions of help provided from schools with quality school libraries and schools without such libraries. This will be an important and confronting finding. But it is necessary research in the building of a cumulative and comprehensive picture of the role of school libraries in student learning and achievement.

Multilevel Perspectives

As mentioned earlier, we designed these studies to operate on multiple levels. We certainly wanted to get data that not only provides a picture of the multidimensional impact of school libraries on students at a state level, but also to enable school librarians to build more effective practice and to focus on the question, “How can my school optimize the use of its library to impact in a powerful way on the lives of students both within school and outside of school?” We certainly recognized the limitations of these studies.

The school libraries involved were not chosen from a random sample of schools, and therefore no claim to representativeness can be made. Rather, the studies were grounded in best practice. We wanted to construct a picture of what goes on in quality school libraries, and to learn from that to set in motion a cycle of continuous improvement, particularly at the local school level. Thirty-nine schools across Ohio and the thirteen schools in Delaware were carefully selected to participate in these studies on the basis of providing an “effective school library program.” The criteria for selection, derived from existing research, such as Lance’s work, were based on building-level presence of credentialed staff; curriculum-centeredness; adequate, appropriate, and diverse resources; information technology infrastructure for accessing and using information in various media and formats; information literacy instruction; and reading enrichment programs.

We did not set out to study school libraries that did not meet these criteria. People often have asked us why we didn’t study “bad” school libraries? Good question. It has a complex answer. What does a bad school library look like? What criteria determine a bad school library? Who would volunteer a bad school library for study, and what would it achieve? Given that the Ohio and Delaware studies were undertaken on behalf of school library associations and task forces who funded these studies, would they commission a study of bad school libraries? Would I even want to do a study of bad school libraries?

We went into these studies knowing that we were charting a somewhat different direction for state-based studies, and continue to learn from them. It is gratifying to see others building on these studies and taking them in thoughtful directions, and reaching beyond the limitations we had on these studies.

The Study in New Jersey

I want to comment somewhat on the New Jersey study we undertook through an IMLS grant in 2003–2005. This study was quite small, and I do not consider it a state study by any means. It involved ten schools, ten school librarians, seventeen classroom teachers, and almost six hundred students. Although it took a completely different approach to the studies undertaken in Ohio and Delaware, some things were common. It, too, focused on documenting the experiences and perspectives of students and was situated within a broader goal of developing an evidence-based practice focus. It also sought to provide both research-based data, as well as a set of tools that could be implemented at the local school level to chart and measure learning outcomes through the school library.

Rather than focusing on multiple dimensions of help, this study focused on charting the changes in students’ knowledge of a curriculum topic in a collaborative instructional unit involving school librarians and classroom teachers, and where instructional interventions focused on guiding students through their inquiry. Why did we go down this track? Through our previous work, and, of course, through the work of Keith Curry Lance, we get a sense that school libraries do help students in a multitude of ways. We know that they contribute to student achievement, as measured by standardized test scores. But at the grassroots level, what exactly do they learn? Do they learn anything though undertaking the numerous research assignments and tasks they are asked to do utilizing the school library? And if they do learn something, as we hope they do, what does this learning actually look like? Did their knowledge and understanding of their topics change because of all the work they did in the school library, and because of the instructional interventions to support them?

To me these are much more intriguing questions, and really get to the heart of what I am interested in researching. This is much more microscopic research, and I really believe that we have to get down to this level, starting small, trying to look at and measure what is going on at the grassroots level in the classroom and the library. It means getting into the action in the classroom and the small library. This is important for two reasons. First, if we ever are going to make a contribution to the “gold standard” based on randomized controlled trials, testing the efficacy of a range of instructional interventions, then we have to come into this with some deeper understanding of what is going on at the grassroots level, and build the larger research accordingly. Second, we also have to empower professional practice at the school level, not just providing insights into what goes on and how this can contribute to a cycle of continuous improvement, but developing some mechanisms for measuring the change in learning at the local school level.

So our study in New Jersey tried to accomplish several broad goals. First, to establish what changes, if any, are evident in students’ knowledge of a curriculum-related topic as they proceed through the stages of a collaborative inquiry project. In essence, we were curious to see how students build on existing knowledge and transform found information into personal knowledge, and how their knowledge of a topic changes. Second, to identify what changes, if any, are shown in the students’ feelings as they proceed through the stages of a collaborative inquiry project. Third, to see if and how the students’ study approach influences knowledge construction of a curriculum topic in collaborative inquiry projects. Finally, on the basis of these findings, we wanted to design and test some instruments that would enable school librarians and classroom teachers to chart and track how students build knowledge of a topic through the school library, ultimately to be used by school teams to accumulate evidence of how school libraries affect learning. In the broader context of children’s information seeking and use, we were interested in approaches to the elicitation, representation, and measurement of new knowledge and the interactions of cognitions, behaviors, and feelings in this constructive process.

Getting to the Core of Learning

I think we have to get down to this level if we are truly going to understand how school libraries affect student achievement. When compared to what we did in the state studies, which we think of as macro-studies, this kind of research is much more microscopic, as it looks at the individual and class level to understand the dynamics of the transformation and integration of found information into existing knowledge and the creation of new knowledge. I think that this kind of research is the least-developed area of research in school libraries, as well as the least-developed area in information behavior research. In the qualitative data from Ohio and Delaware, it was made known by the students that they spend considerable time seeking information sources to complete research tasks, and are at times quite overwhelmed at the frequency and intensity of these in any one school year. If we want to understand this engagement in terms of achievement and other learning outcomes, we really do have to get in there and as researchers, ask, “How do they use the found information?” “Do they actually build new knowledge about a topic?” “If so, what does this knowledge look like?” “How does their existing knowledge change through information seeking and use?” “How can this knowledge change be measured?” These are complex questions, and essential questions if we want to get to the heart of school libraries and their contribution to learning in schools. These questions ask us as researchers to peer into the minds of students and try to tease out the process of knowledge construction as students become

involved in making sense of information they interact with to build, if at all, new knowledge of their topics.

In order to answer the question that was at the heart of the New Jersey study, we operationalized learning as students' development of knowledge about a topic. This required an understanding of how students use their found information as a result of information seeking to transform their existing knowledge and build new topical knowledge. And, of course, the whole research arena of representing knowledge and measuring how it changes draws on many disciplines, each articulating various philosophical and epistemological assumptions about what knowledge is, how it is structured, elicited, and represented. We designed some data collection instruments that we had the classroom teacher-school librarian teams administer to students at three points in their research process: at the initiation of the research task; at the focus-formulation stage of the research, when students were establishing the specific focus and direction of their research; and at the completion of their research.

How Knowledge Builds and Changes

There were some fascinating findings emerging out of this research. Probably the most interesting to me, given my interest in the whole arena of knowledge representation and knowledge change, were the two distinctive patterns in the changes of knowledge. The first pattern was what we called an additive approach to knowledge construction, where knowledge development seemed to be characterized by the progressive addition of facts, and it remained on a descriptive level throughout. As the students proceeded with developing their knowledge of their topics, they primarily added new facts, mainly property statements of a generic, superficial kind. Students typically found more facts at each stage of the research process, and added these to their stockpile of facts, even though these added facts were sorted, organized, and grouped to some extent into thematic units by the end of the project.

The second pattern that we found, which we labeled an integrative approach to knowledge construction, was somewhat different. The students who showed this pattern did not see the research task as one of just gathering facts at each stage, rather they manipulated these facts in a number of ways: building explanations; synthesizing facts into more abstract groupings and consequently reducing the number of statements in their representations; organizing facts in more coherent ways; reflecting on facts to build positional, predictive conclusion statements. The challenging questions emerge right here, challenging not just for this research, but also for future research that seeks to establish the relationship between the school library and student learning: "Did the students' knowledge change when they undertook this library-based inquiry unit?" "Did they learn anything?"

Did the school library contribute to student learning? In the New Jersey study, we found that students came to know more about their topics, as shown in the number of statements they recalled. They also perceived that they knew more as they progressed through the task, as identified in the estimate of knowledge measure. For many students in this study, the substance of their knowledge focused on an accumulation of factual property and manner statements, and they used increasingly more factual statements to represent their knowledge throughout the three stages. In addition, there was the group of students who appeared to engage more analytically, conceptually, and reflectively in information use, and who showed an integrative approach to knowledge construction.

While this research did not track nor examine the specific dimensions of the learning environments in each of the schools, the students' qualitative input in this study pointed to the influence of contextual elements shaping the knowledge building process and its outcome. These include the nature of the task; scope of choice within the curriculum area; the nature of instructional interventions provided to guide students in information seeking and use; the instructional emphasis given to, and balance of, information gathering and knowledge building activities; and a focus on the affective and motivational aspects of knowledge construction as well as on the cognitive dimensions.

As researchers and as practitioners, this leads us to ask, "What constitutes deep knowledge and deep understanding of a topic?" "What does it look like?" "Is the development of additive and integrative approaches different, yet comparable, patterns of knowledge development, or is it that the students who remain at the level of stockpiling facts have stagnated in their learning process, or are taking a superficial approach to learning?" "Given the focus on standards based education which seems to drive learning across the USA, which knowledge pattern represents a higher level of intellectual quality?" "What kinds of knowledge do we want our students to come away with when they undertake school library-based research tasks?" "Does or should the school librarian even have a voice in the desired knowledge outcomes to be achieved?"

The School Learning Impact Measure Toolkit

One part of the New Jersey research was developing and testing of what we called the SLIM (Student Learning Impact Measure) toolkit. We developed some survey instruments intended to be used at the classroom level by teachers and school librarians. These were:

1. Writing Task 1 (WT1) (at initiation of inquiry unit)
2. Writing Task 2 (WT2) (at formulation stage of inquiry unit)
3. Writing Task 3 (WT3) (at conclusion of curriculum unit)

Writing Tasks 1 and 2 consisted of the following questions:

1. Write the title that best describes your research project at this time.
2. Take some time to think about your research topic. Now write down what you know about this topic.
3. What interests you about this topic?
4. How much do you know about this topic? Check (✓) one box that best matches how much you know: Nothing, Not much, Some, Quite a bit, and A great deal.
5. Write down what you think is easy about researching your topic.
6. Write down what you think is difficult about researching your topic.
7. Write down how you are feeling now about your project. Check (✓) only the boxes that apply to you: Confident, Disappointed, Relieved, Frustrated, Confused, Optimistic, Uncertain, Satisfied, Anxious, or Other.

Additional questions at Writing Task 3 were:

1. What did you learn in doing this research project? (This might be about your topic, or new things you can do, or learn about yourself)
2. How did the school librarian help you?

3. How did the teacher help you?

Following the New Jersey research and the feedback from the participating teams, we refined these instruments. These instruments have been further tested by fifteen teams of school librarians and classroom teachers across the United States, and we are currently analyzing a great deal of data that will help us further refine and package the instruments. We see this as part of the evidence-based practice framework that underpins this work. It is critical that we provide tools for school librarians to enable them to take action.

The Impact of Research on Practice

SLMR: In what manner do you recommend that practicing school media specialists adopt and modify these methods in order to gather, analyze, and present results to both address problems in their own program as well as to present stories of success?

I would hope several things happen for school librarians in relation to these studies.

First, I would hope that the findings spark some serious reflection and thinking on the part of each individual school librarian in relation to the questions, “How does MY school library help students in my school, and what can I do to gather some evidence in my school to demonstrate the centrality of the school library to learning outcomes?” “What is the nature of the learning that goes on in my school library, and how do I know?” School librarians must be dedicated to best practice, and all of the state studies provide clear opportunities for school librarians to continuously engage in thinking about and reflecting on effective school library practices; to translate this thinking into action to lead learning through school libraries. This means moving beyond just thinking about improvement, and taking action—implementing local strategies and processes that contribute to a cycle of ongoing improvement. We are accumulating quite a deal of evidence, using multiple methodologies and from multiple perspectives. I really want this research to improve practice, and not just be something that is thrust in the face of decision-makers in a call for stopping the erosion of school library personnel, budgets, and services.

Second, I hope that these studies provide some tools that can be adaptable in the local school to collect some data. I know that this is already being done in Ohio and Delaware. For example, in Ohio, Ann Tepe, Gayle Geitgey (who were the project managers for the Ohio study), and I have done quite a number of day-long, evidence-based practice training workshops for school librarians across the state who then will be running evidence-based training programs in their district. Part of their learning focuses on using parts or the whole of the Ohio study to collect data in their schools, with support on how to make some sense of the data collected. In Delaware, a similar training program is running led by Densie Allen, Malik Stewart, and Juley Harper of the Delaware Department of Education. In this training program, school librarians focus on developing school improvement plans for their school libraries as part of each school’s school improvement planning process. They are shown how to interrogate data available through the Department of Education, how to examine test score data from their schools and district, how to identify gaps and to formulate a range of interventions that are consistent with the improvement plans in the school, and how to incorporate and use a range of evidence-based tools, such as aspects of the Delaware study, to collect data to show improvement.

Third, on the basis of what the data tell me, how can I continuously improve my practice to ensure that I provide the best opportunities for students to learn and to succeed—to be, to do, and to become? For example, in the Ohio and Delaware studies, their perceptions of how school libraries supports them on their wider reading interests and the development of reading literacies were lower than other dimensions in the studies. This is not saying that the school library did not help them with their reading aspects, it was that they perceived other dimensions of the school library to be more helpful. Yet I would wager that most school library policies and mission statements has some rhetoric about school libraries and students and reading. So the challenge is to reflect on what is happening in the local school library, and to be honest about current practices, and to rethink and reshape practices that will realize the rhetoric.

I suspect that most reading enrichment initiatives center on book talks, literature displays, book promotions, and the like, all which seem to be fairly passive activities. In the light of the findings, how can we rethink and reshape the initiatives and interventions we have traditionally used to build and sustain an active reading culture? When we analyzed what works in Ohio and Delaware in terms of engaging students in reading for pleasure, we found, from the perspective of the students, that they valued such things as availability of latest releases; personalized, targeted, proactive service; identifying interests; developing self-esteem; using curriculum as link to reading enjoyment and enrichment; and being shown that academic success can be achieved through improving reading.

The Ohio and Delaware studies also showed just how much the students valued the provision of information technology, not just as a tool for finding information, but as a tool for helping them create presentations that represent their knowledge of their topics. The findings enable us to ask, for instance, how do we use the available information technology in the library to build a more active and motivated reading culture? I see multiple opportunities to foster active student engagement, discussion and creative outputs through Web blogs; book raps; interactive book reviews; online literature circles and reading pals; student-created e-books; student-run school reading Web pages; and student-generated summer reading programs.

I think that the general questions that these studies raise ask us to look at the role of school libraries in relation to reading initiatives much more carefully. Across the country, there is increasing attention being given to students engaging with informational texts for learning, and school libraries must address this more carefully in the context of not just promoting, but playing a central role in, the development of literacy. Improving children's literacy require careful consideration of instructional strategies that are sustained over long periods of time. This means that school librarians must be much more astute in assessing the needs of students in research and reading environments, and being much more actively engaged in the literacy and reading policies and frameworks in the school.

Future Research Agenda

SLMR: What is your likely research agenda for the next two years as a result of what you have learned from these recent studies?

I really want to continue to develop the evidence-based practice frontier, and empower and enable school librarians to do this at their local level. In many respects, the findings of all of the statewide studies are lost if school librarians expect or wait for someone else (such as politicians,

school superintendents) to take action. Far too often I get the well-meaning question, “What are you doing with this research?” The expectation is that I am the one out there bringing it to the attention of the decision-making authorities. I want our school librarians to realize that all the state studies undertaken are “their” research, not “my” research, and that they are clarion calls for them to take action. Taking action means that they are living the solution. Not taking action means that they will be living someone else’s dreams and someone else’s solutions, and someone else’s solutions may not be in the best interest of student learning outcomes through the school library, or their own future.

That said, the work we did in New Jersey tracking changes in knowledge has left a very strong impression on me. I want to focus my research energies on understanding the dynamics of students learning through the school library. This means taking a really microscopic look at students’ information-to-knowledge experiences and processes across multiple disciplines, grade levels, and learning needs; looking at the learning that is going on; and developing ways to measure this learning and to accumulate the diverse evidence across multiple contexts.

This suggests a variety of approaches: comparative case studies, experimental and quasi-experimental designs, even some ethnographic and longitudinal work to understand what is going on and what learning outcomes result. What I would like to come out of this is not just a richer understanding of the information-to-knowledge process, and of course, a richer pool of data, but also an understanding of how student inquiry through the school library can be more effectively enabled and guided by school librarians; that is, how instructional interventions and mediations might be more effectively designed to bring about the highest and richest quality of learning outcomes through the school library.

To put it simply, if that is even possible, I want to focus on the utilization of information for learning, to understand that dynamic, particularly building on the research on the Information Search Process that Carol Kuhlthau has given us. What are the most effective instructional interventions that can guide students as they progress through each stage of their search process? This is really why we have established the Center for International Scholarship in School Libraries at Rutgers University.

Instructional Interventions

What this raises further to me is the nature of the instructional interventions that school librarians need to undertake in order to enable students to develop knowledge in rich and complex ways. As I mentioned earlier, my thinking has somewhat been shaped by what Gore, Griffiths, and Ladwig (2004) call productive pedagogy, which focuses on the development of higher order thinking, depth of knowledge, depth of understanding, ability to engage in substantive conversation, ability to recognize knowledge as problematic, and reading literacy grounded in language, grammar, and technical vocabulary.

We have to ask, “What constitutes productive pedagogy in the school library?” My suspicion is that much of the instructional intervention that goes on in school libraries (if it even goes on) focuses on students accessing, finding, and evaluating information, with considerably much less attention given to instructional interventions that focus on doing something with this found information in deep ways. In other words, instructional interventions focus on information as input, rather than on knowledge and understanding as outcome. This raises another fundamental

issue that has my mind racing at this present time. When ever I speak in school library forums across the world, one of the consistent concerns that I hear relates to students and plagiarism. Teachers voice this concern. School librarians voice this concern. But, I wonder, if the focus of school librarians' instructional interventions centers on helping students access, find, and evaluate information, without much emphasis on helping transform this information into personally held deep knowledge and understanding, are they then contributing to the plagiarism problem, rather than addressing it?

This calls for a fundamental shift in instruction, moving beyond helping students find information, to helping them engage with it in critical ways to build a deep level of knowledge as opposed to a superficial one.

The Broader Research Agenda

SLMR: What is the wider research agenda that you recommend others who are in academic positions should follow to help add to the knowledge pool we need in order to improve school library media specialist and program performance in the future?

As researchers, I think we are all doing our own thing, and on one hand, this is important because it keeps alive investigation into the many dimensions that make up the complex beast of school libraries. But at the same time, this worries me a little. How does this build up to a coherent picture of the informational, transformational, and formational role of school libraries in schools? There are of course multiple reasons for this, among them being the research interests and intellectual passions of scholars. But I would dearly love to see a national research agenda for school libraries, even an international agenda. As I travel around, it is clear to me that we are all trying to deal with the same issues and complexities across the globe. Let's bring all of the fine minds of the country together in a much more concerted and consistent way, and really come to terms with the fundamental knowledge gaps and needs of our profession.

I actually think that we have a potential framework for doing this. I have followed with great interest the development of the new AASL learning standards. The focus on students, particularly inquiry, thinking, and the creation, application, and dissemination of their knowledge, is extremely important, as is the focus on the social and personal development of students. I am actually pleased to see the move away from those vague rhetorical (and unmeasurable) notions of lifelong learning and independent learning as some kind of outcomes, and a much stronger focus on the formative role of education. As I look at state curriculum frameworks and standards, there is increasing emphasis on the development of deep knowledge and understanding, and the thinking and problem-solving competencies that underpin this.

This is what school libraries have to explicitly and systematically target—the concerted focus on learning outcomes as articulated in curriculum standards—this means outcomes related to deep knowledge and understanding of curriculum content, and the intellectual, technical, social, and cultural competencies that both processes for the development of deep knowledge, and key outcomes in their own right. It also means moving beyond asserting the goodness of information literacy competencies as a means of shoring up the positions of school librarians and giving them authority and importance.

In this respect, the proposed AASL learning standards represents a fundamental set of claims about the school library's role in learning. Each of these claims should be clearly underpinned by research that gives authority to the claims, and clearly demonstrates to all educational stakeholders that the school library profession's basis for operation is a strong research foundation. Each of these claims provide opportunities for further research, so that the research platform for practice continues to build in a focused and powerful way. By addressing these claims, we establish a coherent research program that continues to build the research and cumulate the findings in a strong way. This also will enable us to focus on the complex learning dimensions and to understand the information-to-knowledge experience of students in much more detail, and what might be the range of appropriate instructional interventions. I really do think that we have to focus on elucidating and testing instructional interventions so that we work to continuously improve the instructional interventions of school librarians.

Applying What Is Learned from the State Studies

SLMR: How should we use the information and methods from the “state studies” to improve school library media specialist performance, rather than to simply “protect” current school librarian jobs?

I think we need to give much more attention to improving the performance of professional practice. What comes across very clearly in all of the state studies is the centrality of the instructional role of the school librarian, and intervening through instruction in the library and research experience of students. The data we collected from Ohio and Delaware, particularly the stories of students, indicate that students highly value the instructional role of school librarian—not just instruction-related to helping students find and evaluate sources and get the information they need to complete their tasks, but also helping them do something with the information to construct it into something meaningful.

The findings do give us some insights into instruction, and what students value and consider helpful. We have to listen to this, and continuously improve instructional practices. If only we could get more school librarians actively engaged in targeted instruction that enables students to progress in their information-to-knowledge journey. My sense is that the instructional role is what many school librarians do least in their professional practice. This is a serious limitation in our profession, in my view, and I think a major stumbling block in the way that school systems view school librarians and their leadership role in the school.

Making visible the connection of the school library to learning is not achieved by school librarians standing up on an information literacy advocacy platform and thrusting compilations of research about how school libraries contribute to student achievement into the faces of school leaders. This approach often blames others for the issues that confront school libraries, and it asks others to take action to rescue school libraries from their plight. All of the recent research I read about school libraries compels school librarians to take action. The action has to be in their court. Our research is not a game of tennis—the research ball can not be constantly thrown back into the court of others to take action; rather, it is the school librarian who has to lead in that action and demonstrate that these actions matter to a school community. In my view, the primary action is instructional intervention—direct, targeted, and sustained engagement in instruction that helps students develop deep knowledge of their curriculum.

Of course, all sorts of reasons are provided for not doing this. Nothing changes when nothing is done. Actions are steps to solutions. In taking action, school librarians are living their goals and dreams, rather than someone else's solutions, because the school librarian's dream is not made explicit though the daily practices and the evidences of those practices in terms of student outcomes. With this in mind, the school librarian's instructional role should become much more strongly embedded in performance appraisals of school librarians at the school and district level, and be upheld. I am a great believer in accountable professional practice. The stakes are too high to not be accountable. Either we practice what we preach, we reshape and continuously improve practice that is aligned with what the research tells us, or we own the outcomes, what ever they are.

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