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Student Learning in the Library: What Library Power Librarians Say

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Library Power sought to improve student learning opportunities through enhanced use of an improved library media center. Over the course of the initiative, librarians in Library Power schools were asked to describe meaningful learning experiences for a student or students in their libraries and to explain what made them good learning experiences. The librarians' responses were analyzed for the quality of the learning experience described and for the kinds of indicators cited as evidence of learning. Focused case studies observed how the school library media centers in selected schools provided improved learning opportunities for students.

The National Library Power Program, funded by the DeWitt-Wallace Reader's Digest Fund, sought to improve opportunities for student learning by providing funding for library resources in elementary and middle schools in 19 communities across the United States. Although contributions to all of the schools were similar, some schools had more success than others in providing student learning opportunities. Although improved resources made an important contribution in all of the schools, other factors were at work that affected student learning in the libraries. Where Library Power seems to have had the most significant influence on student learning is in those schools where it has been tied to other reform efforts that were moving the climate in the school to a more constructivist approach to learning, centering on inquiry in the research process.

An Inquiry Approach to Learning

The Library Power Program was more effective where there was a commitment to an inquiry approach to learning shared by the librarian, teachers, and administrators. An inquiry approach involves students in the process of learning from a variety of sources of information that begins with students developing their own questions (Harste, 1994). Students are guided through inquiry by asking: What questions do I have? How do I find out? What did I learn? Inquiry learning takes students out of the predigested format of the textbook into the use of a variety of resources for constructing their own understandings. They learn to think through issues that do not have prescribed responses or preset solutions. Through a process of construction, each student actively builds on what he or she already knows to come to a new understanding of the subject under study.

Collaboration Based on Inquiry

Where an inquiry approach to learning is in place, the library is an integral part of the learning process. The inquiry approach requires more than just activities that involve the library. Collaboration between teachers and librarians is a fundamental component of an instructional program based on inquiry. Extensive planning and direction by the teacher is needed to guide students in the learning process with instruction given at the "teachable moment." Through collaborative planning and teaching, opportunities are provided for students to use library resources for constructing a depth of understanding in the content areas of the curriculum. Teachers and librarians are drawn together in a close partnership for developing inquiry as a way to meet the instructional goals of the school (Harste, Callison, & Jurewicz, 1994).

Inquiry is not a new idea for school librarians. Learning through a variety of resources has been the basic concept of library programs since the 1960s, with roots of the idea going back to the founding of libraries in schools. In an article on inquiry in libraries, Callison (1986) described how an inquiry approach changes the librarian's role from that of reacting to immediate information demands to that of interacting with teachers and students in the development of learning through the use of the media center resources. Over the past decade, while researchers in education have been building a strong case for an inquiry approach to learning, there has been a parallel stream of research in school libraries on the information search process. This research has contributed significantly to our understanding of learning through the process of inquiry. The Library Power Evaluation Project revealed that findings from these two streams of research are coming together in many schools to provide enabling learning environments for students. Taken together, this research offers a strong empirical base for building collaborative library programs that are designed for learning in the information age.

Learning Through the Inquiry Process

In school libraries, the process of inquiry has been intensively studied and modeled as the information search process (ISP). Research has centered on investigating the student's perspective on the process. From the perspective of the student, strategies were developed to be implemented by librarians to improve student learning. My research in this area was initiated in the mid-1980s with a qualitative study of one class of high school students revealing a sequence of stages in the ISP. Since then, the stages of the ISP have been verified in series of studies applying both qualitative and quantitative methods and incorporating longitudinal and large scale design. Full descriptions of the studies and of the model of the stages in the ISP have been given in prior publications (Kuhlthau, 1993, 1994). In brief, the ISP may be thought of as occurring in seven stages: Initiation, Selection, Exploration, Formulation, Collection, Presentation, and Assessment. These stages are named for the primary task to be accomplished at each point in the process.

The model describes the thoughts, actions, and feelings commonly experienced by students in each stage of the process. When students are engaged in an extensive inquiry project, their thoughts evolve from vague and unclear to focused and personalized, their actions change from general and exploratory to specific and comprehensive, and their feelings emerge from uncertain and hesitant to interested and directed. The critical component of the ISP is the student's own formulation of a focus that involves gaining a personal perspective of the subject or problem while using a variety of sources of information. In other words, they are constructing knowledge through inquiry.

Study of Opportunities for Student Learning

In 1994, the National Library Power Evaluation Project directors Dianne McAfee Hopkins and Douglas Zweizig called on me to study opportunities for student learning in the Library Power schools. The key question addressed was, has Library Power influenced student learning opportunities? Two methods were developed for investigating student learning in Library Power schools: an analysis of responses to an open-ended survey question eliciting the librarians' description of learning in each of the schools and theme case studies in three selected schools. This article discusses evidence of improved opportunities for student learning in Library Power schools through these two primary sources of data.

In the first phase of the study, the librarians in the Library Power schools were asked to give examples of student learning in their libraries. One of the questions on the Library Power Annual Survey was designed to elicit examples of student learning and was administered to the librarians in 1995, 1996, and 1997. The librarians' responses to the survey question provided a critical incident that was considered to typify in some way what first comes to mind when the librarian is asked to describe a student learning experience. These initial responses or reactions were treated as an indication of what the librarian judged to be important to emphasize when asked to describe a situation of learning in the library. In each of the three years that the survey was administered, the librarians were asked to respond to the following prompt. "Think back over your Library Power project to when a student or students had a meaningful learning experience in the library. How did you know something new was learned? What stands out in your mind that made it a good learning experience?" The examples of learning given by the librarians were then coded as to what the librarians had emphasized as indicators of learning. A comparison was made of changes in the aggregate responses over the three-year period.

Scale for Coding Examples of Learning

A coding scale was designed to classify the critical incidents by what was emphasized in each librarian's response. The coding scale identified the librarian's perception of learning as an indication of the vision and objectives of the library program at that time. Was the librarian emphasizing more

materials and technology, increased library use, improvement in attitude, better library and information skills, or use of resources for content learning? Although this analysis did not directly measure student learning, it revealed the underlying perspective on learning in the library of the person responsible for developing a library program.

In the spring of 1995, through content analysis of a sample of 30 responses, a 5-point coding scale was developed, which was intended to represent levels of opportunities for student learning, with 1 representing the lowest level and 5 the highest, as shown in Figure 1.

It should be noted that all of the levels represented evidence of the implementation of library services. However, at each level, the librarian emphasized a different element of the library program to indicate evidence of student learning. Responses identified as level 1 emphasized what the librarian did and not what the student did, such as adding to the collection or describing a lesson taught. Level 1 responses were coded as *Input*. Responses identified as level 2 emphasized quantitative measures of student use, such as a greater number of materials circulated, more class visits, or increase in technology use. Level 2 responses were coded as *Output*. Responses identified as level 3 emphasized change in student attitude, such as increased interest and enthusiasm. Level 3 responses were coded as *Attitude*. Responses identified as level 4 emphasized library and information skills, such as ability to locate materials through a catalog or ability to use an encyclopedia on CD ROM. Level 4 responses were coded as *Skills*. Responses identified as level 5 emphasized content learning, such as using resources to learn about a subject. Level 5 responses were coded as *Utilization*. Level 5, Utilization, identifies opportunities for student learning that apply inquiry integrated into curriculum areas. At this level, information literacy is not taught as isolated skills, but is embedded in the inquiry process. Both process and content learning are emphasized at level 5. Surveys with no response or a response that did not answer the question were coded O.

Level 1 : <i>Input</i> -emphasis on what librarian did, not on students, i.e., adding to collection, adding new technology, describing lesson or unit plan.
Level 2: <i>Output</i> -emphasis on quantitative measure of student use,i.e., more visits, more use of materials and technology.
Level 3: <i>Attitude</i> -emphasis on change in student attitude, i.e., increased interest and enthusiasm.
Level 4: <i>Skills</i> --emphasis on location of resource and use of technology, i.e., locating books, using CD ROM encyclopedia.
Level 5: <i>Utilization</i> -emphasis on content learning, i.e., using resources to learn through inquiry in content areas of the curriculum.
O-no response or response does not answer question.
<i>Figure 1. Coding scale for librarians' descriptions of student learning.</i>

The responses from the librarians were coded by two coders from the School of Communication, Information and Library Studies at Rutgers University, myself and Mary Jane McNally, library media specialist and doctoral candidate. All of the responses were read and coded separately by each coder. The coders discussed each response on which they were in disagreement and came to a consensus. This coding and analysis was independent of the analysis of the responses to the survey as a whole and has not been correlated with other questions on the survey. The same two coders were used each of the three years, applying the same method of coding.

Librarians' Descriptions of Learning

Analysis of the coding revealed patterns in the librarians' responses in each of the three years of their involvement with Library Power. Results are reported in frequencies and percentages of the aggregate responses in each level category. These findings reveal what the librarians emphasized when asked to give an example of student learning.

In 1995, the first year of the study, 331 responses were received to the survey question regarding student learning. The highest number of responses, 105 or 31.7%, were coded at level 3, emphasizing change in Attitude toward the library and its resources. Approximately a third of the librarians noted that they saw a positive change in attitude in their students as a result of the Library Power initiative. The second highest number of responses, 95 or 28.7%, were coded at level 4, emphasizing library and information Skills. These responses gave examples of students using library skills to locate materials or some of the new technology. The third highest number of responses, 89 or 26.9%, were coded at level 5, emphasizing Utilization of library resources for content learning. These responses gave examples of students using resources to learn about some topic or question that they were either studying in connection with a subject in the curriculum or something they were curious about that related to a personal interest. Taken together, the three levels represented 86% of the responses.

In 1996, the second year of the study, 405 responses were received to the survey question. The highest number of responses, 155 or 38%, were coded at level 4, emphasizing library and information Skills. The librarians noted that they saw evidence of influence of Library Power on students' ability to use the library resources and technology. The second highest number of responses, 97 or 24%, were coded at level 3, emphasizing a change in Attitude of the students. Change in attitude continued to be a strong indicator of student learning in the librarians' responses. The third highest number of responses, 94 or 23%, were coded at level 5, emphasizing students' Utilization of resources for learning in connection with a subject in the curriculum or related to a personal interest. Taken together, these three levels represented 85% of the responses of the librarians.

In 1997, the last year of the study, 495 responses were received to the survey question. The highest number of responses, 185 or 37.4% were coded

at level 5, emphasizing Utilization of library resources for learning. Librarians' responses gave examples of students learning through research in collaborative units throughout the curriculum. The second highest number of responses, 122 or 24.6%, were coded at level 4, emphasizing library and information Skills. The third highest number of responses, 113 or 22.8%, were coded at level 3, emphasizing a change in Attitude regarding the library and its resources. Taken together, these three levels represented 83% of the responses.

In summary, results of the survey showed that in each of the three years, the combined levels of Attitude, Skills, and Utilization represented approximately 85% of what the librarians emphasized in their responses. Only 15% of the responses in each of the three years were at the Input and Output levels combined. However, there was actually a slight rise in the Input level during the last two years when librarians were being introduced to collaborative planning. Many responses at the Input level were examples of lessons taught, in other words, what the librarian did, not what students learned. During these years many of the librarians were developing instructional units through collaborative planning. There may have been some confusion about the subtle, but important, distinction between the lesson planned and the learning achieved.

Change in Librarians' Responses During Involvement in Library Power

A comparison of the librarians' responses in 1995, 1996, and 1997 showed an important change over the years of involvement in the Library Power project as shown in Table 1. In 1995, the highest number of responses emphasized change in Attitude. In 1996, the highest number of responses emphasized increased competence in library and information Skills. And in 1997, the highest number of responses emphasized Utilization of resources for learning. This would indicate that, over the course of the Library Power initiative, many librarians were changing their perceptions of student learning. Early in the initiative they noted a change in attitude about the library. Midway in the initiative, they stressed competence in locating resources and using technology. In the third year, however, many had turned their attention to learning in the content areas. This progression suggests an increasing awareness on the part of many librarians of inquiry as a way of learning. This important finding indicates that the sustained effort of the Library Power initiative was a critical component in changes that influenced student learning opportunities. The nature of this effort was further investigated in the case study section of this study.

Indicators of Learning Identified by School Librarians.

In 1996, while analyzing the librarians' responses to the survey question, the coders noted that many responses identified specific indicators that some librarians were using to describe learning. In order to capture these "in-

Table 1
Changes in Librarians' Descriptions of learning

	1995 n=331		1996 n=405		1997 n=495	
	freq.	%	freq.	%	freq.	%
Non-response/ uncoded	12	3.6	27	6.7	44	8.9
Input	10	3.0	16	4.0	20	4.0
Output	20	6.0	16	4.0	11	2.2
Attitude	105	31.7	97	24.0	113	22.8
Skills	95	28.7	155	38.0	122	24.6
Utilization	89	26.9	94	23.0	185	37.4

dicators of learning," all of the responses were reviewed a second time to identify phrases that were used to explain how the librarian had determined that learning was taking place. Indicators of learning were identified in 251 of the 405 responses. These were coded into 10 separate categories as described in Table 2.

The most frequently mentioned indicator was "independence in applying skills" with 50 responses in this category. Examples of responses in the *Independence* (I) category were: uses computer independently; able to use information skills in another assignment; skills reapplied in similar but varying projects. The second most frequently mentioned indicator was "returning to the library on a consistent basis and reluctance to leave when there" included in 37 responses. Examples of responses in the *comes Back* (B) category were: asked if we'll be doing it again; did not want to stop; came back after lunch. The next two most frequently mentioned indicators were "comments

Table 2
Coding Scale for Indicators of Learning Identified By Librarians

<i>Categories</i>	<i>Frequency</i>	<i>Percentage</i>
I – Independence in applying skills	50	19.9%
B – comes Back, is reluctant to leave, or wants To do activity again	37	14.7%
C – Comments to librarian	32	12.7%
F – Expression on face	30	12.0%
H – Helps and teaches other students	23	9.2%
S – Shares ideas with others	20	8.0%
Q – Questions asked and/or connections made	20	8.0%
P – Final Products	17	6.8%
R – Recalls at a later time (content)	16	6.4%
T – Test results	6	2.4%

made by students to the librarian" included in 32 responses and "facial expressions of students" included in 30 responses. Examples of responses in the *Comments* (C) category were: calling me over to show what they had discovered; discussed books with me; explain in their own words. Examples of responses in the *Facial expression* (F) category were: face lit up indicating mental connection; expression on their faces; evident in their faces. These four categories accounted for 60% of the indicators of learning identified by the librarians.

The next three most frequently mentioned indicators, accounting for 25%, were "helps and teaches other students how to locate materials and use technology," "shares ideas about content learning with other students," and "questions students asked and connections they made while using resources for content learning." Examples of responses in the *Helps* (H) category were: helping younger student locate materials; students teaching other students; taught to others. Examples of responses in the *Shares* (S) category were: immediate need to share new information; able to share knowledge with each other; shares learning with class. Examples of responses in the *Questions and comments* (Q) category were: students asked pertinent questions; good questions evolved; makes connections.

The last three, "final products," "recalls content at a later time," and "test results" accounted for 15% of the indicators of learning identified by the librarians. Examples of responses in the *Products* (P) category were: seen in final products; new ideas in oral and written reports; student plays were performed. Examples of responses in the *Recalls* (R) category were: commented on months later; remembered so much from their research; able to tell about it three weeks later. Examples of responses in the *Test* (T) category were: test; test results; answers on quiz bowl.

The results of this analysis identified 10 indicators of learning that ranged from intuitive observation to documentable evidence. The more traditional ways of assessing learning in libraries is to observe students while they are using the library, with heavy emphasis on library and information skills, typical of the first four most frequently mentioned categories. The second tier of responses represent more interaction and involvement on the part of students, with more emphasis on content learning and information literacy. The fact that the more interactive, documentable indicators were mentioned in 25% of the responses suggests an awareness on the part of some librarians of more authentic approaches to assessment. Documenting substantial effects of learning mentioned in the third tier of indicators represented a relatively small number of responses by the librarians.

These findings reveal that the librarians were grappling with the task of identifying and assessing learning related to use of library resources. The Library Power initiative called for librarians to play a significant role in student learning by collaborative planning and teaching throughout the curriculum. In order to assume this role, they needed to have an understanding of indicators of learning and be able to assess student learning. Although

many librarians were aware of this task, this study suggests further expertise was needed for assessing, evaluating, and documenting the learning related to libraries.

Case Study Phase of the Study

The second phase of the study was to take a closer look at selected schools to gain a better sense of the factors influencing opportunities for students to learn. Three theme case study schools were selected from those coded in the librarians' survey on the Utilization level and identified by the project directors as places where a high level of learning was likely to be taking place.

The theme case studies were analyzed using a 5-point scale that was based on the same scheme developed to code the examples of learning given in the librarians' survey. The scale was adapted as five levels of evaluation to gain a fuller picture of what was taking place in individual schools and to analyze how the Library Power initiative was affecting opportunities for student learning in each setting. The scale provided a framework for identifying differences in library programs and for analyzing why some schools were having more success than others in providing opportunities for student learning.

Framework for Evaluating Opportunities for Learning in Library Power Schools

A framework for evaluating quality learning opportunities in these three school libraries was developed on five levels as shown in Figure 2.

Level 1, *Input*, investigated the contributions to the library that provided opportunities for student learning. Contributions of Library Power were identified in 10 areas: funding, collection, renovation, technology, staffing, administrative support, flexible scheduling, professional development, collaborative planning, and other reform efforts. Basic contributions were funds for books to improve collections. However, as the Library Power project progressed, matching funds and grants were solicited for renovation of facilities and introduction of technology. The basic requirements of participation in Library Power were a full-time librarian, flexible scheduling, and administrative support. In addition, Library Power provided professional development for implementing collaborative planning between librarians and teachers in the participating schools. Taken together, these contributions of Library Power made significant changes in these schools.

Level 1: Input-contributions of LP in each school.

Level 2: Output-evidence of quantitative impact of LP.

Level 3: Attitude-evidence of increased interest.

Level 4: Skills-evidence of increased information skills.

Level 5: Utilization-evidence of student learning using LP resources.

Figure 2. Framework for evaluating libraries provision for student learning.

Other reform efforts were in place in many of the schools as well. These contributions were identified as Input in this study of student learning opportunities.

Level 2, *Output*, investigated the quantitative evidence of increased opportunity for student learning. Quantitative measures of the impact of Library Power were identified, such as increased circulation of books and increased use of the library. Level 3, *Attitude*, investigated the attitudinal changes related to the Library Power initiative. Evidence of changes in attitude were identified, such as increased interest and enthusiasm. Level 4, *Skills*, investigated development of skills in locating materials and using technology that were related to the Library Power initiative. This level was limited to identifying improvement in library and information skills and did not include skill development in curriculum areas and in the learning process in general.

Level 5, *Utilization*, investigated evidence of use of resources for learning through inquiry. This level incorporated student learning in the content areas of the curriculum and the skills for using resources associated with information literacy. The Utilization level addresses the deeper questions related to the impact of Library Power on student learning. Are students having a different experience as a result of Library Power? Are students engaging in more independent research? Are students approaching topics in a new way? Are students conducting high-quality research? Are students acquiring an in-depth understanding of topics? Are students performing tasks that may be associated with constructivist learning? The Utilization level involves the process of constructing knowledge through the use of a wide range of resources. The criteria for judging student learning at this level were based on a constructivist approach to learning through inquiry as described in the ISP.

In summary, Input identified contributions of Library Power including the more intangible inputs of professional development, collaborative planning, and the presence of other reform efforts. Output identified evidence of the amount of use of the library resources and the facility indicating how the initiative was being received in the school. Attitude was another measure of how the initiative was being received. Skills identified evidence of emphasis of the program on location of materials and information as isolated skills. Utilization was considered the optimal level, where students were learning both information skills and content knowledge through the inquiry process in collaborative units.

A Comparison of Opportunities for Student Learning in Three Case Study Schools

The evaluation scale was used to analyze opportunities for students to learn in three case study schools. The survey section of this study revealed that Library Power clearly has influenced student learning opportunities in each of the participating schools. However, there were important differences in

the opportunities for learning in individual schools that were difficult to explain from the survey data. This part of the study examined three library programs to investigate factors underlying the librarian's role in providing opportunities for learning throughout the curriculum. What was the difference in the role of the librarian from one school to another in providing opportunities for student learning? And was that role related to the perception of learning pervasive in the school? The case study section of the study sought to use more qualitative methods to uncover some of the factors underlying these differences. A comparison of the three case study schools, referred to as School 1, School 2, and School 3 highlighted some important factors about these differences.

Input Related to the Library Power Initiative

Important elements influencing opportunities for student learning were a combination of funding, full-time librarian with appropriate support staff, flexible scheduling, and professional development in collaborative planning and teaching strategies. However, an important underlying element revealed in these schools was the presence of an inquiry approach to learning and a commitment to making this type of learning happen. Each of these schools was in a somewhat different position regarding this key element related to the influence of Library Power on student learning.

A major contribution of Library Power was funding for library collections. In each of the schools, new library resources greatly improved library collections, and Library Power funding prompted other sources of funding for renovation, technology, and additional materials. A highly competent librarian was employed full time in each of the schools with support staff in School 1 and School 3. Flexible scheduling was also in place in each of the schools.

Although Library Power had resulted in similar Input in all three schools, there were substantial differences in the professional development programs offered and in prior reform efforts that laid the groundwork for the Library Power initiative. School 1 had intensive on-site professional development in place related to a major reform effort based on an inquiry approach that had been underway for six years. A team of professional trainers had been guiding teachers in revising instruction and teaching strategies to provide inquiry learning across the curriculum. Inquiry as a way of learning was well accepted and established before Library Power came into the building. Finding that the inquiry approach was compatible with the objectives of Library Power, the trainers from both efforts joined forces to provide a comprehensive professional development program.

School 2 was also involved in prior reform efforts that were compatible with the Library Power initiative, but were in earlier stages of acceptance and implementation. An ongoing program of professional development was in place, although not as intensive as in School 1. The faculty was open to an inquiry approach and had identified the research process as an area they

needed to learn more about through future professional development. In School 3, no consistent reform effort was in place that stressed inquiry or a constructivist approach to learning. Although there were numerous opportunities for professional development, emphasis had not been on inquiry or any other compatible concept. Professional development was more of the awareness variety, sampling an array of different programs without concentration on a consistent underlying philosophy of learning.

Output Related to Library Power

Increased use of the library and its resources, considered Output in this study, also revealed evidence of a difference in opportunities for student learning in the case study schools. At School 1, there was a steady stream of classes coming in for research as well as high use of the library by individuals. At School 2, circulation and class use had increased considerably, although more teachers in primary grades were using the library for collaborative research projects than those teaching the fourth and fifth grades. At School 3, circulation and library use initially had increased, but later had gone down mainly as a result of a decrease in student population due to the opening of a new school. However, even considering the smaller student body, it seemed a warning that sustaining the Library Power effort in this school may be difficult over the long term.

Attitude Related to Library Power

Improved attitude toward the library as a place for learning as a result of the Library Power initiative was evident in each of the schools. At School 1, where an inquiry approach was well established, children were excited and interested in what they were learning. At School 2, teachers reported seeing a marked improvement in their students' attitude toward learning through research, particularly in classes where use of the library for curriculum-related projects had increased. At School 3, teachers' and students' enthusiasm mainly centered on the renovated facility and improved collections. However, interest and enthusiasm in learning through research was uneven. Some students expressed concern with collaborative projects where they felt rushed and had received conflicting instructions from the teachers involved.

Library and Information Skills Related to Library Power

At School 1 and School 2, library and information skills were integrated into content learning. Each of these schools had developed a research process model similar to the ISP for guiding students. In both schools, students who used the library for research were found to have the ability to apply their library skills for locating information and resources in other situations and in other libraries. The principal of School 1 noted that the public librarians had reported to him that students knew how retrieve the information they needed when they used the public library. The librarian at School 2 reported that test scores relating to research skills went up appreciably for students in those classes that had extensive library use. Only at School 3 were isolated

library and information skills lessons mentioned in the case study. The librarian was described as orienting students in preparation for future research projects.

Utilization of Resources for Learning Related to Library Power

Use of library resources for learning was the most pertinent level of evaluation for addressing the question of impact on student learning. The other four levels—input, output, attitude, and skills—provided the background for interpreting the differences in Utilization of resources for learning in the three schools. All three schools had been identified as places that were likely to have a high level of student learning. And indeed each was found to be providing opportunities for students to learn through the use of a wide range of resources.

The difference between the schools at the Utilization level was in an understanding of the inquiry process and how to facilitate the construction of knowledge in the process in areas of the curriculum. The teachers and librarian at School 1 were most advanced in their understanding of inquiry and were providing numerous opportunities for students to learn through the research process. At School 2, the teachers and the librarian had reached a point in their provision of research opportunities for students where they had become aware of a need to know more about the research process and ways to guide student inquiry. They had requested workshops to gain this expertise. Although the librarian and some of the teachers at School 3 had gotten off to a good start with problem-initiated research projects, their understanding of the underlying process of learning through inquiry was not sufficient to sustain their efforts through changes in personnel at the school. When use and interest began to drop, they had difficulty identifying what was going wrong and how to remedy the situation.

At School 1, the instructional program was based on an inquiry approach to learning. Using library resources for learning throughout the curriculum was not an additional, occasional activity, but at the very center of the instructional program. Inquiry was a way to learn, and the resources in the library and the research process were essential components in the learning process. The contributions of Library Power provided funding for essential resources and program elements to support the inquiry approach, which pervaded the school and resulted in increased use of the library and its resources. Collaborative planning and flexible scheduling were well established, as was an ongoing program of professional development. Intensive professional development incorporated technology, philosophy, and strategies in a cohesive whole. The inquiry approach was viewed as the way to achieve the objectives of the school. The case study revealed no doubt in the continuation of the program by the faculty. The program was well established and accepted as the usual way of functioning in the school. Opportunities for student learning at the Utilization level were everyday

occurrences. The school had been selected as a model to demonstrate a well-functioning program to other schools.

School 2 had made good use of the resources provided by Library Power and had come a long way toward improving opportunities for student learning. Support of administrators provided incentive for the faculty to develop learning through research. Use of the library and resources was increasing. The librarian was open to change and developing a new perspective on her role in the school and new skills for collaborating with teachers on inquiry units. Teachers in the primary grades were responsive to collaborative planning and teaching and had made considerable progress in extending student learning opportunities. Some teachers in the intermediate grades were beginning to develop collaborative plans, but teachers saw that more progress was needed in this area. Substantial progress had been made, but as they became more involved in developing an inquiry based program, they realized that the research process as a central element needed to be better understood by the teachers and librarian in order for student learning to be guided in meaningful ways. They were not ready to rest on their accomplishments but saw a need for improvement, particularly in expertise in the research process and technology. Professional development efforts for the future were planned in these areas. Some teachers indicated a concern for sustaining the initiative, but most felt assured that the program had shown a degree of merit that supported future development.

At School 3, the teachers had been involved in several collaborative planning workshops related to the Library Power initiative where they developed interdisciplinary units with the librarian. Before Library Power, little collaboration existed at the school. After participation in the workshops, many of the teachers viewed the collaborative opportunities as having a positive influence on student learning. However, the librarian reported that although about 50% of the teachers did some kind of collaboration as a result of the workshops, for some it just meant telling her what they planned to do in the library. She estimated that between 10% and 20% were truly engaged in collaborative planning and teaching. However, there did not seem to be any set mechanism to ensure that collaboration took place. Through memorandums and announcements at faculty meetings, the librarian had invited teachers to continue to plan with her. But she noted, "Getting people to collaborate with me is hard because everyone is so busy. Time is really a big factor." A change in personnel had resulted in a serious reduction in collaboration and learning through research. The librarian seemed somewhat discouraged at the prospects for sustaining collaboration over the long term.

Summary of Comparison of Student Learning in Library Power Schools

Student learning opportunities related to the Library Power initiative varied in these schools according to the presence of an inquiry approach to learning.

School 1 had an established model of learning through inquiry on which the Library Power initiative could build. School 2 had changed considerably with Library Power contributions and was on a good track for establishing an inquiry approach. School 3, however, seemed to be foundering because no set mechanism was in place to sustain collaborative teaching of an inquiry approach.

The philosophy of learning in each school directly affected the role that the librarian assumed in the learning process. At School 1, the librarian was a full partner with teachers in learning through research. School 2 was well on the way toward a fully collaborative program in the primary grades. At School 3, the librarian, although highly regarded, was mainly considered a resource provider and teacher of library skills rather than full collaborator in the learning process, even after faculty had participated in workshops on collaborative planning.

A predisposition to a constructivist approach to learning through research was revealed as essential for establishing a consistent collaborative library program. School 1 had a research process model similar to the ISP in place prior to the Library Power initiative. There they integrated reading and writing process strategies with the research process to create a way of learning through inquiry. School 2, although not as developed as School 1, had a research process approach in the primary grades where learning through inquiry had taken hold, but had not yet established the approach in grades 4 and 5. The difference in the impact on learning between primary and upper-grade students was noted in the case study. School 3 had relied primarily on a model of collaboration without the foundation of other reform efforts to connect learning through research across the curriculum. Without this foundation, the librarian had difficulty breaking out of the traditional role of resource provider to move into a more central role as co-planner and teacher and difficulty sustaining the role of collaborator in the learning process.

In response to the key question in this study, the answer would be a qualified Yes that Library Power has influenced student learning opportunities. But the degree to which Library Power influenced opportunities for students to learn varied in these schools as a result of the basic underlying philosophy of learning prevalent in the schools. Where teachers, librarians, and administrators were committed to learning through inquiry, the library was an integral part of the learning process.

Conclusion and Implications of the Study on Opportunities for Student Learning

The impact of libraries on student learning is a key issue for librarians and school administrators. How do we determine the impact of the library on opportunities for students to learn? What evidence do we have that students are learning in libraries? What is the librarian's role in providing opportunities for student learning? This study addressed these questions in the Library Power initiative, first, by asking the librarians to describe incidents of learn-

ing in their school libraries, and, second, by taking a close look at the differences in three schools selected for case study.

The librarians' perceptions of learning and how those perceptions changed were investigated over the course of the three years of involvement in Library Power. The librarians were found to describe learning on five levels:

1. Input, additions to the library collection;
2. Output, increased use;
3. Attitude, increased interest;
4. Skills, improvement in location of materials and information; and
5. Utilization, use of resources for content learning.

The librarians were aware that student learning involved more than providing resources and increased use at levels 1 and 2. They identified opportunities for learning as involving heightened interest, improved access skills, and ability to learn from a variety of resources. In each of the three years approximately 85% of the responses were at levels 3, 4, and 5, with the highest number of the responses in the first year describing improved attitude at level 3, in the second year describing improved skills at level 4, and in the third year describing improved use for learning at level 5. This change indicates that across the Library Power initiative the librarians' grasp of the role the library plays evolved toward more collaborative and central participation in student learning.

An additional analysis examined the kinds of evidence the librarians cited to indicate that learning was taking place. Ten indicators of learning were found in the librarians' responses that ranged from independence in applying skills to test results. The most frequently mentioned indicators related to the librarians' observations of students in the library. They had observed students' independence in using the library, their reluctance to leave and tendency to return, and their comments and the expressions on their faces. These observations were given as indicating that students were learning in 60% of the librarians' responses. Indicators showing learning that was likely to be specifically integrated with curriculum content such as "helps and teaches other students, shares ideas with others," and by the questions asked and connections made, were found in 25% of the responses. And more documentable accountability such as final products, "recalls content at a later time" and test results were in given in only 15% of the librarians' responses. The task of identifying and assessing learning related to the use of libraries is essential where school librarians assume a central collaborative role in the learning of students. More work is needed in this area to develop assessment strategies within the entire range of indicators of learning identified in this study.

The second phase of this study examined case studies to determine why some schools were having more success than others at developing and sustaining integrated, collaborative library programs that provided opportunities for student learning. Comparison of three schools revealed that Library

Power was more effective where there was a commitment to an inquiry approach to learning shared by the librarian, teachers, and administrators. Where an inquiry approach was in place, the library was an integral part of the learning process. Without a commitment to constructivist learning that requires a variety of resources, the library was considered an extra activity in an already overloaded program. In schools where the library was considered essential rather than just good, a clear commitment to inquiry learning was in place on which to build a collaborative library program integrated with the curriculum. In these schools, Library Power was making a significant impact on student learning opportunities.

An important contribution of this study is to the development of methods to study the impact of libraries on student learning. The framework for evaluating libraries and scales for describing levels of learning and for identifying indicators of learning may be applied to investigate learning in other schools. Used to frame interviews or structure observations, these instruments can reveal what is being emphasized in a library program and what is the underlying approach to learning that forms the basis for collaboration between teachers and librarians. The framework and scales provide a way to identify why some school libraries are more successful than others at providing opportunities for student learning. In addition, these instruments may be adapted for use in workshops for librarians, teachers, and administrators to evaluate existing library programs in preparation for developing collaborative programs based on inquiry where students learn from a variety of resources in the content areas of the curriculum.

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