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Corroborating what data collected by 9th-12th grade school librarians articulate and validate a successful school library program

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CORROBORATING WHAT DATA COLLECTED BY 9TH -12TH GRADE SCHOOL LIBRARIANS ARTICULATE AND VALIDATE A SUCCESSFUL SCHOOL LIBRARY PROGRAM

By
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ABSTRACT

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CORROBORATING WHAT DATA COLLECTED BY 9TH -12TH GRADE SCHOOL LIBRARIANS ARTICULATE AND VALIDATE A SUCCESSFUL SCHOOL LIBRARY PROGRAM
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Utilizing an experts' consensus from the field of school librarianship of the characteristics of a successful school library program, this study aimed to corroborate what data collected by 9th -12th grade school librarians articulate and validate a successful school library program. *Information Power* was used as the industry standard for determining the standards of successful school library programs. First; a meta-analysis was done to identify the experts in the field of school librarianship. Second, a Delphi study was used with the experts to corroborate what data needs to be collected by 9th-12th grade school librarians to validate the success of a school library program.

By consensus, three data collection techniques were determined to be valid to articulate and validate a successful school library program: library expenditures per full-time equivalent (FTE) student to report sufficient funding; an analysis of lesson plans to report alternative ways for students to achieve SLM program's support of diverse learning styles; and the student outcomes after collaborative lesson planning of lessons with library components are a valid measure that a SLMS is collaborating, modeling, and promoting.

DEDICATION

"All Love is sweet. Given or returned. Common as light is love, And its familiar voice wearies not ever." ~Percy Bysshe Shelley

"Love me when I least deserve it, because that's when I really need it." ~Swedish proverb

It is to my husband that I dedicate this thesis, for it is he who has made it possible.

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CHAPTER I

STATEMENT OF THE PROBLEM

No shortage of reasons to assess a school library's programs exists. The field of education is rife with parties interested in how schools' libraries are doing. Though each comes with personal motivations, principals, parents, students, politicians, teachers, and the librarians themselves want to be able to demonstrate that they are associated with a successful school library program. No shortage of approaches to accurately or inaccurately evaluate school library programs exists. However, the librarians, who have the responsibility of accumulating the necessary proof, know that perspective is everything. Each faction brings with it its own goals, preconceived notions, and strategies to manipulate the assessment data to reflect its own interests. Therefore, even among school librarians, abundant misconceptions endure about what makes a school library program successful and about how to prove that success.

Fortunately, experts in the field of school library have already spoken. Programs such as *Information Power* and *Library Power* thoroughly outline what school librarians need to do to have a successful library program. Associations such as Middle States Commission on Higher Education and the Nebraska Educational Media Association have done the same. Many independent researchers and writers, Berkowitz, Doll, Eisenberg, Everhart, Hartzell, Haycock, Hopkins, Jay, Lance, Loertscher, Todd, Turner, Webb, Yesner, and Zweizig, are among those whom their peers consult as the experts as to what constitutes a successful school library program.

Technology also supplies school librarians with copious methods of accumulating and reporting a plethora of data. According to LibDex – The Library Index – (Vendor, 2005) at least 186 OPAC vendors existed. Each of these has varying capabilities to produce statistical reports such as patron reports, activity reports, circulation use reports, holdings reports, keyword reports, reports by date and time, material type reports, books-on-reserve reports, and books-on-hold reports. School librarians also often track statistics on quite an array of information; these may include the number of visitors, materials used in-house, computer access, Internet access, database access, lunchtime visits, before- or after-school visits, magazines viewed, weeded items, items to be weeded, library use by subject or grade level, reference transactions, inter-library loan activity, teacher-librarian collaboration, books added, and revenue and expenditures.

The overwhelming amount of data available compels many school librarians to fall into the time-saving trap of simply reporting that high circulation equals a highly successful school library program, and more than likely, the public, principals, and patrons are perfectly happy to expect and accept that high circulation numbers equal high success. Researchers, library associations, *Information Power*, and *Library Power* provide the characteristics of a successful school library program, and technology reports and use analysis provide the data that reflects what actually happens in a school library. None of this collected information explains, however, which specific data provide documentation of a successful school library program.

As a result, school librarians often experience situations of extraneous data collection or uncollected but needed data. Since most school librarians are their own program evaluators and advocates, they would benefit from collecting and reporting

relevant, useful data that actually reflect a successful school library program, not data that are misleading even if well-intended. Utilizing an experts' consensus from the field of school librarianship of the characteristics of a successful school library program, this Delphi study aimed to corroborate what data collected by 9th -12th grade school librarians articulate and validate a successful school library program.

Definitions

For the purposes of this paper, the definition of *library program* is 9th through 12th grade " . . . school library media teacher['s] interaction... with all the knowledge and communication resources – now often including television studios, the production of audio and video tapes or cassettes [or CDs], and the management of computers networked around the world – as well as with students, faculty, and the instructional program in all subject fields at all levels. . . " (Yesner & Jay, p. xviii).

A library program is differentiated from a library service; a service is a subset of a program. Morris (2004) defined a library's program as " . . . a range of learning opportunities for both large and small groups and for individuals" (p. 54). She also described a library program, ". . . through activities that take place in the [school library media] center and in the school as a result of the services" (p. 56). The program, therefore, is a cooperative collaboration of services to students, teachers, administrators, and the community (Morris, 2005).

A school library media specialist, throughout this paper to be stated as *school librarian*, is

> a librarian trained to deliver library services to students in a [9th – 12th grade] school library media center on a walk-in basis or at the request of the classroom

> teacher [or school community member]. In addition to managing daily operations, the library media specialist supports the curriculum through collection development, teaches research and library skills appropriate to grade level, assists students with reading selections appropriate to reading level, helps classroom teachers integrate library services and multimedia materials into instructional programs, establishes standards of behavior for the library, and assists students in developing information-seeking skills and habits needed for lifelong learning. Certification is required in many states. Synonymous with *school librarian.* (Reitz, 2005)

A *school library* is "a library in a public or private elementary or secondary school that serves the information needs of its [9^{th} – 12^{th} grade] students and the curriculum needs of its teachers and staff, usually managed by a *school librarian* or media specialist. . . . Synonymous with *learning resources center*, *library media center*, and *school library media center*" (Reitz, 2005).

Library technology is defined as one or more of the following: technological equipment and software necessary to run library system software for collections, to mount automated library catalogs on the Internet, or to assist libraries in accessing information through external electronic networks (Dismukes, 2000). This may include instructional media as well as electronic organizational, retrieval, and reporting systems.

Throughout the paper, different forms of *data* will be interpreted as "facts, figures, or instructions presented in a form that can be comprehended, interpreted, and communicated by a human being or processed by a computer. Compare with information and knowledge" (Reitz, 2005). Any data transformed into *library records* may be

interpreted as "documents in any form, created or received by an agency or person, accumulated in the normal conduct of business or affairs, and retained as evidence of such activity, permanently or for a limited period of time, usually arranged according to a discernible system of recordkeeping (Reitz, 2005).

A *school library collection* " . . . refers to a number of documents (books, reports, records, etc.) assembled in a single physical or virtual location by one or more persons, or by a corporate entity, and arranged in some kind of systematic order to facilitate retrieval" (Reitz, 2005).

Collaboration, an important aspect of the school library's program, refers to the situation under which "each partner fulfills a carefully defined role; comprehensive planning is required; leadership, resources, risk, and control are shared; and the working relationship extends over a relatively long period of time" (Russell, 2002).

For the purpose of the meta-analysis and the Delphi study, researchers and writers selected for this study were considered *experts* for their commonly recognized expertise and knowledge in the field of school libraries, for being cited in multiple bibliographies on the subject of successful school library programs, for their documented credentials and background in school library programs, and for subscribing to the principles put forth by *Information Power*.

This study used a *meta-analysis* to identify the researchers and writers who are considered the experts in the field of school library programs as well as to form a consensus of these experts' judgments as to the characteristics of a successful school library program. A meta-analysis is

> . . . using statistical methods to pool samples from different studies and then try to extract conclusions that each study individually fails to prove. It is a more precise

estimate of the magnitude and significance of the variable being studied. It involves a systematic review of studies using a quantitative procedure to combine, synthesize and integrate information across them. It tries to tease out more precise information, by combining different studies. (Rubin, 2004)

A *Delphi study* was the framework for the second part of this research. While a focus group merely discusses an issue, a Delphi study purports to develop a consensus. The experts identified by the meta-analysis were used to "identify, categorize, and prioritize" (Pollard & Pollard, Winter 2004-2005) what data collected by school librarians articulate, document, and validate a successful school library program. This necessarily limits Delphi studies to those experts who chose to participate.

Assumptions

An assumption was made that, based on a meta-analysis of experts substantiated by the literature, the people used to establish the articulation of what constitutes a successful school library program and the people asked to be a part of the Delphi study are the experts. The assumption was made that *Information Power* is the industry standard for determining the standards of successful school library programs. If a standard of evaluation existed that matched the standard for determining the characteristics of successful school library programs, due to the nature of Delphi studies, the assumption was made that a Delphi study would have come to the same conclusions that the meta-analysis of the evaluation standards did. Finally, it was assumed that the analysis of and generalizations from this study only apply to high school libraries comprising of grades 9-12.

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CHAPTER II

REVIEW OF THE LITERATURE

Importance and Confusion about School Library Program Assessment

For decades library research has been criticized for describing what to do in libraries but not how to assess what's been done. Researchers have also been criticized for not being " . . . published in respected educational research journals . . . " (Callison, 2002, p. 351), consequently slowing down or making difficult the efficient and consistent dissemination of catalysts of positive change. Library research has been described as ". . . engaging in too much description . . . with too little attention to generalization or theory construction" (Sutton, 1998, p. 267). In addition to the dearth of library research, what research there is ". . . concentrates on quantitative approaches" (Sutton, 1998, p. 265) as opposed to qualitative ones. It is these few generalizations upon which school librarians depend to determine how to evaluate the success of their school library programs. Too often, these guidelines are also ". . . more concerned with measuring inputs to the library than outputs, or benefits to the user" (Daniel & Lowrie, 1986, p. 744).

Why Information Power?

"The typical standard or guideline used in the library profession is to be prescriptive in nature; it describes what ought to be" (Daniel & Lowrie, 1986, p. 744). This is the position in which *Information Power* finds itself. *Information Power* holds a position of authority in the field of school library effectiveness. "Where a strong central

authority exists, standards for evaluation may be imposed" (Daniel & Lowrie, 1986, p. 743).

As in the field at large, *Information Power* was chosen for the purpose of this study as the standard by which a school library program could be gauged. Since the inception of *Information Power* in 1975, *Information Power* has publicly become ". . . the 'bible' for school library media specialists" (Pederson, 2005). Even before its latest version, the fact that *Information Power* espoused research-based guidelines allowed it to be recognized for its importance to school libraries (McCarthy, 1997).

- Bland noted that, while ". . . many of the concepts [in Information Power] are not new. [*sic*] They are just enumerated and validated for utilization . . ." (1999, p. 5).
- Latrobe and Masters asserted "the guidelines and standards, validated by the national professional organization [American Association of School Librarians], provided a justification for the time and commitment needed to refocus attention upon library media programs . . ." (Latrobe & Masters, 1999, p. 8).
- In 2003 Buzzeo recognized that "for a decade and a half, we have known our mandate and our mission. [*sic*] According to *Information Power: Building Partnerships for Learning* [1988]. . . " (p. 29).
- Morris acknowledged the "tradition" of *Information Power*'s standards "lead[ing] the profession" (2004, p. 29).

Information Power's importance is also supported by graduate institutions that base their programs on *Information Power*. As of October 15, 2005, the American Library Association listed 32 nationally recognized National Council for Accreditation of Teacher Education-American Association of School Librarians reviewed and approved

school library media education programs in 22 states (American Library Association, 2005). Graduate programs in school librarianship receive this recognition, in part, by subscribing to the tenets of *Information Power*.

Others have used *Information Power* as the foundation upon which to base their critiques of subsequent resources; in 2001 Karis reviewed fourteen books and a CD-ROM for their "correlate[ion] with the goals of *Information Power*." Riedling evaluated job descriptions of school librarians in 2001 to see if they are as "they 'should be' . . . aligned with the guidelines presented in *Information Power: Building Partnerships for Learning"* (p. 28).

Defining the Attributes

The meta-analysis of characteristics of successful school library programs yielded 19 attributes agreed upon through writings by at least half of the 30 people identified as experts. Defining these attributes was necessary to conducting the Delphi study. For the purpose of this paper, the definitions in Table 1 describe the library media program characteristics that were used in the Delphi study.

Table 1

Definitions of the Attributes Selected for This Study by the Experts as Characteristics of a Successful School Library Program

Characteristic	Definition
Access, Intellectual and Physical	". . . the rights of students to use all of the material in the collection. It relates not only to intellectual freedom but also to the absence of physical and psychological barriers and to the presence of appropriate opportunities. . . . students will be able to gain information regardless of where it may be located through networking, interlibrary loans, databases, or other collections. Access . . . should not be curtailed by arbitrary rules, contractual commitments, or insufficient equipment, personnel, or space" (Yesner & Jay, 1998, p. 385).
Flexibility/flexible scheduling	Library resources " . . . made available to students [*sic*] throughout the school day so that they may utilize/check out materials as needed. . . . [librarians'] time is scheduled relevant to the learning and teaching needs of students and staff" (Nebraska Educational Media Association, 2000, p. 248).
Collaboration, modeling and promoting	"Teachers and [librarians] working together as an instructional team to plan, [model and promote] instruction that integrates information literacy skills and the use of the library . . . resources with curriculum objectives" (Nebraska Educational Media Association, 2000, p. 247).
Information literacy integral to the school's curriculum	"Students learn how to make use of a wide range of resources and broaden their knowledge and understanding of information taught in the classroom" when information literacy skills are considered integral to the curriculum (Montiel-Overall, 2005), where information literacy is defined as, "The ability to: recognize the need for information to solve problems and develop ideas; pose important questions; use a variety of information gathering strategies; locate relevant and appropriate information; access information for quality, authority, accuracy and authenticity. Includes the abilities to use the practical and conceptual tools of information technology, to understand form, format, location and access methods, how information is situated and produced, research processes, and to format and publish in textual and multimedia formats and to adapt to emerging technologies" (Haycock, 1999).

Characteristic	Definition
Library program fully integrated with the curriculum	A school library program ". . . which involves the [librarian], teacher, and administrator working together to provide the most pertinent information and skills to the student" (Nebraska Educational Media Association, 2000, p. 249).
Ongoing assessment by librarian	Synonymous with evaluation, assessment is defined as the "process of making considered judgment as to the worth . . ." of the school library's program and resources. ". . . Formative evaluation is ongoing; it occurs during the activity and is intended to guide decision making and to 'form' or shape the future of the event or agency being evaluated" (Daniel & Lowrie, 1986).
Collections developed collaboratively	Teachers and librarians working collaboratively to develop a "systematic plan for adding materials and resources to a library and deselecting materials and resources based on the needs of the institution or the patrons being served" (Nebraska Educational Media Association, 2000, p. 247).
Co-teaches	A subset of collaboration, co-teaching specifically entails team-taught or co-implemented instruction to students by the classroom teacher and the school librarian.
Leadership to teachers	"A 'leadership role' in collaboration by demonstrating a willingness to work with teachers or initiating collaboration. Leadership as it is used here means leading others without force or coercion toward a shared objective (Wu n.d.) [*sic*] and is not meant to detract from an equal partnership, or impose a level of authority to the collaborative relationship" (Montiel-Overall, 2005).
Connect information literacy with content-related objectives/ needs assessment	Information skills are identified as they occur within the existing curriculum and are taught in context (Nebraska Educational Media Association, 2000, p. 220).
Link to larger learning community	"The learning community involves a wide range of human and resource connections with and beyond the school. . . . begins with the school's students, teaching staff and administration, and then extends to parents and families and to other local community members and resources. . . . connects with district, state and regional educational offices and agencies and with professional associations and other national resources. . . . encompasses international and global resources" (Stein & Burger, 1999).

Characteristic	Definition
Solicit teachers' assistance with library program development	Collaboration and communication between classroom teachers and teacher-librarians that includes teacher input into evaluating and enhancing the school library's resources, policies, and procedures.
Clear communication of the librarian's role and the library's mission and goals	With the librarian as "the primary link between the principal, the teachers, the students, the neighboring libraries, and the professional associations" (Morris, 2004, p. 42-43), information flows from the librarian to the school and the community regarding the librarian's role as instructional partner, program administrator, teacher-librarian, and information specialist (Morris, 2004, p. 21), the mission of a school library to make students life-long users of materials, information and technology, and the goals to meet program success through activities including but not limited to budgets, periodical reporting, information literacy, teacher resources, student resources, advocacy for the library program, and technology.
Expert in curriculum's goals	". . . developing and publicizing a common understanding of the curriculum . . . [in order to] provide necessary information and resources for curriculum, consult on information use and related concerns in curriculum and instruction, and work together with teachers to design, implement, and evaluate curriculum and instruction" (Berkowitz & Eisenberg, 2003).
Minimum of one full-time certified/licensed librarian with clerical staff	"Library media programs should have funding for adequate professional and support staff. . . Such conditions are necessary if not sufficient alone to generate higher levels of academic achievement" (Lance, 2000, p. 81).
Sufficient funding	". . . a level of funding that will give all students adequate opportunities. . . . The school library media program requires a budget that supports the continuous collection of information in all formats and that provides the instructional infrastructure that will help students learn to use that information in creative, meaningful ways" (American Association of School Librarians, 1998, p. 109-100).
Supports diverse learning styles	"Maintain an environment that meets the information needs of all members of the learning community, regardless of disability or other difference, through appropriate physical adaptations and instructional policies and practices. . . . the program's collections reflect the developmental, cultural, and learning needs of all of the students" (American Association of School Librarians, 1998, p. 90).

Meta-Analysis Leading to the Experts

Meta-analysis reviews historically have been used to aid in studies concerning healthcare, law enforcement and justice, social service initiatives, human resources, social policy, agricultural policy, and educational research (Google, 2005). Even though school library research is often categorized as educational research, any type of study evaluating school library programs is notoriously scarce. As a result, the population of those who would be considered experts is also sparse. Meta-analyses were first used in the early 20th century as, ". . . an attempt to overcome the problem of reduced statistical power in studies with small sample sizes . . ." (Wikipedia, 2005). For this reason a meta-analysis was used to determine who the experts in the field of school library programs were.

The meta-analysis initially started with *Information Power* as the baseline list of the characteristics of a successful school library program and then analyzed the rest of the writers and researchers for their inclusion of the *Information Power* protocols. As shown in Appendix A, this resulted with 30 items listed by at least six of the 16 experts. Included in the remaining research were any characteristic of a successful school library program that at least nine of the 16 (more than 50%) included. (see Table 2)

For the purpose of the meta-analysis and the Delphi study, researchers and writers selected for this study were considered *experts* for their commonly recognized expertise and knowledge in the field of school libraries, for being cited in multiple bibliographies on the subject of successful school library programs, for their documented credentials and background in school library programs, and for subscribing to the principles put forth by *Information Power*.

Table 2

Consensus by Meta-analysis: Information Power Characteristics of Successful School Library Programs

Characteristic	Rank: Alphabetical Within
Access, intellectual (full range, flexible, equitable)	13/16
Access, physical	12/16
Be flexible/flexible scheduling	12/16
Collaboration, models and promotes with teachers	12/16
Information literacy integral to the school's curriculum	12/16
Library program fully integrated with the curriculum	12/16
Ongoing assessment by librarian	12/16
Collections developed collaboratively	11/16
Co-teaches	11/16
Leadership, to teachers	11/16
Connect information literacy with content-related objectives/ Needs assessment	10/16
Link to larger learning community	10/16
Solicit teachers' assistance with library program development	10/16
Clear communication of the librarian's roles	9/16
Clear communication of the library's mission and goals	9/16
Expert in curriculum's goals	9/16
Min. of one full-time certified/licensed librarian [clerical staff]	9/16
Sufficient funding	9/16
Supports diverse learning styles	9/16

Selection of Experts

When the information on which they are founded have recognized acceptance in the field, meta-analyses and Delphi studies work. With *Information Power* established as the industry standard, people whose own research and writing efforts centered on the guidelines of *Information Power* and who were subsequently cited by others for information regarding the implementation or assessment of *Information Power* were the people regarded as experts for this study. Recognized acceptance as an expert was then established by having one's name cited in the Referenced Author Index of the *Encyclopedia of Library and Information Science* (Drake, 2003), having one's name in an online *Information Power* bibliography (Washington Library Media Association, 2002), having one's name cited as an author or as a bibliographic reference through Google Scholar based on a search of the person's name associated with the book *Information Power* (Google.com, October 23, 2005), and having one's name listed in the electronic catalog of a United States college or university with a school library degree program similar to Rowan University's (Florida State University, Rutgers University, Syracuse University, Texas Women's University, University of Illinois – Urbana, University of Michigan – Ann Arbor, University of North Carolina – Chapel Hill, and University of Pittsburgh).

Experts were chosen to represent the ideologies to be used for the Delphi study. Using all resources consulted by this author, expertise was determined when the person in question had research or writing specifically relevant to evaluating school library programs and was heavily cited by others reporting on the topic. Accounting for discrete citations even if co-authoring occurred and discounting duplicate citations within texts,

citations were considered part of the meta-analysis by counting the number of times an individual's name appeared in other authors' bibliographies, citations, references and resources. With the exception of the Nebraska Educational Media Association, which appeared in others' works 31 times, all other experts chosen were cited at least 149 times and up to 1,185 times. (see Table 3)

The assumption could then be made that, given heavy reliance on those researchers and writers by their peers in the field, the experts chosen indeed qualified as experts for the purpose of this Delphi study.

In a Delphi study, sample size depends on the quality of the experts chosen not the quantity. Therefore, having a group of qualified experts who are willing to participate is far more important to this research method than population size.

Table 3

Meta-analysis of Experts Based on Literature

	Berkowitz/ Eisenberg	Doll/ Webb	Everhart	Hartzell	Haycock	Lance	Loertscher	Middle States	NEMA	Todd	Turner	Yesner/ Jay	Zweizig/ Hopkins
Google Scholar: "cited by," 10/23/05	173	11	17	23	308	10	57	3	0	59	7	0	46
Google Scholar: "site links," 10/23/05	6	3	4	3	7	4	0	7	7	7	0	5	4
Mentioned in the bibliographies of other articles/research used within this study	16	4	13	9	17	28	25	2	2	4	5	5	10
Books in Rowan Univ. Library 10/3/05	5	5	3	1	1	5	11	4	1	1	1	1	3

	Berkowitz/ Eisenberg	Doll/ Webb	Everhart	Hartzell	Haycock	Lance	Loertscher	Middle States	NEMA	Todd	Turner	Yesner/ Jay	Zweizig/ Hopkins
Books in Rutgers Univ. Library 11/12/05: searchable by LIS library	6	7	1	0	8	5	10	53	0	4	8	4	13
Books in UNC-Chapel Hill Library, 11/12/05: searchable by LIS library	22	8	3	2	13	4	17	5	1	0	9	4	18
Books in Fla State Univ. Library 1/12/05	8	10	6	2	9	3	19	7	0	2	7	6	23
Books in Univ of IL - Urbana Library 11/12/05: searchable by LIS library	18	7	4	3	6	8	15	1	1	0	4	14	26

	Berkowitz/ Eisenberg	Doll/ Webb	Everhart	Hartzell	Haycock	Lance	Loertscher	Middle States	NEMA	Todd	Turner	Yesner/ Jay	Zweizig/ Hopkins
Books in Syracuse Univ. Library 11/12/05	12	4	2	0	5	1	2	1	0	0	3	10	16
Books in U of Mich - Ann Arbor Library, 11/12/05: searchable by LIS library	8	9	5	2	11	1	13	0	0	0	6	12	17
Books in U of Pitt Library 11/12/05	12	9	4	1	6	4	12	3	1	0	4	15	15
Books in Texas Woman's Univ. Library11/12/05	2	6	2	1	4	1	10	1	0	0	5	5	13
Books in Drexel Univ. Library 11/12/05	19	7	4	2	6	2	12	10	0	0	6	14	14

	Berkowitz/ Eisenberg	Doll/ Webb	Everhart	Hartzell	Haycock	Lance	Loertscher	Middle States	NEMA	Todd	Turner	Yesner/ Jay	Zweizig/ Hopkins
Referenced in author index of Encyc. Lib. & Info. Sci. indexes	4	3	1	1	1	1	1	0	0	0	1	0	8
ALA Web page search 11/12/05	64	109	275	99	783	730	272	163	18	653	152	73	62
SUM	375	202	344	149	1185	807	476	260	31	730	218	168	288

Delphi Studies

Delphi studies have had a place in library research since the late 1960s. Examples of recent studies include C. Pollard and R. Pollard's 2004-2005 Delphi study (Pollard & Pollard, 2004-2005); C. S. Doyle's 1992 Delphi study (Callison, 2002, p. 363); B. Feret and M. Marcinek's 1999 Delphi study (Feret & Marcinek, 1999); and A. Winzenried's 1997 Delphi study (Winzenried, 1997). More specifically, two 1992 Delphi studies directly contributed to the information literacy standards adopted by *Information Power*, the "Attributes of Information Literate Person" [*sic*] and "National Forum for Information Literacy Report" (Bland, 1999).

Delphi studies are "designed to collect expert opinions as independent, considered views on a commonly debated topic [;] this method offer[s] structure and validity without a framework too formal to allow for personal, subjective considerations" (Winzenried, 1997, p. 335). Winzenried's explanation of a Delphi study suits this paper's research well; he stated, "the success and validity of the Delphi process is very much dependent on concepts of 'common reality' so it becomes important to ensure that any study using this approach seeks to identify these realities" (1997, p. 336).

In conducting a meta-analysis of experts' guidelines for successful school library programs, this study identified the "common reality" necessary to form a consensus of what data to use to evaluate the success of school library programs.

Delphi studies match the consensus-building approach for internal assessment and self-improvement techniques recommended by the Management Review and Analysis Program operated by the Office of Management Studies of the Association of Research

Libraries (Daniel & Lowrie, 1986, p. 744). The shear nature of research parallels the attributes of a Delphi study;

> Research is not so much a matter of gathering up data that already exist, but a process of making successive observations and inferences during which data are not merely gathered but in some sense created to according to the theoretical assumptions that drive the researcher's approach. (Sutton, 1998, p. 269)

Delphi studies suit the qualitative research principles of constructivism in that in " . . .the social process by which humans create a meaningful world, . . . meaning . . . is not an inherent attribute or phenomenon, but is continuously created and recreated by the human participants in that world" (Sutton, 1998, p. 269). School library research can benefit from the recent application of the qualitative methods of constructionist research to the educational evaluative research noted by Sutton (1998, p. 271).

Three important factors inherent in a Delphi study contribute to the method's successful application to research on libraries; first, sample size depends on the quality of the experts chosen not the quantity; second, potential anonymity allows participants to focus on the topic and not on the other group participants, and third, a decreasing variance of responses contributes to the validity of the consensus.

Summary

Utilizing an experts' consensus from the field of school librarianship of the characteristics of a successful school library program, this study aimed to corroborate what data collected by 9^{th} -12^{th} grade school librarians articulate and validate a successful school library program. The assumption was made and defended that *Information Power*

is the industry standard for determining the standards of successful school library programs. Two major techniques were employed to conduct this study. First, a meta-analysis was done to identify the researchers and writers who are considered the experts in the field of school library programs as well as to form a consensus of these experts' judgments as to the characteristics of a successful school library program. Second, a Delphi study was used to corroborate what data needs to be collected by 9^{th}-12^{th} grade school librarians to validate the success of a school library program. The Delphi study used a standardized list of defined characteristics upon which the experts could base their consensus of what data collected by 9^{th} -12^{th} grade school librarians articulate and validate a successful school library program. An important aspect of conducting this research as a Delphi study was its decreasing variance of responses contributing to the validity of the consensus.

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CHAPTER III

METHODOLOGY

Meta-analyses and Delphi studies succeed when the information on which they are founded have recognized acceptance in the field being studied. In the field of school librarianship, *Information Power* is the established industry standard.

Meta-analysis

A meta-analysis is

> . . . using statistical methods to pool samples from different studies and then try to extract conclusions that each study individually fails to prove. It is a more precise estimate of the magnitude and significance of the variable being studied. It involves a systematic review of studies using a quantitative procedure to combine, synthesize and integrate information across them. It tries to tease out more precise information, by combining different studies. (Rubin, 2004)

Meta-analysis reviews historically have been used to aid in studies concerning healthcare, law enforcement and justice, social service initiatives, human resources, social policy, agricultural policy, and educational research (Google, 2005). Meta-analyses were first used in the early 20th century as, ". . . an attempt to overcome the problem of reduced statistical power in studies with small sample sizes . . ." (Wikipedia, 2005). Since the population of those who would be considered experts in the field of school librarianship yields small sample sizes, a meta-analysis was used to determine who the experts in the field of school library programs are.

Using all resources consulted by this author, expertise was determined when the person in question had research or writing specifically relevant to evaluating school library programs, was heavily cited by others reporting on the topic, and included the *Information Power* protocols in their literature and bibliographies. Therefore, people whose own research and writing efforts centered on the guidelines of *Information Power* and subsequently cited by others for information regarding the implementation or assessment of *Information Power* were the people regarded as experts for this study. Including discrete citations even if co-authoring occurred and disregarding duplicate citations within texts, citations were considered part of the meta-analysis by counting the number of times an individual's name appeared in other authors' bibliographies, citations, references and resources. With the exception of the Nebraska Educational Media Association, which appeared in others' works 31 times, all other experts chosen were cited at least 149 times and up to 1,185 times. The assumption could then be made that, given heavy reliance on those researchers and writers by their peers in the field, the experts chosen indeed qualified as experts for the purpose of this Delphi study.

The meta-analysis, which started with *Information Power* as the baseline list, proceeded to form a consensus of these experts' judgments as to the characteristics of a successful school library program. With 30 items listed by at least six of the 16 experts, this remainder of this research study included any characteristic of a successful school library program that at least nine of the 16 (more than 50%) included. (see Table 2)

The meta-analysis identified the experts who were chosen as representative of the *Information Power* ideologies used for the Delphi study. The experts identified by the meta-analysis were then asked to "identify, categorize, and prioritize" (Pollard & Pollard,

Winter 2004-2005) what data collected by school librarians articulate, document, and validate a successful school library program.

Delphi Study

A Delphi study was the framework for the second part of this research. While a focus group merely discusses an issue, a Delphi study purports to develop a consensus. Delphi studies have had a place in library research since the late 1960s.

Delphi studies match the consensus-building approach for internal assessment and self-improvement techniques recommended by the Management Review and Analysis Program operated by the Office of Management Studies of the Association of Research Libraries (Daniel & Lowrie, 1986, p. 744). The shear nature of research parallels the attributes of a Delphi study;

> Research is not so much a matter of gathering up data that already exist, but a process of making successive observations and inferences during which data are not merely gathered but in some sense created to according to the theoretical assumptions that drive the researcher's approach. (Sutton, 1998, p. 269)

Delphi studies suit the qualitative research principles of constructivism in that in " . . .the social process by which humans create a meaningful world, . . . meaning . . . is not an inherent attribute or phenomenon, but is continuously created and recreated by the human participants in that world" (Sutton, 1998, p. 269). School library research can benefit from the recent application of the qualitative methods of constructionist research to the educational evaluative research noted by Sutton (1998, p. 271).

Three important factors inherent in a Delphi study contribute to the method's successful application to research on libraries; first, sample size depends on the quality of

the experts chosen not the quantity; second, potential anonymity allows participants to focus on the topic and not on the other group participants, and third, a decreasing variance of responses contributes to the validity of the consensus.

Purpose and Hypothesis

Utilizing an experts' consensus from the field of school librarianship of the identified characteristics of a successful school library program, the purpose of this Delphi study was to corroborate what data collected by 9^{th} -12^{th} grade school librarians articulate and validate a successful school library program.

Population and Sample

In a Delphi study, sample size depends on the quality of the experts chosen not the quantity. Therefore, having a group of qualified experts who were willing to participate was far more important to this research method than population size. Forty-one experts were invited to participate in the Delphi study; sixteen experts agreed to participate, and seven completed all three rounds of the study.

Variables

The experts in this Delphi study examined three factors upon which a consensus was formed of the data they recommend be collected to represent a successful school library program. These factors were practicality (the feasibility of collecting the data); importance (the priority or relevance for the data); and validity (the confidence in certainty, reliability, unreliability, and riskiness of the data collected) (Linestone & Turoff, 1978; Turoff, et al., 2004).

Procedure

This Delphi study was conducted online via PHP Surveyor.

> PHPSurveyor is a leading Open Source Online Survey Tool written in PHP. PHPSurveyor allows you to develop, publish and collect responses to surveys. PHPSurveyor includes a wide range of built-in question types, and a range of flexible options. Your surveys can include branching, your own preferred layout and design (using a templating system), and can provide basic statistical analysis of survey results. Surveys can be public, or can be strictly controlled through the use of "once-only" tokens for each survey participant. (PHPSurveyor.org, 2006)

This service allowed anonymity to be maintained among participants.

Through the PHPSurveyor survey, participants received uniform definitions of the characteristics of the 19 attributes of a successful school library program to be used for this study.

Round One

Round one of the Delphi process required participants to rank order the 19 characteristics of a successful school library program and to determine, based on their expert opinions and without any prompts or lists from this researcher, and to list what data collected by 9^{th} -12^{th} grade school librarians articulate, document, and validate these 19 characteristics. They were asked, "In your estimation, how essential is the following characteristic to measuring the success of a high school library's program?"(Kimmelman, 2006a). Answer choices included mandate, essential, important, or desirable, and participants were asked to choose only one opinion. For each characteristic, they were

also asked to "please brainstorm specific techniques that high school library media specialists should use to measure [a specific characteristic]" (Kimmelman, 2006a).

Discreet forms of evidence mentioned by participants in round one were compared for similarities and overlaps in order to present participants a manageable and uniform set of options for round two. For example, twenty-two discreet forms of evidence were suggested by the participants in round one for the characteristic of 'intellectual access.' In round two participants were only asked to rate nine forms of intellectual access evidence for their importance, practicality, and validity as a measure of that characteristic.

Round Two

The second round of the Delphi study aimed to deepen the consensus, especially since "rank-ordering is used frequently, but it can be misleading since it forces intervals where there may be none and imposes equal interval ratings where they most likely don't reflect reality" (SkyMark, 2005). Therefore, the second round made use of narrow rating scales of three variables (importance, probability, and validity) to assess the use of types of data suggested by the experts. "Narrow scales, though, may not allow enough scope for voters to express their real judgments. Since voting is not intended to make a decision, but to structure discussion and thought, narrower scales that dampen extremes of opinion are often most useful" (SkyMark, 2005).

The information presented to participants in round two was presented in the revised rank order established by the participants in round one, and participants received these directions, "to rate each form of evidence listed for its importance to the high school library media specialist, practicality for implementation by the high school library

media specialist and validity to document the success of a secondary school library media program" (Kimmelman, 2006b).

Each form of evidence listed was based on one suggested by a participant in round one. Participants answered the following question for each form of evidence corresponding to each characteristic of a successful school library program, "How do you rate '[form of evidence]' as a measure of '[characteristic of a successful school library program]' in terms of its importance, practicality, and validity?" (Kimmelman, 2006b)

The data from round two was evaluated for a consensus ranking based primarily on the validity variable as ranked by respondents. Variables that measured equally in validity were subsequently ranked based upon practicality as the secondary characteristic and importance as the third. Validity received the primary focus based on the assumption that a measure might be important and/or practical, but unless it is a legitimate (valid) representation of the characteristic it is measuring, it is of no value.

The forms of evidence for each characteristic of a successful school library program were then presented to the participants in round three in the new, consensus rank order.

Round Three

Analysis and summary of the results of round two were presented to participants for one final round. Participants in round three were presented with the consensus rank order from round two based on the experts' validity rating for each of the 7-10 measures for the ten categories ranked most valid to assess the success of a secondary school library media program. "Measures, if any, that were ranked equally in round two were

then ranked based upon practicality as the secondary characteristic and importance as the third" (Kimmelman, 2006c).

The consensus ranking from round three, then, was the experts' corroboration of what data collected by 9^{th} -12^{th} grade school librarians articulate and validate a successful school library program.

Treatment of Data

Microsoft Office Excel 2003 was used to perform means analyses on the data for all three rounds of the Delphi study.

The 19 characteristics given to the experts in round one, resulting from the meta-analysis to measure the success of a high school library's program, were presented in order of their descending frequency of mention in the research and articles by the identified experts.

Data collected from round one were tallied to form a rank-ordered list. (see Appendix A) This resulted in two of the 19 characteristics ranked as a mandate, 13 characteristics ranked as essential, one characteristic ranked as important, and four characteristics ranked as desirable. (see Appendix B)

Data collected from round two were analyzed for their means based on the validity variable. "Measures, if any, that were ranked equally in round two were then ranked based upon practicality as the secondary characteristic and importance as the third" (Kimmelman, 2006c). The top four measures had overall mean validity values between 1.917 – 2.036 out of 4.00; the middle four measures had overall mean validity values between 2.203 – 2.268 out of 4.00; and the last four measures had overall mean validity values between 2.333 – 2.50 out of 4.00. (see Appendix C)

The resulting data from the third and final round were tallied into a rank-ordered consensus depicting the experts' opinions of what data collected by 9th -12th grade school librarians articulate and validate a successful school library program. Of the 78 specific types of measurements included in Round 3, only two measures increased their standings and five decreased their ranking by two or more positions. (see Appendix D)

Questionnaire Design

At every point in the online survey, participants had the text or a readily-available link to the text of the uniform definitions of each of the consensus characteristics of a successful school library program.

With the exception of ranking the 19 attributes of successful school library programs, round one's design was almost entirely open-ended. Initially, round one used radio button lists, which work "...especially well if there are only two possible choices or the individual responses are longer than a few words" (Kimmel, 2004) to allow participants to express their opinions "...about how essential is the following characteristic to measuring the success of a high school library's program?"(Kimmelman, 2006a). Then multiple short text boxes allowed participants to "brainstorm specific techniques that high school library media specialists should use to measure [a specific characteristic of a successful school library program]" (Kimmelman, 2006a). Participants were told, "None of these blanks is mandatory to complete. Please list up to 4 types of evidence that measures this characteristic," and "Each blank allows a short answer of 100 characters maximum" (Kimmelman, 2006a).

Round two used an array of flexible labels, which allowed participants to rate the variability of the factors involved in various forms of data collected to determine the

success of school library programs. "An array of flexible labels allows you to select from a pre-defined label ... as your headings, and let your participants respond to a series of possible answers/options using those headings" (SourceForge.net, 2006). Participants were given the labels of quite high, fairly high, fairly low, or quite low in order to respond to, "How do you rate '[type of evidence]' as a measure of '[specific characteristic of a successful school library program]' in terms of its importance, practicality, and validity?" (Kimmelman, 2006b).

Round three used a ranking-style survey to obtain the experts' opinions about the types of data formed from round two's consensus analysis. Participants had access to a link to view the overall mean validity for each category of measures as well as the means for the validity, practicality, and importance, for each form of evidence (Kimmelman, 2006d). The survey for round three was designed so that participants "may re-rank according to your expert opinion, or you may accept the consensus ranking by simply re-entering 1 through 10 in the ranking boxes" (Kimmelman, 2006c).

Ensuring Reliability and Validity

Delphi studies are "designed to collect expert opinions as independent, considered views on a commonly debated topic [;] this method offer[s] structure and validity without a framework too formal to allow for personal, subjective considerations" (Winzenried, 1997, p. 335). Winzenried stated, "the success and validity of the Delphi process is very much dependent on concepts of 'common reality' so it becomes important to ensure that any study using this approach seeks to identify these realities" (1997, p. 336). Therefore, in conducting a meta-analysis of experts' guidelines for successful school library programs, this study identified the "common reality," in the form of *Information Power*

constructs, necessary to form a consensus of what data to use to evaluate the success of school library programs.

Delphi techniques are accomplished by collecting the experts' opinions, ". . . resubmitting them a number of times and providing continuous feedback with each new round of consideration . . ." and ultimately forming a consensus that can be ". . . considered as a relevant and valid measure of the future in that it is the summation of the collected opinions of experts" (Winzenried, 1997, p. 336). A decreasing variance of responses contributes to the validity of the consensus.

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CHAPTER IV

ANALYSIS OF DATA

Procedures/Methods Used

Since the population of those who would be considered experts in the field of school librarianship yields small sample sizes, a meta-analysis was used to determine who the experts in the field of school library programs were. The assumption was then made that, given heavy reliance on those researchers and writers by their peers in the field, the experts chosen indeed qualified as experts for the purpose of this Delphi study. A Delphi study was the framework for the second part of this research. While a focus group merely discusses an issue, a Delphi study purports to develop a consensus. This Delphi study was conducted electronically using PHP Surveyor.

Response Rate

In a Delphi study, sample size depends on the quality of the experts chosen not the quantity. Therefore, having a group of qualified experts who were willing to participate was far more important to this research method than population size. Forty-one experts were invited to participate in the Delphi study; sixteen experts agreed to participate, and seven completed all three rounds of the study.

Sixteen experts received the invitation to participate in round one of the Delphi study; nine completed round one. These nine experts received the invitation to participate in round two of the Delphi study; eight completed round two.

For round three, the original 16 experts were all invited to participate in round three; seven of the eight who completed round two went on to complete round three.

Adjustments

Although a Delphi study can provide invaluable feedback, the process is much more fluid than initially perceived. Inviting more experts than were ultimately needed proved to be essential; participants' personal schedules often precluded their involvement. This was especially true for this type of expert at this point in time; the American Library Association's annual conference coincided with the planned date for distribution of round one. Many who declined cited prior commitments during the time of the Delphi study. Therefore, even those who committed to participating had to receive extensions on deadlines in order to participate fully.

In addition to fluctuating deadlines, planning errors caused additional nurturing of participants to remain committed during the perceived duration needed to complete the three rounds. The length of each round and the intervals between each round necessitated rethinking of deadlines and frequent reassuring to the participants. For example, by overestimating the amount of time round one would take, the researcher repelled potential participants.

> I'm afraid I will have to drop out of your respondent base for this study. I didn't understand the time impact when I accepted the invitation. I was very surprised to see that round one alone would take 3 - 4 hours to complete -- in the future, you might want to share the time commitment information up front as part of the invitation process. I was thinking it would be more like a 15- or 20-minute survey (Expert 1, personal communication, January 23, 2006).

Another contributor to participant attrition, which caused the researcher to scramble for additional experts to invite or current invitees to nurture, was that the experts were self-selecting for opting out of participation. Surprisingly, quite a few experts considered themselves out-of-touch with the current issues of school libraries. "I have not done any research on Library Power for about five years. I mainly do research on mathematics and science education systems. So I am not sure how much help I would be" (Expert 2, personal communication, January 16, 2006); "... I am sorry about declining to participate in the study. I have been out of school library education for a number of years and do not feel that I would be able to contribute as I should" (Expert 3, personal communication, January 22, 2006).

Additional experts had to be identified and some invitees had to be encouraged as a result of a Delphi study being used for the research. Citing discontent with the Delphi study process, a surprising number of invited participants declined to participate. For example, "I always have perplexing dilemmas with Delphi studies - especially since it does not give usually the opportunity for feedback" (Expert 4, personal communication, February 19, 2006); "I'm not a good Delphi participant, because I tend to think too much about my answers" (Expert 5, personal communication, February 5, 2006); "... I do not like Delphi studies as a way of determining the priorities of the thinkers of the field because [*sic*] ist asks one to change one's mind as the study progresses" (Expert 6, personal communication, January 16, 2006); and "I must tell you that I am not a very good Delphi person because I tend to do the first questionnaire very thoroughly. Then, for all the reasons you have cited for asking me to participate, I seldom change my opinion" (Expert 7, personal communication, January 15, 2006).

Survey development and testing proved to be a much more time-consuming task than was scheduled. The lengthy process of developing a Delphi study survey for the first time was compounded with an ineffective attempt to get the instrument previewed before it was implemented. Electronic links to the reviewers failed to work, which delayed the intended start date upon which the experts had agreed to participate. Using an open source survey that required coding knowledge caused further delays in testing and implementing the survey at each round; deadlines were altered and extended for the participants as a whole and also for individual participants. What was intended to be a self-explanatory online Delphi survey turned into a troubleshooting panic for the researcher in order to mollify any of the frustrations that could cause the participants to cease participating. Instances of this occurred with errors in printing and saving unfinished surveys to accommodate participants' schedules, in accessing links to open each round of the survey, and in viewing the survey during times in which the researcher was correcting the coding.

The most significant adjustment to the study occurred between rounds two and three. For ease of survey construction, parts of each round could be easily duplicated into the subsequent round. However, incomplete editing and proofreading caused the Delphi participants to receive incorrect choices for two of the 12 questions in round two. To rectify this error and to not perpetuate inaccurate findings, round three used only ten of the 12 characteristics of a successful school library program. Round three instructions to the participants provided no explanation beyond allowing participants to assume that a Delphi study produces dwindling results during the process of consensus.

Items Investigated

Round one of the Delphi survey process included 19 characteristics ascertained by a meta-analysis to be characteristic of successful school library programs based on *Information Power* guidelines. (see Table 4) Participants were given the option of listing up to four forms of evidence that could measure each of the 19 characteristics. Both within individual surveys and between characteristics, the number of forms of evidence each participant brainstormed for each characteristic varied greatly. With each characteristic in round two having between seven to ten forms of evidence to evaluate for validity, practicality, and importance, the number of characteristics included in round two decreased from nineteen to twelve. (see Table 5) Note that "minimum of one full-time certified/licensed librarian with clerical staff" was eliminated after round one since this characteristic does not need to be evaluated, merely reported. "Connect information literacy with content-related objectives/needs assessment" was also eliminated for its relative redundancy to "library program fully integrated with the curriculum," to "information literacy integral to the school's curriculum," and to "ongoing assessment by librarian." Conversely, "Collection developed collaboratively" was retained for its uniqueness to the other characteristic which were included. Round three was further reduced to include only ten characteristics' forms of evidence to evaluate for validity. (see Table 6)

Table 4

Meta-analysis (Prior to Round 1):

Characteristics Experts Perceive as Important to Successful High School Library Programs

n = 19	*Information Power* Characteristic
1	Access, intellectual (full range, flexible, equitable)
2	Access, physical
3	Be flexible/flexible scheduling
4	Collaboration, models and promotes with teachers
5	Information literacy integral to the school's curriculum
6	Library program fully integrated with the curriculum
7	Ongoing assessment by librarian
8	Collections developed collaboratively
9	Co-teaches
10	Leadership, to teachers
11	Connect information literacy with content-related objectives/Needs assessment
12	Link to larger learning community
13	Solicit teachers' assistance with library program development
14	Clear communication of the librarian's roles
15	Clear communication of the library's mission and goals
16	Expert in curriculum's goals
17	Minimum of one full-time certified/licensed librarian [clerical staff]
18	Sufficient funding
19	Supports diverse learning styles

Table 5

Included in Round 2: Importance to Measuring and Reporting Each Characteristic: Based on a Comparison of the Meta-analysis (MA) with Round 1 (R1) Ranking

Information Power Characteristic	MA n=19	R1 n=19	R2 n=19
Library program fully integrated with the curriculum	6	1	1
Minimum of one full-time certified/licensed librarian with clerical staff	17	2	
Collaboration, modeling and promoting	4	3	2
Information literacy integral to the school's curriculum	5	4	3
Sufficient funding	18	5	4
Connect info. lit. with content-related objectives/Needs assessment	11	6	
Flexibility/flexible scheduling	3	7	5
Supports diverse learning styles	19	8	6
Co-teaches	9	9	7
Intellectual access	1	10	8
Clear communication of library's mission & goals	15	11	9
Physical access	2	12	10
Ongoing assessment by librarian	7	13	11
Solicit teachers' assistance with library program development	13	14	
Expert in curriculum's goals	16	15	
Clear communication of librarian's role	14	16	
Collection developed collaboratively	8	17	12
Leadership to teachers	10	18	
Links to a larger learning community	13	19	

Table 6

Included in Round 3:

Consensus Based on Overall Mean Validity of Each Measure from Round 2

$n = 10$	*Information Power* Characteristic	Validity
		1 = most valid
1	SLMS collaborating, modeling, and promoting	1.917
2	information literacy integral to the school's curriculum	1.982
3	physical access	2.000
4	flexibility/flexible scheduling	2.036
5	supports diverse learning styles	2.203
6	library program fully integrated with the curriculum	2.225
7	ongoing assessment by librarian	2.250
8	sufficient funding	2.268
9	intellectual access	2.333
10	co-teaching	2.393
	clear communication of library's mission and goals	2.411
	collection developed collaboratively	2.500

Results

The results of the Delphi study to corroborate what data to use to evaluate the success of school library programs yielded recommendations based on expert consensus. Three measurements out of 78 types of measurements suggested retained their first place ranking as an effective measurement for their respective characteristics: student outcomes after using collaborative lesson plans with library components to measure that the library program is fully integrated with the curriculum, analysis of lesson plans for alternative ways for students to achieve to measure support of diverse learning styles, and reporting of library expenditures per FTE student to reflect sufficient funding.

At the other end of the spectrum, seven measurements retained their last place ranking for their effectiveness to measure a successful school library program: record of SLMS-initiated articles in school newsletter to measure library program fully integrated with the curriculum; SLMS's self-assessment of activities to measure that information literacy is integral to the school's curriculum; documented SLMS access to student learning information, ex., I.E.P.s, to measure support of diverse learning styles; SLMS's self-evaluation to measure that the library program is fully integrated with the curriculum; record of inter-library loan to measure ongoing assessment by librarian; documentation of alternative funding sources and special funding allocations utilized to measure sufficient funding; and minutes of planning meetings to measure co-teaching.

A few effective measures of a successful school library program gained more than one ranked position between rounds two and three: curriculum mapping documentation jumped up two positions from fourth to second as a means of measuring that information literacy is integral to the school's curriculum, and analysis of the bibliographies provided

to all students increased four positions from last to fifth in ranking as an effective measurement of intellectual access.

Four ranked measures of an effective school library program fell two or more positions between rounds two and three: analysis of use of additional space and resources for student projects as a measure of flexibility/flexible scheduling ; SLMS keeps records of instructional design activities as a measure that the library program is fully integrated with the curriculum; SLMS use of a checklist of extent of electronic access to resources -- catalog, databases, and Internet as a measure of ongoing assessment by librarian; and analysis of acquisition records as a measure of intellectual access.

CHAPTER V

SUMMARY AND CONCLUSIONS

Definitions

Many of the participating experts took issue with the definitions presented to them for use for the purpose of this study. This occurred in spite of this information from the researcher's introductory letter to them,

> In November, 2005, I completed a meta-analysis of characteristics initially identified by *Information Power* as indicative of successful school library programs. This yielded 19 attributes agreed upon by at least half of the 30 researchers, writers, and practitioners identified as experts. For the purpose of uniformity and consensus-building, my Delphi study will be conducted based on the results of this meta-analysis, and definitions to be used to describe the characteristics of a successful school library program will be provided. (Kimmelman, 2006)

Participants made lengthy comments about the characteristics and definitions that the researcher included. For example,

> The definitions you gave for intellectual and physical access were identical. They are different concepts and, therefore, must have different definitions. I tried not to use my definition of intellectual access, but I had to use it to some extent to differentiate my response from my physical access response. I did not understand your definition of co-teaching. I assumed you meant team teaching, since you

offered that word as well. Collaborative teaching does not always involve team teaching. I don't think you'll get a true measure of collaborative teaching from your definition, but I tried to stay true to your definition in my answer." (Expert, Personal communication, February 5, 2006)

One of the areas of debate in setting up this research project was whether or not to predefine the terms being used to try to ensure uniformity. The researcher determined that a uniform set of definitions, selected from standard, credible, and trustworthy sources in the field of school librarianship, including those to which some of the experts had contributed, would provide the most overall study reliability. Nevertheless, in light of the variability of each expert's personal area of scholarship, frequently readdressing the meta-analysis and the source of the uniform definitions would be of paramount importance in conducting future research of this nature.

Characteristics of Successful School Library Programs

A similar quandary existed when deciding whether or not to ask for participant suggestions or to provide researcher suggestions for what types of data collected by 9th - 12th grade school librarians articulate and validate a successful school library program. For this study the characteristics of what constitutes a successful school library program were established by a meta-analysis. The participants were informed that this was how those characteristics were chosen, and participants had a chance in successive rounds to comment on and rank the importance, validity, and practicality of the suggested measurements. However, some of the participants' comments reflected dissatisfaction with the characteristics and measures with which they were presented to evaluate. Most

of the participant comments were indicative of whether or not they believed accurate characteristics of successful school library programs were chosen or of confusion surrounding the descriptions and types of data and their ability to be quantifiable or qualitative. Table 7 presents those comments posted as adjuncts to the experts' corresponding survey submissions.

It was surprising how unreflectively the experts offered creative, unique, inspired, original or resourceful ways to measure a successful high school library program but then unwittingly expressed their dissatisfaction with the information offered back to them from their peers. Moreover, as seen in the first two comments in Table 7, the experts attributed what they perceived to be errors to the researcher and not to their fellow Delphi participants.

Table 7

Comments Posted by Survey Participants

Comment
"I also had a hard time answering some questions because you combined measuring with reporting."
"I have tried to complete your survey. I have one major problem with it. Your statements assume that of course the element identified is essential to a library media center, and therefore it is absolutely mandatory that the media specialist measure and report on it. I find myself wanting very much to be able to tell you which areas the media specialist must, should, or may not need to report on. In other words, I am not comfortable with the underlying assumptions that I want to discuss instead of the questions I seem to be foreced [*sic*] to discuss."
"After finally identifying my problem with terminology used here in the last section, I chose to ignore the word 'measure' this time and consider everything to be 'forms of evidence' instead."
"Several of these items seemed to equate 'diverse learning styles' with 'disabilities.' Yes, information on service to those with disabilities should be gathered, but every individual has a learning style."

Comment
"I would not consider 'clear communication of library's missions and goals' as evidence of a successful school library program. It is a crucial element, but just communicating the mission and goals doesn't make it happen."
"Again, it wasn't clear how several of these items would provide evidence of collaborative collection development. They might be ways to promote it..."
"Most of these would do nothing to indicate whether or how the librarian assesses on an ongoing basis."

Variables

A major decision for this research was identifying the variables upon which a form of measurement was to be evaluated for its ability to articulate and validate a successful school library program. The original seven factors which were to be used for this Delphi study were desirability (the effectiveness or benefits of said data); feasibility (the practicality of collecting the data); importance (the priority or relevance for the data); validity (the confidence in certainty, reliability, unreliability, and riskiness of the data collected); measurability (the recordability and unambiguousness of the data); likelihood (the probable amount or degree of the data collected), and significance (the confidence level in the applicability of the data collected) (Linestone & Turoff, 1978; Turoff, et al., 2004). However, using all the length of the electronic survey would have been quite unreasonable for participants. It was decided that validity more or less encompassed aspects of measurability and significance, importance included aspects of desirability and significance, and practicality incorporated feasibility, likelihood, and measurability. In essence, combining seven variables into three halved the length of the survey.

The decision to combine variable factors into more concise terms appears to have had no detrimental effect on the survey process or results. The resulting categories were more concise, thereby shortening the participants' encumbrance to time. Furthermore, since none of the participants' comments concerned the choice of variables, the resulting variable factors seemed to be satisfactory to participants.

Delphi Studies

A Delphi study was chosen as the methodology for this research because of the importance of decreasing variance of responses contributing to the validity of the consensus. However, as a result of encountering the types of obstacles that might be attributed to using a Delphi study, this researcher questions whether this study warranted the use of a Delphi study. For example, response rates were affected by some of the same factors about which Turoff (1998) warned researchers. Most notable were the time constraints under which participants reported themselves to be; "My only reservation in saying yes is that I will traveling [*sic*] a great deal of March, much of it out of the country"(Expert, personal communication, January 15, 2006); "I would be pleased to participate in your study, however I will be at the ALA convention from January 19-26. If I can participate when I return home, I will be glad to help" (Expert, personal communication, January 15, 2006); and "I would like to work with you on your study, but prior to saying yes I would like to know how much time it will take to participate" (Expert, personal communication, January 16, 2006).

Anonymity had to be maintained among participants in order for the Delphi study to address assumptions that the Delphi study methodology is intended to minimize "face to face difficulties [such as] disagreements [,] language differences [,] value differences [,] dominance problems [, and] human biases" (Turoff, 1998). In one instance researcher error jeopardized participant anonymity. By sending individual e-mails that were altered for each transmission and not one blind-copied e-mail, one participant received an e-mail addressed to another participant. The compromised participant brought the error to light,

and the researcher apologized; however, the compromised participant also declined to participate by citing time constraints.

The recommendation could also be proposed that Delphi studies should be peer-to-peer research. Participants, who were chosen precisely because they were considered experts in the field, expected the same level of professionalism, expertise, and proficiency in return. "I never completed the first survey. I found it to be way rather cumbersome to complete," said one participant two months after agreeing to participate (Expert, Personal communication, March 23, 2006). It is possible that involving experts in the field in a Masters' level graduate study was the impetus for the types of obstacles that were encountered.

There also appeared to be a great deal of misunderstanding as to the definition or requirements of participating in a Delphi study.

> I've not seen a Delphi which required brainstorming to add items, and that's where I had to stop. I could respond to the importance of items, but to try to help you decide the measures would be needed to evaluate your items would indeed make the time it took more than 3 hours and I simply don't have that much spare time before your first deadline. (Expert, Personal communication, January 28, 2006)

Others expressed their dissatisfaction with this methodology right from the beginning; "However, I do not like Delphi studies as a way of determining the priorities of the thinkers of the field because ist [*sic*] asks one to change one's mind as the study progresses" (Expert, Personal communication, January 16, 2006). Another expert articulated the same sentiment, "I will be pleased to help in any way that I can. I must tell

you that I am not a very good Delphi person because I tend to do the first questionnaire very thoroughly. Then, for all the reasons you have cited for asking me to participate, I seldom change my opinion" (Expert, Personal communication, January 15, 2006). Though the following expert participated, he/she felt the need to clarify his/her participation, "I wanted to give you a little context for my answers on the Delphi. I'm not a good Delphi participant, because I tend to think too much about my answers" (Expert, Personal communication, February 5, 2006).

Therefore, in spite of the goal of establishing decreasing variance of responses to contribute to the validity of the consensus, future researchers should be prepared for the effects of sample size and attrition, the control of anonymity, and the perceived reputation of the researcher and its effect on the participants. Conversely, the researcher should be prepared for the participants, in spite of or as a result of being considered experts, to be short on time, resources, perspective, and motivation.

Surveying

In the case of this study, the experts intuitively knew that by Round 3 something was amiss with the survey instrument presented to them. As explained in Chapter 4, incomplete editing and proofreading caused the Delphi participants to receive incorrect choices for two of the 12 characteristics in Round 2,

> On some of the questions, I wanted to eliminate some of the responses because they weren't appropriate (e.g., on the intellectual access question about half of the answers had absolutely nothing to do with intellectual access; they were referring to physical access). The survey would not allow me to leave out the ranking of

items that I wanted to eliminate. It looks like I think those ideas are relevant because I had to rank them. (Expert, Personal communication, May 17, 2006)

Another expert participant wrote that he/she,

> ... felt that the ranking in Round 3 represented a different set of questions, not the ones I believed I was answering. My impression was that at the beginning we were identifying what the evidence was of a successful library program. Now, in this round, these elements were ends in themselves, not evidence that indicated whether or not a library program was successful. Maybe I misinterpreted the initial intention? (Expert, Personal communication, May 23, 2006)

Only one of the experts identified the error,

> Starting with the third response, they were messed up. I think the responses to another question were listed here. I ranked all of the wrong responses very low, because they had nothing to do with a collaboratively developed collection. I believe there were four wrong responses: Transaction logs, documentation of assessments, record on ongoing feedback from students, and a school community survey. (Expert, Personal communication, April 30, 2006)

The error caused the elimination of usable consensus results for "ongoing assessment by the librarian" and calls into question the results for "school library media specialist collaborating, modeling, and promoting," "intellectual access," "library program fully integrated with the curriculum," and "supports diverse learning styles."

Indigenous to this research study, and not to all Delphi studies, was the researcher's choice to use an open source survey instrument for which the researcher had no prior experience. In addition to frustrating the researcher, the flaws, errors, broken

links, and sometime erratic formatting of the survey instrument caused one expert to lament,

> I am trying to clear up my inbox from messages, and I have many. I'm going to delete all messages from you at this time. When you have exactly what you want me to do, would you please send me a new message? It would be better for you to have all your ducks in a row, especially with a Delphi study. (Expert, Personal communication, January 26, 2006)

As a contributor to participant attrition, as well as difficult survey development and testing, this researcher recommends use of an electronic survey program that is user-friendly for both the researcher and the participants. Almost 30 E-mail conversations with the developer of the open source survey program occurred to rectify the survey made by the researcher.

What pre-testing did not uncover as an option for a survey response, some of the participants did; a few of the instances of dissatisfaction with the options offered could have been tempered with 'not important' as an additional choice. "I think there should be another option to respond to that is "not important" [*sic*] I didn't agree with some of the statements and the lowest option listed was "desirable" which really wasn't my intended answer" (Expert, Personal communication, February 2, 2006).

On the other hand, the researcher assumed that the meta-analysis clearly reflected those characteristics that represent a successful school library program as purported by *Information Power*. The essential question was what data measures these characteristics, not what characteristics were important. The experts were merely asked to rank

characteristics already assumed to be important. By offering a 'not important' option, the nature of this study might have been altered.

Conclusions

The purpose of this Delphi study was to corroborate what data collected by 9th - 12th grade school librarians articulate and validate a successful school library program. As such, some definitive conclusions can be drawn from the consensus derived from surveying the experts. For example, in order to measure that a school library media specialist is collaborating, modeling, and promoting, the experts concurred that the most valid measure of this were the student outcomes after collaborative lesson planning of lessons with library components. Likewise, they concurred that an analysis of lesson plans for alternative ways for students to achieve was the most valid measure of a school library media program supporting diverse learning styles. A third measure that retained its high validity throughout the study was how to measure sufficient funding; the experts' consensus showed that the most valid measure of sufficient funding was to report library expenditures per full-time equivalent (FTE) student. It was reassuring to note that collecting this financial data was a valid as well as a worthwhile undertaking; a 2001 article discussing the findings of the *Information Power* research also concluded that expenditures per student were an "indirect predictor" and a "clear and Straightforward [*sic*] call to action" for a successful school library program (Lance, 2001).

For the purpose of reporting the remaining results, it was assumed that a measure would articulate valid and meaningful data for its characteristic by scoring a validity measurement by expert consensus in the top 25 percent for its characteristic. It was also

assumed to articulate gainful and serviceable data, which could be circumstantially valid, by scoring a validity measurement by expert consensus in the top 26 – 50 percent.

School Library Media Specialist Collaborating, Modeling, and Promoting

Of nine possible ways to measure that a school library media specialist is collaborating, modeling, and promoting, one measurement, student outcomes after collaborative lesson planning of lessons with library components (validity ranked 1:9), was deemed by expert consensus to articulate valid and meaningful data for a successful school library program. Three others, records of teachers and school library media specialists' collaborative efforts (2.857:9), reports made to principal by school library media specialist (3.857:9), and teacher surveys of school library media specialist as collaborator (4.286:9), were determined by participants to articulate gainful and serviceable data.

Information Literacy Integral to the School's Curriculum

Seven ways of measuring that information literacy is integral to the school's curriculum produced one valid and two circumstantially valid ways to articulate a successful school library program. Most valid was the use and analysis of rubrics that measure student engagement with information (1.571:7); the other two circumstantially valid measures were curriculum mapping documentation (3:7) and proof of students' application of information literacy strategies to new information problems (3.143:7).

Physical Access

According to expert consensus, none of the seven types of measures for physical access were valid to articulate and validate a successful school library program.

However, two of the seven, teacher surveys (2:7) and student surveys (2.143:7), were circumstantially valid. One type of measurement, the school library media specialist's use of checklists to survey physical barriers and enablers to access, ranked at 3.571 out of seven by expert consensus. Though ranked as a valid measure less than 50 percent of the time, this measure is included for both its proximity to the 50 percent point and for its practical application.

Flexibility/Flexible Scheduling

As with physical access, none of the experts ranked any of the seven ways that they suggested measured flexibility and/or flexible scheduling as a valid way to articulate this characteristic of successful school library media programs. However, three ways to measure flexibility and/or flexible scheduling were ranked as circumstantially valid: documentation of school library media specialists' availability during the school day (2.143:7), teachers' surveys of school library media access (3.143:7), and analysis of hours the school library media center was open (3.429:7).

Supports Diverse Learning Styles

Analyzing lesson plans for alternative ways for students to achieve was consistently ranked one out of nine as a valid way to measure that the school library program successfully supports diverse learning styles. Two additional data, availability of assistive technologies (3.286:8) and availability of bibliographies of collection development that reflect various media (3.714:8), were ranked as gainful and serviceable data by expert consensus.

Library Program Fully Integrated with the Curriculum

Although the experts suggested ten types of data to articulate success based on a library program's full integration with the curriculum, the validity of these types of data disintegrated with each successive round of the Delphi study. Three of the forms of data were ranked as circumstantially valid: analysis of lesson plans (2.714:10), use of a program assessment rubric or observations rubric (3:10), and school library media specialist documents library outcomes in terms of student achievement and learning (3.571:10). Of the ten suggested forms of data collection, three additional were in close proximity to the 50 percent: use of student surveys (5.143:10), school library media specialist keeps records of instructional design activities (5.286:10), and use of teacher surveys (5.286:10).

Sufficient Funding

One of the measurements of sufficient funding suggested by the experts, reporting of library expenditures per FTE student, consistently ranked one out of seven throughout the Delphi study. Two other forms of data were ranked as circumstantially valid ways to measure a school library program's success based on funding: analysis of budgetary reports and spreadsheets (3:7) and needs assessment based on community characteristics (3.714:7).

Co-teaching

According to the experts' consensus of seven suggested measures, a valid means of articulating that a successful school library program includes co-teaching was analysis of documentation of team teaching and evaluating (1.286:7). Teacher surveys (2.143:7) and student achievement measures derived from joint school library media

specialist/teacher projects (3.429:7) were also ranked as gainful and serviceable forms of data.

Intellectual Access

The experts circumstantially validated only two of the eight types of data that they suggested as valid ways to articulate intellectual access in a successful school library program. First, the experts ranked by consensus the analysis of data collected from the school library media center's automation program as 2.857 out of eight. Second, they ranked by consensus student surveys of school library media center use as 3.286 out of eight.

Ongoing Assessment by Librarian

An obvious miscommunication from researcher to participant produced an unusable consensus regarding ongoing assessment by the librarian. Dependent on the researcher for the survey instrument, experts could only use what was given to them. Two of a possible seven forms of data ranked as the most valid measures of ongoing assessment by librarian; they were student surveys (2.429:7) and teacher surveys (2.571:7). Clearly, a librarian is not self-assessing simply by means of surveying the library's clients. The options with which the experts were asked to rank in Round 3 were evidently the suggested measures for physical access and not for ongoing assessment by librarian. The results of the consensus for ongoing assessment by librarian were therefore discounted.

Recommendations for High School Library Media Specialists

Three definitive and two considerable conclusions drawn from the consensus provide a starting point for 9^{th} – 12^{th} grade school librarians to document that their school

library programs are successful based on *Information Power* guidelines. First, principle 4 of *Information Power*'s learning and teaching principles of school library media programs states that, "The library media program models and promotes creative, effective, and collaborative teaching" (1998, p. 58, 64-65). In order to measure that a school library media specialist is collaborating, modeling, and promoting, the experts concurred that the most valid measure of this were the student outcomes after collaborative lesson planning of lessons with library components.

Second, *Information Power*'s principle 7 states, "The library media program supports the learning of all students and other members of the learning community who have diverse learning abilities, styles, and needs" (1998, p. 58, 68-69). The experts' consensus showed that an analysis of lesson plans for alternative ways for students to achieve was the most valid measure of a school library media program supporting diverse learning styles.

A third highly valid measure suggested by the experts' consensus, one which could measure sufficient funding, recommended that the school librarian report library expenditures per full-time equivalent (FTE) student. An account of this nature is in direct support of principle 7 of *Information Power*'s program administration principles of school library media programs; "Sufficient funding is fundamental to the success of the library media program" (1998, p. 100, 109-110).

Another suggested piece of data to collect, the documentation of team teaching and evaluating in support of the characteristic of co-teaching, also ranked particularly high in its validity. One step beyond collaborating, co-teaching supports *Library Power* guidelines since, "Teachers are working with each other and with the library media

specialist to develop and teach units that integrate content and information literacy skills" (*Information Power*, 1998, p. 141). It might behoove school librarians to include this type of data collection to help articulate that they have a successful school library program.

As suggested by the experts, the fifth most valid type of data to collect would be the use and analysis of rubrics that measure student engagement with information as a means of articulating that information literacy is integrated into, or at least integral to, the school's curriculum. Although this type of data does not appear to be simple to collect, it would be in direct support of Principle 1 of *Information Power*'s learning and teaching principles of school library media programs, which states that, "The library media program is essential to learning and teaching and must be fully integrated into the curriculum to promote students' achievement of learning goals" (1998, p. 58, 60-61).

Future Research

What is important to note about most of the measures suggested by the experts was that this research studied what data articulate and validate a successful school library program but not how to collect this data. To this end, future studies of this sort could be conducted with peers, i.e., practicing high school library media specialists, as the participants, who could focus on the best way to implement the suggested forms of data collection. The hypothesis could emphasize how such data collection suggestions can be practically applied. A potential area for specific research includes how to utilize existing technological reporting capabilities in 9^{th} – 12^{th} grade school libraries to provide or analyze the data that articulate and validate a successful school library program.

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APPENDIX A

Data Collected from Round One Tallied to Form a Rank-Ordered List

Appendix A

Data Collected from Round One Tallied to Form a Rank-Ordered List

Information Power Characteristic	Mandate	Essential	Important	Desirable	*n*
Library program fully integrated	5	3	0	1	9
Minimum of 1 full-time certified with clerical staff	5	2	0	2	9
Collaborates with teachers	1	6	1	1	9
Information literacy integral	3	5	0	1	9
Sufficient funding	3	4	1	1	9
Connecting information literacy to content-related objectives	2	4	1	2	9
Flexible scheduling	2	3	2	2	9
Supports diverse learning styles	0	5	3	1	9
Co-teaches	0	5	2	2	9
Intellectual access	1	4	3	1	9
Communication of library's mission & goals	1	4	3	1	9
Physical access	1	4	2	2	9
Ongoing assessment	0	4	3	2	9
Solicits teachers' assistance with program development	0	2	4	3	9
Expert in curriculum's goals	0	5	0	4	9
Communication of librarian's role	0	4	1	4	9
Collection developed collaboratively	0	3	2	4	9
Leadership to teachers	1	1	3	4	9
Links to a larger learning community	0	3	1	5	9

APPENDIX B

After Round 1:

Consensus of the Importance of Measuring and Reporting Each Characteristic

Appendix B

After Round 1:

Consensus of the Importance of Measuring and Reporting Each Characteristic

Rank	Rating	*Information Power* Characteristic
1	Mandate	Library program fully integrated with the curriculum
2	Mandate	Minimum of one full-time certified/licensed librarian with clerical staff
3	Essential	Collaboration, modeling and promoting
4	Essential	Information literacy integral to the school's curriculum
5	Essential	Sufficient funding
6	Essential	Connect information literacy with content-related objectives/Needs assessment
7	Essential	Flexibility/flexible scheduling
8	Essential	Supports diverse learning styles
9	Essential	Co-teaches
10	Essential	Intellectual access
11	Essential	Clear communication of library's mission & goals
12	Essential	Physical access
13	Essential	Ongoing assessment by librarian
14	Important	Solicit teachers' assistance with library program development
15	Important	Expert in curriculum's goals
16	Important	Clear communication of librarian's role
17	Desirable	Collection developed collaboratively
18	Desirable	Leadership to teachers
19	Desirable	Links to a larger learning community

APPENDIX C

After Round 2:

Overall Mean Validity of Each Measure

Appendix C

After Round 2:

Overall Mean Validity of Each Measure

Information Power Characteristic	Validity
SLMS collaborating, modeling, and promoting	1.917
Information literacy integral to the school's curriculum	1.982
Physical access	2.000
Flexibility/flexible scheduling	2.036
Supports diverse learning styles	2.203
Library program fully integrated with the curriculum	2.225
Ongoing assessment by librarian	2.250
Sufficient funding	2.268
Intellectual access	2.333
Co-teaching	2.393
Clear communication of library's mission and goals	2.411
Collection developed collaboratively	2.500

APPENDIX D

Results of Round 3

Appendix D

Results of Round 3

Information Power Characteristic: SLMS Collaborating, Modeling, and Promoting

Round	Data Collection Suggested and Ranked by the Experts								
	Student outcomes after collaborative lesson planning lessons with library components	Records of teachers and SLMS's collaboration efforts	Reports made to principal by SLMS	Teacher surveys of SLMS as collaborator	Principal's evaluation of teachers' and SLMS's collaborative efforts	Record of SLMS on committees and serving as coordinators, co-chairs and collaborators	Record of attendance at professional development programs fostering SLMS-teacher collaboration	Use and availability of instructional design templates for implementing collaborations	Record of SLMS-initiated articles in school newsletter
round 1 ranking	1	2	4	3	5	6	7	8	9
round 3 ranking	1	2.857	3.857	4.286	5	5.429	7	7.286	8.286

Results of Round 3

Information Power Characteristic: Information Literacy Integral to the School's Curriculum

Round	Data Collection Suggested and Ranked by the Experts						
	Use and analysis of rubrics that measure student engagement with information	Curriculum mapping documentation	Proof of students' application of information literacy strategies to new information problems	Analysis of SLMS' and teachers' lesson plans that incorporate IL objectives	Analysis of success of scaffolded learning on student assignments via portfolio of products	Achievement scores on language arts literacy exams	SLMS's self-assessment of activities
round 1 ranking	1	4	2	3	5	6	7
round 3 ranking	1.571	3	3.143	3.857	4.143	5.714	6.571

Results of Round 3

Information Power Characteristic: Physical Access

Round	Data Collection Suggested and Ranked by the Experts						
	Teacher surveys	Student surveys	SLMS use of checklists to survey physical barriers and enablers to access	SLMS use of a checklist of extent of electronic access to resources -- catalog, databases, and Internet	Number of library staff and size of library to student population, class size, and usage patterns	Analysis of records of students' failures to acquire needed information	Record of inter-library loan
round 1 ranking	2	1	4	3	5	7	6
round 3 ranking	2	2.143	3.571	3.857	4.286	6	6.143

Results of Round 3

Information Power Characteristic: Flexibility/Flexible Scheduling

Round	Data Collection Suggested and Ranked by the Experts						
	Documentation of SLMS' availability during school day	Teachers' surveys of SLMC access	Analysis of hours SLMC is open	Student survey	Use of observation rubric	Analysis of SLMS's lesson plan book	Analysis of use of additional space and resources for student projects
round 1 ranking	1	2	3	4	6	7	5
round 3 ranking	2.143	3.143	3.429	3.714	4.857	5.286	5.429

Results of Round 3

Information Power Characteristic: Supports Diverse Learning Styles

Round	Data Collection Suggested and Ranked by the Experts							
	Analysis of lesson plans for alternative ways for students to achieve	Availability of assistive technologies	Analysis of bibliographies of collection development reflects various media	Teacher surveys of SLMC	Analysis of policies for collection development	SLMS documentation of activities providing services for patrons with disabilities	Collection mapping documentation	Documented SLMS access to student learning information, ex., I.E.P.s
round 1 ranking	1	2	4	3	6	5	7	8
round 3 ranking	1	3.286	3.714	4.714	5.429	5.571	5.571	6.714

Results of Round 3

Information Power Characteristic: Library Program Fully Integrated with the Curriculum

Round	Data Collection Suggested and Ranked by the Experts									
	Analysis of lesson plans	Use of a program assessment rubric or observations rubric	SLMS documents library outcomes in terms of student achievement and learning	Use of student surveys	SLMS keeps records of instructional design activities	Use of teacher surveys	SLMS keeps a record of professional steps taken	Use of administrator surveys	Use of scope and sequence	SLMS's self-evaluation
round 1 ranking	2	1	4	5	3	6	7	8	9	10
round 3 ranking	2.714	3	3.571	5.143	5.286	5.286	6.429	7	7.286	9.286

Results of Round 3

Information Power Characteristic: Library Program Fully Integrated with the Curriculum

Round	Data Collection Suggested and Ranked by the Experts						
	Student surveys	Teacher surveys	SLMS use of checklists to survey physical barriers and enablers to access	Number of library staff and size of library to student population, class size, and usage patterns	SLMS use of a checklist of extent of electronic access to resources -- catalog, databases, and Internet	Analysis of records of students' failures to acquire needed information	Record of inter-library loan
round 1 ranking	1	2	4	5	3	6	7
round 3 ranking	2.429	2.571	3.714	3.857	4	5.286	6.143

Results of Round 3

Information Power Characteristic: Sufficient Funding

Round	Data Collection Suggested and Ranked by the Experts						
	Reporting of library expenditures per FTE student	Analysis of budgetary reports and spreadsheets	Needs assessment based on community characteristics	Analyze budget increases with regard to inflation	Graph of annual increases / decreases in library budget over n# years	Analysis and comparison with community standards	Documentation of alternative funding sources and special funding allocations utilized
round 1 ranking	1	2	3	4	5	6	7
round 3 ranking	1	3	3.714	3.857	4.286	5.714	6.429

Results of Round 3

Information Power Characteristic: Intellectual Access

Round	Data Collection Suggested and Ranked by the Experts								
	Analysis of data collected from SLMC's automation program	Student surveys of SLMC use	Teacher surveys of SLMC use	Observation of Internet use	Analysis of the bibliographies provided to all students	Analysis of use of information resources in student projects	Analysis of acquisition records	Records of unanswered queries	Analysis of use of materials from other libraries
round 1 ranking	1	2	3	4	9	6	5	8	7
round 3 ranking	2.857	3.286	4.714	4.857	5.286	5.714	5.857	6.143	6.286

Results of Round 3

Information Power Characteristic: Co-teaching

Round	Data Collection Suggested and Ranked by the Experts						
	Documentation of team teaching and evaluating	Teacher surveys	Student achievement measures derived from joint SLMS/teacher projects	SLMS's self-evaluation	Documentation of informal peer observation	Evidence of peer mentoring	Minutes of planning meetings
round 1 ranking	1	2	3	5	4	6	7
round 3 ranking	1.286	2.143	3.429	4.286	5.143	5.143	6.571

APPENDIX E

Meta-analysis Establishing Expertise

Appendix E

Meta-analysis Establishing Expertise

Characteristics / Expert	Information Power	Library Power	Berkowitz Eisenberg	Yesner Jay	Doll Webb	Everhart	Haycock	Lance	Loertscher	Middle States	NEMA	Todd	Turner	Zweizig Hopkins	Hartzell	# of x's
Access, intellectual	x		x	x	x	x	x	x	x	x	x		x	x	x	13/16
Access, physical	x	x	x	x	x	x	x	x		x	x			x	x	12/16
Be flexible/flexible scheduling	x	x	x	x	x	x	x	x	x	x				x	x	12/16
Collaborates, models and promotes	x	x	x		x	x	x	x	x		x	x	x		x	12/16
Information literacy integral	x		x	x	x	x	x	x	x	x	x	x			x	12/16
Library program fully integrated	x	x	x	x	x	x	x	x	x		x	x	x			12/16
Ongoing assessment by librarian	x		x	x	x	x	x		x	x	x	x	x	x		12/16
Collections developed collaboratively	x		x	x	x		x	x	x	x	x		x	x		11/16
Co-teaches	x	x	x	x	x		x	x	x			x	x			11/16
Leadership, to teachers	x		x	x	x		x	x	x		x		x	x	x	11/16
Connect information literacy with content objectives and needs	x		x		x		x		x	x	x	x	x	x		10/16
Link to larger learning community	x			x		x	x	x		x	x	x		x	x	10/16
Solicit teachers' assistance with library program development	x		x		x		x	x	x		x	x	x	x		10/16
Clear communication of the librarian's roles	x	x	x	x			x				x	x	x	x		9/16
Clear communication of the library's mission and goals	x		x	x	x		x		x		x	x		x		9/16
Expert in curriculum's goals	x		x	x	x		x		x		x	x	x			9/16
Minimum of one full-time certified/licensed librarian	x	x		x			x	x			x	x		x	x	9/16
Sufficient funding	x			x	x	x	x	x			x	x			x	9/16
Supports diverse learn'ing styles	x				x	x	x		x	x	x		x	x		9/16
Encourages students in reading for understanding and enjoyment	x		x				x	x	x		x	x	x			8/16
Professional staff development	x	x		x			x		x		x	x		x		8/16
Program administration	x		x	x	x		x		x		x			x		8/16
Assistance, (in-service) to teachers	x		x				x	x			x	x	x			7/16
Climate conducive to learning	x					x	x				x	x	x	x		7/16
Encourages and engages students in reading, viewing, writing	x						x	x	x		x	x	x			7/16
Ongoing administrative support	x			x			x	x	x		x	x				7/16
Program supports mission of school	x	x		x	x					x	x		x			7/16
Instruction, foster competence	x							x	x	x	x	x				6/16
Instruction, stimulate reading	x		x					x	x		x	x				6/16
Relationship with teachers	x				x		x	x					x	x		6/16

APPENDIX F

Introductory Letter

Appendix F

Introductory Letter

Thank you for linking to the start page for a Delphi study to corroborate what data need to be collected by 9th-12th grade school library media specialists to validate the success of a school library program according to Information Power. If you agree that school librarians would benefit from collecting and reporting relevant, useful data that actually reflect a successful school library program, I hope you will agree to participate in this study.

By way of introduction, my name is Arlen Kimmelman; I am a Master's candidate in School Librarianship at Rowan University in Glassboro, New Jersey. My thesis sponsor, Dr. Marilyn L. Shontz, is an associate professor in the Department of Secondary Education/Foundations of Education at Rowan University.

From January, 2006 through March, 2006, I will be conducting a Delphi study. A Delphi study uses an anonymous, multi-round, consensus-building, survey technique. Building the necessary consensus requires three rounds of surveying; for this Delphi study one round will occur in January, 2006, one in February, 2006, and one in March. 2006. Three important factors inherent in a Delphi study contribute to the method's appropriateness to the purpose of my research; first, sample size depends on the quality of the experts chosen not the quantity; second, participants' anonymity allows a focus on the topic and not on the other group participants, and third, a decreasing variance of responses contributes to the validity of the consensus.

In November, 2005, I completed a meta-analysis of characteristics initially identified by Information Power as indicative of successful school library programs. This yielded 19 attributes agreed upon by at least half of the 30 researchers, writers, and practitioners identified as experts. For the purpose of uniformity and consensus-building, my Delphi study will be conducted based on the results of this meta-analysis, and definitions to be used to describe the characteristics of a successful school library program will be provided.

Please let me know by January 13, 2006, if you are willing to participate in this study. The first round of the study will begin on January 23, 2006. All correspondence and participation activities will be conducted electronically. You are welcome to contact me at kimmel21@students.rowan.edu or Dr. Shontz at shontz@rowan.edu if you have any questions about the study. I appreciate your anticipated support and participation.

Sincerely,
Arlen H. Kimmelman
Arlen H. Kimmelman

APPENDIX G

Sample Field Results from Round One

Appendix G

Sample Field Results from Round One

Field Summary for Q1:		
In your estimation, how essential is the following characteristic to measuring the success of a high school library's program? "INTELLECTUAL ACCESS (full range, flexible, equitable)" DEFINITION OF INTELLECTUAL ACCESS: ". . . the rights of students to use all of the material in the collection. It relates not only to intellectual freedom but also to the absence of physical and psychological barriers and to the presence of appropriate opportunities. . . . students will be able to gain information regardless of where it may be located through networking, interlibrary loans, databases, or other collections. Access . . . should not be curtailed by arbitrary rules, contractual commitments, or insufficient equipment, personnel, or space" (Yesner & Jay, 1998).		
Answer	Count	Percentage
No answer	0	0.00%
It should be a mandate for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities. (4)	1	11.11%
It is essential for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities. (3)	4	44.44%
It is important for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities. (2)	3	33.33%
It is desirable for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities. (1)	1	11.11%

APPENDIX H

Sample Field Results from Round Two

Appendix H

Sample Field Results from Round Two

Field Summary for 0001(1):		
How do you rate "SLMS keeps a record of professional steps taken" as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity? [Importance]		
Answer	**Count**	**Percentage**
No answer	0	0.00%
Quite High (1)	3	42.86%
Fairly High (2)	2	28.57%
Fairly Low (3)	1	14.29%
Quite Low (4)	1	14.29%
Field Summary for 0001(2):		
How do you rate "SLMS keeps a record of professional steps taken" as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity? [Practicality]		
Answer	**Count**	**Percentage**
No answer	0	0.00%
Quite High (1)	3	42.86%
Fairly High (2)	2	28.57%
Fairly Low (3)	1	14.29%
Quite Low (4)	1	14.29%
Field Summary for 0001(3):		
How do you rate "SLMS keeps a record of professional steps taken" as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity? [Validity]		
Answer	**Count**	**Percentage**
No answer	0	0.00%
Quite High (1)	2	28.57%
Fairly High (2)	2	28.57%
Fairly Low (3)	2	28.57%
Quite Low (4)	1	14.29%

APPENDIX J

Sample Field Results from Round Three

Appendix J

Sample Field Results from Round Three

Field Summary for 001 [1]:		
SLMS collaborating, modeling, and promoting. [Ranking 1]		
Answer	**Count**	**Percentage**
Student outcomes after collaborative lesson planning lessons with library components (1)	7	100.00%
Records of teachers and SLMS's collaboration efforts (2)	0	0.00%
Teacher surveys of SLMS as collaborator (3)	0	0.00%
Reports made to principal by SLMS (4)	0	0.00%
Principal's evaluation of teachers' and SLMS's collaborative efforts (5)	0	0.00%
Record of SLMS on committees and serving as coordinators, co-chairs and collaborators (6)	0	0.00%
Record of attendance at professional development programs fostering SLMS-teacher collaboration (7)	0	0.00%
Use and availability of instructional design templates for implementing collaborations (8)	0	0.00%
Record of SLMS-initiated articles in school newsletter (9)	0	0.00%
Field Summary for 001 [2]:		
SLMS collaborating, modeling, and promoting. [Ranking 2]		
Answer	**Count**	**Percentage**
Student outcomes after collaborative lesson planning lessons with library components (1)	0	0.00%
Records of teachers and SLMS's collaboration efforts (2)	3	42.86%
Teacher surveys of SLMS as collaborator (3)	3	42.86%
Reports made to principal by SLMS (4)	0	0.00%
Principal's evaluation of teachers' and SLMS's collaborative efforts (5)	1	14.29%
Record of SLMS on committees and serving as coordinators, co-chairs and collaborators (6)	0	0.00%
Record of attendance at professional development programs fostering SLMS-teacher collaboration (7)	0	0.00%
Use and availability of instructional design templates for implementing collaborations (8)	0	0.00%
Record of SLMS-initiated articles in school newsletter (9)	0	0.00%

APPENDIX K

Round 2 and 3 Comments

Appendix K

Round 2 and 3 Comments

Library program fully integrated with the curriculum:

- "I rated practicality low because I don't think there are good measures of student achievement currently being used."
- "I give emphasis to outcomes measures rather than process measures"
- "Self evaluations are important in that they happen but validity of same is doubtful. Depending on how much a principal is turned in to library program potential will determine the validity of such a survey and the usefullness [*sic*] of the questions posed. Kids and teachers both are not always honest and sometimes set out to do a disliked LMS in. Questionnaires and surveys have limited value, but the fact that they take place is important because it puts a focus on the lib media program."

SLMS collaborating, modeling, and promoting:

- "Again, teh [*sic*] quality of the questions asked and the honesty with which they are answered are key. Self evaluations are with limits."

Information literacy integral to the school's curriculum"

- "outcomes data is the most direct form of evidence"

Sufficient funding:

- "I struggled with this element. I think I realized that the wording of the questions (not just in this area, but also in previous ones) really asks for two different things. In this particular case, each item could be seen as a form of evidence of the LEVEL of funding, but they are not measures of SUFFICIENT funding. Measures or evidence of SUFFICIENT funding might be 'enough books and other information sources to serve every need of the users' or 'enough staff in the school library to effectively serve the needs of the population.' The difficulty with the word 'measure' goes throughout the questions, not just the funding one, because 'measures' and 'ways to measure' are not the same thing"
- "generous budgets, at least adequate ones, are necessary to support program."however, best suppport [*sic*] is of little value unless collection and staff are valued and constantly used in instruction."

Flexibility/flexible scheduling:

- "After finally identifying my problem with terminology used here in the last section, I chose to ignore the word 'measure' this time and consider everything to be 'forms of evidence' instead."
- "Value of principal's evaluation depends on principal's knowledge and level of support. Effectiveness is tops when done right. Rubrics are only as good as the rubric design and questions. Often pointless."

Supports diverse learning styles:

- "Several of these items seemed to equate 'diverse learning styles' with 'disabilities.' Yes, information on service to those with disabilities should be gathered, but every individual has a learning style. Documenting support of everyone in this sense would be much more difficult, but overall more indicative."
- "Accuracy of information being analyzed is key to its value."

Co-teaching:

- "I wouldn't have included co-teaching as evidence of a successful school library program. Co-teaching could be well done or very obstructive/intrusive. The quality of that teaching, the level of planning for information-using projects, the degree to which an SLMS may have helped teachers develop their own skills in order to take ownership of the teaching and thereby be able to move on to work with less experienced teachers--these are more important than merely the existence of co-teaching."
- "These can be good or ineffective. Self assessment needs to take place to initiate growth. A good mentor is a treasure."

Intellectual access:

- "Intellectual access involves reading and comprehension - only #9 addresses this and not very well. Passive collection measures (1-3) don't tell us if the access actually happens, only that the warehouse is open."
- "Few of these items would really get at whether students UNDERSTAND the information available to them."

Clear communication of library's mission and goals:

- "I would not consider 'clear communication of library's missions and goals' as evidence of a successful school library program. It is a crucial element, but just communicating the mission and goals doesn't make it happen."
- "Portfolios can be copied and not be original work. Care must be taken re the assignment construction and requirements to prevent this."

Ongoing assessment by librarian:

- "Most of these would do nothing to indicate whether or how the librarian assesses on an ongoing basis."
- "These items that are out and out "facts" are very useful. Those that can be manipulaed [*sic*] are of doubtful use."

Collection developed collaboratively:

- "Again, it wasn't clear how several of these items would provide evidence of collaborative collection development. They might be ways to promote it..."
- "Surveys must be recognized as being subject to the ire of students and teachers who have a bone to pick with the LMS and want to be destructive. Their answers can be escewed [*sic*] & dishonest"

APPENDIX L

Original Messages from Experts

Appendix L

----- *Original Messages* -----
From: Expert
To: "Arlen Kimmelman" <kimmel21@students.rowan.edu>
Sent: Friday, February 03, 2006 11:33 AM
Subject: Re: Reminder to participate in survey

Hi Arlen,

I have tried to complete your survey. I have one major problem with it. Your statements assume that of course the element identified is essential to a library media center, and therefore it is absolutely mandatory that the media specialist measure and report on it. I find myself wanting very much to be able to tell you which areas the media specialist must, should, or may not need to report on. In other words, I am not comfortable with the underlying assumptions that I want to discuss instead of the questions I seem to be foreced [sic] to discuss.

For example, I am not convinced there is value in the media specialist reporting to the community on intellectual freedom. At least not in the ways you seem to have set up the question. While I agree that intellectual freedom is a core value, I am not convinced that every challenge has to be vigorously defended. We need to pick and choose our battles. And some materials should be removed from library collections (e.g., a health book that advocates heavy dieting for young teens). I am not convinced that it is even desirable to gather and report intellectual freedom data. Instead I want to know what else is happening in the school, and it could be that other issues have MUCH higher priority.

I am not sure how to resolve this, but I find myself arguing with your underlying premises, and not truly engaged in sharing suggestions on how to measure them.

Expert

----- *Original Messages* -----
From: Expert
To: <kimmel21@students.rowan.edu>
Sent: Sunday, February 05, 2006 6:17 PM
Subject: Qualifications on Delphi answers

Arlen,
I wanted to give you a little context for my answers on the Delphi. I'm not a good Delphi participant, because I tend to think too much about my answers.

I tried to be very careful to separate importance of something in being a part of the library program and importance of communicating about it. Even though I regarded some issues that you listed as essential for every library program, I did not feel it was essential to communicate about them to the larger community, so I ranked them low.

I also had a hard time answering some questions because you combined measuring with reporting. I think sometimes we measure but don't necessarily report to the larger community. An example is leadership. It's important to take a leadership role and to measure the effect, but it would be politically stupid to report to your fellow teachers that you were leading them.

The definitions you gave for intellectual and physical access were identical. They are different concepts and, therefore, must have different definitions. I tried not to use my definition of intellectual access, but I had to use it to some extent to differentiate my response from my physical access response.

I did not understand your definition of co-teaching. I assumed you meant team teaching, since you offered that word as well. Collaborative teaching does not always involve team teaching. I don't think you'll get a true measure of collaborative teaching from your definition, but I tried to stay true to your definition in my answer.

My biggest problem was that I couldn't say no. I don't believe we have to communicate about everything in our program, but I couldn't show you the ones that I would put in that category. I guess in a Delphi, those ideas that are lowest in priority drop out after the first or second round.

Expert

APPENDIX M

Agreement to Participate in a Delphi Study

APPENDIX M

Agreement to Participate in a Delphi Study

Any questions or comments, please contact Arlen Kimmelman via e-mail: kimmel21@students.rowan.edu

Accept or Decline Participation in a Delphi Study

You may choose to accept or decline participation in a Delphi study to corroborate what data need to be collected by 9th-12th grade school library media specialists to validate the success of a school library program via this Web page.

Step 1

: Please read all parts of Step 1 before answering yes or no:

I AGREE to participate from January, 2006 through March, 2006, in a Delphi study that uses an anonymous, multi-round, consensus-building, survey technique.

I UNDERSTAND that building the necessary consensus requires three rounds of surveying; for this Delphi study one round will occur in January, 2006, one in February, 2006, and one in March. 2006.

I ALSO AGREE with the guidelines listed below [next to the blue and white question mark]:

DELPHI STUDY GUIDELINES:

1. I will maintain my and other participants' ANONYMITY as it is essential to focus on the topic and not on the other group participants, and

2. I will expect to receive complete STUDY RESULTS at the CONCLUSION and not during the study.

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

Step2

: At what e-mail address do you prefer to be contacted?

Please write your answer here:

Submit Your Survey.

Thank you for completing this survey.

APPENDIX N

Sample Question: Round One

APPENDIX N

Sample Question: Round One

Delphi Round One

Rank and Evaluate

- **If you cannot complete this round of the survey in one session, you will be able to save your responses and return to this round to complete the survey.**
- **You may also print out the survey, plan your answers offline, and then access the survey to complete it online.**
- **The deadline to complete this portion of the survey is February 3, 2006.**

I estimate that it will take between 3.25 to 4.00 hours to complete Round 1 of this Delphi study. Each of 19 questions has two parts. The first page is ranking, and the second page is short answer.

*** Q1:**

In your estimation, how essential is "INTELLECTUAL ACCESS (full range, flexible, equitable)" to measuring the success of a high school library's program?

DEFINITION OF INTELLECTUAL ACCESS: "... the rights of students to use all of the material in the collection. It relates not only to intellectual freedom but also to the absence of physical and psychological barriers and to the presence of appropriate opportunities.... students will be able to gain information regardless of where it may be located through networking, interlibrary loans, databases, or other collections. Access ... should not be curtailed by arbitrary rules, contractual commitments, or insufficient equipment, personnel, or space" (Yesner & Jay, 1998).

Please choose **only one** of the following:

- ☐ **It should be a mandate for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities.**
- ☐ **It is essential for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities.**
- ☐ **It is important for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities.**
- ☐ **It is desirable for high school LMS to implement methods for measuring and reporting their library's status on this characteristic to their communities.**

Q1 OE:

Please brainstorm specific techniques that high school library media specialists should use to measure "INTELLECTUAL ACCESS":

NOTE: None of these blanks is mandatory to complete. Please list up to 4 types of evidence that measures this characteristic.

Please write your answer(s) here:

Evidence:

Evidence:

Evidence:

Evidence:

APPENDIX P

Sample Question: Round Two

APPENDIX P

Sample Question: Round Two

R2: A Delphi Study: Validating School Library Programs

In Round 2 of this Delphi study, please rate each form of evidence listed for its: IMPORTANCE TO the high school library media specialist PRACTICALITY FOR implementation by the high school library media specialist VALIDITY TO document the success of a secondary school library media program.

Ranked #01: Library program fully integrated with the curriculum

Round 1 participant consensus ranked

Library program fully integrated with the curriculum

as the **#1** characteristic of a successful school library program.

These 10 forms of documentary evidence were suggested by one or more of the participants:

1. SLMS keeps a record of professional steps taken
2. SLMS keeps records of instructional design activities
3. Analysis of lesson plans
4. Use of a program assessment rubric or observations rubric
5. SLMS's self-evaluation
6. Use of teacher surveys
7. Use of scope and sequence
8. SLMS documents library outcomes in terms of student achievement and learning
9. Use of student surveys
10. Use of administrator surveys

*** 0001: How do you rate**

"SLMS keeps a record of professional steps taken"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions

	Quite High	Fairly High	Fairly Low	Quite Low
Importance	☐	☐	☐	☐
Practicality	☐	☐	☐	☐
Validity	☐	☐	☐	☐

Please choose the appropriate response for each item:

*** 0002: How do you rate**

"SLMS keeps records of instructional design activities"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions		Quite High	Fairly High	Fairly Low	Quite Low	Please choose the appropriate response for each item:
	Importance	☐	☐	☐	☐	
	Practicality	☐	☐	☐	☐	
	Validity	☐	☐	☐	☐	

*** 0003: How do you rate**

"Analysis of lesson plans"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions		Quite High	Fairly High	Fairly Low	Quite Low	Please choose the appropriate response for each item:
	Importance	☐	☐	☐	☐	
	Practicality	☐	☐	☐	☐	
	Validity	☐	☐	☐	☐	

*** 0004: How do you rate**

"Use of a program assessment rubric or observations rubric"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions		Quite High	Fairly High	Fairly Low	Quite Low	Please choose the appropriate response for each item:
	Importance	☐	☐	☐	☐	
	Practicality	☐	☐	☐	☐	
	Validity	☐	☐	☐	☐	

*** 0005: How do you rate**

"SLMS's self-evaluation"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library	Please choose the appropriate response for each item:

program can be found at Definitions		Quite High	Fairly High	Fairly Low	Quite Low
	Importance	☐	☐	☐	☐
	Practicality	☐	☐	☐	☐
	Validity	☐	☐	☐	☐

*** 0006: How do you rate**

"Use of teacher surveys"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions		Quite High	Fairly High	Fairly Low	Quite Low	Please choose the appropriate response for each item:
	Importance	☐	☐	☐	☐	
	Practicality	☐	☐	☐	☐	
	Validity	☐	☐	☐	☐	

*** 0007: How do you rate**

"Use of scope and sequence"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions		Quite High	Fairly High	Fairly Low	Quite Low	Please choose the appropriate response for each item:
	Importance	☐	☐	☐	☐	
	Practicality	☐	☐	☐	☐	
	Validity	☐	☐	☐	☐	

*** 0008: How do you rate**

"SLMS documents library outcomes in terms of student achievement and learning"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions		Quite High	Fairly High	Fairly Low	Quite Low	Please choose the appropriate response for each item:
	Importance	☐	☐	☐	☐	
	Practicality	☐	☐	☐	☐	
	Validity	☐	☐	☐	☐	

*** 0009: How do you rate**

"Use of student surveys"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions

	Quite High	Fairly High	Fairly Low	Quite Low
Importance	☐	☐	☐	☐
Practicality	☐	☐	☐	☐
Validity	☐	☐	☐	☐

Please choose the appropriate response for each item:

*** 0010: How do you rate**

"Use of administrator surveys"

as a measure of "library program fully integrated with the curriculum" in terms of its importance, practicality, and validity?

Definitions for each of the characteristics of a successful high school library program can be found at Definitions

	Quite High	Fairly High	Fairly Low	Quite Low
Importance	☐	☐	☐	☐
Practicality	☐	☐	☐	☐
Validity	☐	☐	☐	☐

Please choose the appropriate response for each item:

0011:

You may comment on or clarify your responses to "library program fully integrated with the curriculum" here:

Please address any questions to Arlen Kimmelman

Please write your answer here:

APPENDIX Q

Sample Question: Round Three

APPENDIX Q

Sample Question: Round Three

Round 3: Delphi Study, Rowan University

The Last Round

Delphi Study: Round 3 Consensus Building

Please evaluate the consensus ranking for each measurement technique's VALIDITY to document the success of a high school library media program. You may re-rank according to your expert opinion, or you may accept the consensus ranking by simply re-entering 1 through 10 in the ranking boxes. The most VALID measures the high school library media specialist can use should be at the top of the list.

*** 001:**

SLMS collaborating, modeling, and promoting

Please evaluate the consensus ranking for each measurement technique's VALIDITY to document the success of a high school library media program and the *SLMS collaborating, modeling, and promoting.* You may re-rank according to your expert opinion, or you may accept the consensus ranking by simply re-entering 1 through 10 in the ranking boxes. The most VALID measures the high school library media specialist can use should be at the top of the list.

1. **Student outcomes after collaborative lesson planning lessons with library components**
2. **Records of teachers and SLMS's collaboration efforts**
3. **Teacher surveys of SLMS as collaborator**
4. **Reports made to principal by SLMS**
5. **Principal's evaluation of teachers' and SLMS's collaborative efforts**
6. **Record of SLMS on committees and serving as coordinators, co-chairs and collaborators**
7. **Record of attendance at professional development programs fostering SLMS-teacher collaboration**
8. **Use and availability of instructional design templates for implementing collaborations**
9. **Record of SLMS-initiated articles in school newsletter**

To access the means scores for each measurement, please click here.

Please number each box in order of preference from 1 to 9

- [ ] Student outcomes after collaborative lesson planning lessons with library components
- [ ] Records of teachers and SLMS's collaboration efforts
- [ ] Teacher surveys of SLMS as collaborator
- [ ] Reports made to principal by SLMS
- [ ] Principal's evaluation of teachers' and SLMS's collaborative efforts
- [ ] Record of SLMS on committees and serving as coordinators, co-chairs and collaborators
- [ ] Record of attendance at professional development programs fostering SLMS-teacher collaboration
- [ ] Use and availability of instructional design templates for implementing collaborations
- [ ] Record of SLMS-initiated articles in school newsletter