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Seeing the Same: A Follow-Up Study on the Portrayals of Disability in Graphic Novels Read by Young Adults

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Abstract
A 2010 study of the portrayal of disabilities in graphic novels selected by librarians as the “Best” revealed that disabilities were present in less than half of the sample, and the majority of those depictions were of negative stereotypes (Irwin and Moeller 2010). This follow-up study looked at a best seller list of graphic novels to answer the following research questions: Do the graphic novels include individuals with disabilities? If disabilities are present, what disabilities were most often featured? What is the gender of the individual(s) with disabilities? Is there a positive portrayal of the person with a disability? Are there differences between the portrayal of disability in a graphic novel from a best seller list and one approved by librarians? Disabilities were present in an overwhelming majority of the twenty-nine graphic novel titles examined in this study; however, the individuals were again primarily portrayed using negative stereotypes. The conclusions are that authors, illustrators, and publishers of graphic novels, whether the works are recommended by librarians or are best sellers, do not provide realistic representations of people with disabilities.

Work Cited in Abstract

Introduction
Although it has been used widely, the phrase “I know it when I see it” was made famous in 1964 by United States Supreme Court Justice Potter Stewart when he described how he understood that given material was to be considered “pornographic.” Justice Stewart’s self-described test of the nature of provocative material may have been an illustrative example of how subjective
concepts are judged, but his comment also demonstrated the extent to which the visual acts as an affirmation or a challenge to one’s individual beliefs.

The power of the visual can be found in library collections in the form of comics and graphic novels. By combining visuals with text to communicate a story or to inform on a nonfiction subject, this popular format for literature holds appeal for children and adults of varying ages and reading abilities. Due to the combination of the visual and textual elements, nonfiction graphic books as well as those of a fictional genre are readily accessible to a large population of readers.

A sizeable portion of this vast population of readers consists of young adults who use the graphic novel collection located within their school library. To help teens choose graphic novels that would likely appeal to them, the Young Adult Library Services Association annually publishes the Great Graphic Novels for Teens book list for librarians to consult and, in turn, use to guide teens to potential book choices. However, one issue that youth librarians continue to face is their inability to guide teens to resources if teens are unwilling to engage with librarians about their reading interests. In light of this circumstance, we assume that there is a population of teens who read graphic novels but seek other sources of information for book recommendations. One popular source of recommendations is The New York Times Graphic Books Best Seller List. Like other best seller lists published by the Times, this book list records which graphic novels and manga have the highest-grossing figures during each week. The New York Times Graphic Books Best Seller List differentiates between graphic novels and manga but makes no distinction with regard to the intended age of the readership of these books.

Working from the assumption that some teens are likely to use sources such as The New York Times Graphic Books Best Seller List to guide their book choices, we sought to answer the question: How do popular graphic novels consumed by youth reflect disability?

This study is a follow-up to our first look at representations of disability in graphic novels recommended specifically for teens (Irwin and Moeller 2010). In that study the textual and visual elements of thirty graphic novels on the 2008 Great Graphic Novels for Teens book list, published by the Young Adult Library Services Association, were analyzed, and disability was found to be represented in less than half of the sample of graphic novels. Of these depictions, the majority were indicative of stereotypical images of individuals with disabilities.

The need for realistic representations of individuals with disabilities in graphic novels is reflected, in part, by the population of students with disabilities in public schools. In the most recent Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, the U.S. Department of Education reported that in 2003 in the fifty states approximately six million students aged six through twenty-one were served under the Individuals with Disabilities Education Act. Those served were 9.1 percent of the overall population of six- to twenty-one-year-old students in the United States (U.S. Dept. of Education 2007, 28).

Students with disabilities deserve to see realistic depictions of people like themselves reflected in society. Those students without disabilities who can find and read realistic representations of disability are likely to learn more about issues that those with disabilities face in society, and all readers can discover similarities they may not have known they shared with others (Ayala 1999).
Literature Review

In our first study we provided a detailed review of literature related to the empirically studied use of graphic novels in schools and other relevant topics (Irwin and Moeller 2010).

Preferences of Young Readers and Educators’ Attitudes

The literature review included Ujiie and Krashen’s finding that seventh-grade boys they interviewed, who were eligible for free or reduced-priced lunches and who enjoyed reading comics, tended to enjoy reading in general and read other books in addition to comics (1996).

Worthy, Moorman, and Turner also asked sixth-grade students about their reading preferences and found comics to be one of the most preferred formats for literature. The researchers also discovered that students were likely to get their preferred reading material from sources outside of school due to lack of availability at school (1999).

Norton interviewed elementary-aged students about their interest in Archie comics and found the students enjoyed the comic because they felt a sense of ownership toward that particular comic and a desire to discuss it further. The author also discovered, however, that the students’ teachers and parents did not consider reading Archie to be legitimate literacy practice (2003).

Cary (2004) and McTaggart (2008) ascribe the benefits of using graphic novels in the curriculum to the format’s unique method of communicating a story or content in a way that enables, motivates, and challenges readers of all proficiency levels.

In their survey of one hundred sixth-graders and one hundred ninth-graders, Nippold, Duthie, and Larsen found that the most popular reading material with both groups included comics and graphic novels (2005).

Depictions of Disability in Media

Another area of literature that we described in our previous study (Irwin and Moeller 2010) focused on the depictions of disability in media. One pioneering study cited in our previous work identified ten major stereotypes that are commonly used in media to portray people with disabilities. In their report of that study, Biklen and Bogdan described the following stereotypes of individuals with disabilities.

1. “Pitiable and pathetic”: Tiny Tim in A Christmas Carol
2. “Object of violence”: Audrey Hepburn’s character who is terrorized as an individual who is blind in the movie “Wait Until Dark”
3. “Sinister and/or evil”: Captain Ahab who has one prosthetic leg in Moby Dick.
4. “Atmosphere”: Individuals who are background characters, such as “blind musicians”.
5. “Super Crip”: The private detective who used a wheelchair in the television show, Ironsides”.
6. “Laughable”: Mr. Magoo, who had a visual impairment.
7. “His/her own worst—and only—enemy”: characters who are portrayed as whiners who could succeed if they tried harder.
8. “Burden”: Those characters who appear to others as being “helpless” and being in need of care.
10. “Incapable of fully participating in everyday life”: Those who are presented as unable to be included in activities as employees, brothers or sisters, students, etc. (1977, 5–9)

With a specific focus on comics, Weinberg and Santana studied the emotional characteristics of characters with disabilities and found that these characters were either morally good or evil, but never neutral, suggesting that authors and illustrators conveyed “that physical inferiority extends to moral inferiority with the physically deviant being portrayed as morally deviant” (1978, 330).

Byrd and Elliott studied 1,051 feature films to determine whether people with disabilities were included, and, if so, how they were presented. Those researchers found that only 11 percent of the sample included individuals with disabilities and of these characters, the majority portrayed negative stereotypes (1985).

Mellon pointed out that depictions of disability in books for youth can be problematic because authors often focus on the disability rather than the character and emphasize the differences between children rather than the similarities (1989).

Heim suggested specific criteria on which books about characters with cognitive disabilities should be evaluated for quality. Heim then illustrated how these criteria were reflected in a sample of young adult books in which the characters with cognitive disabilities were portrayed as exhibiting a sense of agency, were not ignored by peers and family, and were characterized as unique individuals with their own personalities (1994).

With a focus on the cultural and linguistic characteristics associated with disability, Ayala analyzed fifty-nine picture books and books for intermediate readers; in all these books the main character was identified as having a disability. Ayala found that few books featured non-white characters, few were written in a language other than English, and most failed to focus on the beliefs and practices of the characters’ cultures (1999).

Mills suggested that an author’s ethical norms are reflected in his or her writing. Mills illustrated this belief by examining a sample of children’s books that feature individuals with cognitive impairments; her goal was to assess which truths the authors of these books held. Mills gave examples of how stories have communicated the notion that low intelligence and corrupt moral character go hand-in-hand. She also described the ways in which characters with disabilities are portrayed as inherently good only to suffer later because of their disability. Mills also described how, instead of tackling the implication that human value is suggestive of one’s ability to succeed intellectually, authors often attempt to communicate a sense of equality by portraying a character with a cognitive disability as having more compassion or more talent with tactile objects than does the character’s peers without disabilities. The one positive theme that Mills found in novels for youth was that the young protagonists of stories involving disruption in their home situations often chose to live with a guardian who had a cognitive disability. Mills claimed that this demonstrated the authors’ belief that those individuals with cognitive disabilities are as valuable, if not more, than individuals without disabilities. Mills noted that it is important to understand how disability is portrayed in media for youth because “books for children about mental disability inescapably convey values about how we should respond to difference in intelligence” (2002, 542).
Dyches and Prater conducted a content analysis on thirty-four children’s fiction books published between 1999 and 2003; their goal was to determine how characters with developmental disabilities were represented. These authors discovered a positive trend in children’s publishing: The depictions of the characters were realistic in that a disability was only one of many character traits described. Of their sample of dynamic characters, Dyches and Prater also noted that the majority were male and many held ethnically diverse backgrounds (2005).

Conversely, Riley suggested that media depictions of individuals with disabilities have changed little since the 1920s and that the negative representation of disability carries with it political and economic costs for those with disabilities living in our society (2005).

**Statement of Problem**

Based on the initial review of the literature and the results of our previous study, a number of questions emerged about best-selling graphic novels (including manga).

1. Do the graphic novels include individuals with disabilities?
2. If disabilities are present, what disabilities were most often featured?
3. What is the gender of the individual(s) with disabilities?
4. Is there a positive portrayal of the person with a disability?
5. Are there differences between the portrayal of disability in a graphic novel from a best seller list and one approved by librarians?

**Methodology**

The sample for the study was the thirty books listed on *The New York Times Graphic Books Best Seller List* during the week of the list’s first publication, March 5, 2009. The books that comprised the list were designated by the *Times* as hardcover, paperback, or manga. One title appeared twice on the list; *Watchmen* was a bestseller that week in both hardcover and paperback formats. (See Appendix A for the list of books in the sample.)

We independently read each of the books three times. During the first reading only the text was considered; during the second reading the focus was on only visual presentations, and finally, text and visuals together were considered. Each of us recorded descriptive notes during the analysis, and only after both had read a book did we compare notes to determine the characters’ disabilities (if any) represented in the book and how those characters with disabilities were depicted.

We acknowledge that the mere undertaking of this specific study implies a certain set of ethics inherent in the work. As we were, in part, examining this sample of authors’ ethical approaches to presenting disability in graphic novels, we deemed it appropriate to describe our own ethical approach to this study. As Mills noted, we have no more reason to exempt the writer from ordinary moral evaluation in carrying out her professional role than the doctor, the lawyer, the politician, the journalist. The author, like any human being, can be held accountable if she makes the world a worse rather than a better place. And the moral values expressed by a work cannot be separated from its aesthetic quality as a whole; what a work says is at least as important in judging its overall aesthetic quality as how the work says it. (2002, 532)
As this sample represents the graphic novels that are purchased and read most often in the United States, we expected to find realistic representations of the 54 million Americans who have a disability (U.S. Census Bureau 2010).

To classify a character as having a disability, we relied on the graphic novels to have identified individuals as such. In the interest of trustworthiness, we were unable and unwilling to “diagnose” individual characters without the characters’ being illustrated, described, or referred to by other characters in the story as having a disability. Instances occurred in which we initially disagreed about a character’s disability status; however, these disagreements were discussed until an agreement was reached about the appropriate way to identify the character. Characters considered for analysis were only those who had been shown to have interactions with the main characters or were given a name by the author. Certain books in this sample feature scenes of war and destruction in which several individuals with disabilities are shown, but only in one panel and are given no further attention throughout the books. These incidental characters were not analyzed.

The definitions provided in the Individuals with Disabilities Education Improvement Act of 2004 (IDEA) were used to identify disabilities. The IDEA described the following disabilities: autism, emotional disturbance, hearing impairment including deafness, mental retardation, multiple disabilities, orthopedic impairment, other health impairment (including chronic health problems that adversely effect the student’s learning environment), specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment including blindness (USA 2004).

Although The New York Times Graphic Books Best Seller List created a separate category for manga, we considered manga to be a type of graphic novel. Manga differ from other graphic novels in that manga are presented in the traditional Japanese book format of having to be read back to front and from right to left. For the purposes of this study, a work was considered to be a graphic novel if it was a standalone book containing one story or a collection of stories presented in comic format.

**Results**

**Overview**
Of the twenty-nine different books in the sample, we agreed that eighteen books include at least one character with a disability. Using the IDEA terms, the disabilities represented are:

- Twenty characters with orthopedic impairments
- Nine characters with other health impairments
- Five characters with emotional disturbance
- Three characters with traumatic brain injury
- Three characters with visual impairments
- Two characters with multiple disabilities
- One character with hearing impairment
- One character with speech impairment
One of the books in the sample included a character that had two of the disabilities found in the list above. Of the forty-four characters, thirty-two were male, eleven were female, and one was of indeterminate gender. The gender, disability representation, and genre (if manga or superhero) for the specific books are presented in Appendix B.

**Prevalent Stereotypes**

Using those stereotypes described by Biklen and Bogdan, we found that the most frequent depiction of disability was that of “atmosphere.” Among those eleven characters representing “atmosphere,” a diverse range of disabilities was exhibited within this mostly male population. Three instances highlighted the characters’ incapacity: in *Tales of the Green Lantern Corps*, a male character who was catatonic; two male characters with their arms in slings, one featured in *The Complete Terry and the Pirates*, and the other in *Naruto, Vol. 41*; and in *Eden: It’s an Endless World!*, one man who was depicted as missing an arm and experiencing a great deal of weakness. The remaining male characters depicted as “atmosphere” included a male character with a hearing aid in *Starman Omnibus*, a group of men who had incurred various injuries in *The Complete Terry and the Pirates*, and one male character in *The Courtyard* who experienced amphetamine psychosis.

Although the majority of those characters who served as “atmosphere” were male, four female characters were also labeled as such. These included two female characters with amnesia, one in *The Complete Terry and the Pirates* and the other in *Superman Family*; in *Batman: The Killing Joke* one female character, who had been shot, lost the use of her legs; in *MPD—Psycho* one woman was depicted as being in a vegetative state.

Of the eight characters in this sample identified as “evil,” only one was female. She was depicted in *The Death of Captain America* as having a broken arm and devising a plan to injure another character. The remaining seven instances in which a character was described by the researchers as “evil” included two portrayals of the character The Joker in the novels *Batman: The Killing Joke* and *Batman RIP*. In both books The Joker is seen as having a behavior disability. *Eerie Archives* featured two “evil” male characters: one, a medical doctor with malevolent intentions, experienced severe arthritis, and the other, a Frankenstein monster who killed others, had brain damage. The other three examples of males depicted as evil were: in *The Death of Captain America*, a character with a robotic body who plots the death of Captain America; in *The Walking Dead*, a sexual predator who has lost an eye; and in *The Courtyard*, a character with a lisp who is involved in unsavory activities.

*Watchmen* produced three characters that we identified as “pitiable;” two of the characters, one male and one female, suffered from cancer, and another male character, who had psychological issues, was depicted as being physically abused. Two other examples of “pitiable” characters emerged from the sample: in *Eden: It’s an Endless World*, a male character missing an arm wanted to return to work, but could not; and in *The Walking Dead*, a man who was sick was depicted as feeling inadequate because of his illness.

*Superman Family* portrayed two characters as being “helpless”: one, a female who could not breathe out of water, and the other, a man who developed multiple arms and was unable to participate fully in everyday life as he knew it. A male character in *Beanworld: Wahoolazuma!* was shown to be incapacitated by a leg injury.
Three characters in this sample were identified as having been “objects of violence.” These included: in *X-Men: Legacy*, a male character who did not have full use of his legs and was physically pushed around by another character; in *Batman: R.I.P.*, a male character who experienced a split personality and was beaten by his enemies; and, in *The Courtyard*, a female character with schizophrenia who was murdered.

Two books depicted characters as “burdens” because of their disabilities: in *The Complete Terry and the Pirates*, a male character with a broken leg had to be carried around by another character; a male character in *Incredible Hercules* became a danger to others when he became blind.

Another of Biklen and Bogdan’s (1977) stereotypes, “laughable,” was observed in two books: *The Complete Terry and the Pirates*, in which a male character lying in a hospital bed became bashful at the idea that he was not as tough as his female colleagues, and *Superman Family*, in which a man developed multiple arms, labeled by his friends as a disability, and acted comically while attempting to use his new appendages to participate in everyday life.

*The Complete Terry and the Pirates* depicted one female character as a “super crip” when the character became ill but continued to travel to her destination, despite her illness. A “super crip” was also found in *The Death of Captain America*; a male character had a metal prosthetic arm that was extremely strong and powerful.

Only one character in this sample was identified as being her “own worst enemy”; this character appeared in *The Complete Terry and the Pirates* as a female who had overdosed on K-rations and was health-impaired.

Five characters were depicted as having disabilities but were found to be featured as inclusive members of their communities. These characters included a physically incapacitated male in *Naruto, Vol. 35*; a man with a broken arm in *Naruto, Vol. 38*; a male character without a hand in *The Walking Dead*; and a blind man and a woman with exposure, both featured in *The Complete Terry and the Pirates*.

**Comparison of Manga and Superhero Categories**

An analysis of the manga books within the sample showed that five of the ten manga books depicted characters with disabilities: *Eden: It’s an Endless World!; Naruto, Vols. 35, 38, and 41;* and *MPD-Psych*. The stereotype of “atmosphere” represented the characters with disabilities in three of the manga books, while one character was depicted as “pitiable.” The two manga books that did not feature characters with disabilities as being stereotypical were *Naruto, Vols. 35 and 38*.

In a similar examination of the fourteen superhero books among those analyzed for this study, eight included characters with disabilities. The portrayals of these characters included five “evil” characters, four that represented “atmosphere,” two characters that became “objects of violence,” and one instance each of characters depicted as “burden,” “helpless,” “laughable,” and “super crip.”
Conclusions

An analysis of twenty-nine graphic novels found on the first *The New York Times Graphic Books Best Seller List* revealed that individuals with disabilities were present in the overwhelming majority of books in this sample. This finding differs from that of our initial study of graphic novels recommended to teens in that less than half of that sample depicted individuals with disabilities (Irwin and Moeller 2010). The results of both studies are similar, however, with regard to the nature of the portrayals most frequently found, which were negative. The finding of few instances in which characters with disabilities were considered to exemplify no stereotype agrees with those of Weinberg and Santanta, who described characters with physical disabilities as being portrayed in media as being either morally good or evil, but rarely neutral (1978). Interestingly, the majority of the characters in this study were not defined by their disability; rather, the characters’ disability was only one aspect of their individual traits. This finding contrasts with that discovered in our initial study, which revealed that characters were defined largely by their disabilities.

As with our initial study, we found both male and female characters with disabilities in this sample of graphic novels. However, the majority of the characters were male, and the female characters with disabilities tended to be portrayed in more passive stereotypes such as “pitiable,” “atmosphere,” “helpless,” and “object of violence.”

Of the four books with positive representations of people with disabilities, two were manga.

Although the number of individuals with disabilities depicted in this sample of graphic novels was larger than that found in our initial study, it is important to note that the stories in this sample of best sellers often dealt with physical combat. Stories of war and combat may be expected to produce several depictions of individuals with disabilities; however, those individuals may be featured only very briefly in the story and be considered casualties of war. Despite our desire to see a larger number, and more diverse and positive representations of disability in graphic novels, readers may dismiss battle-related disabilities as anomalies rather than representations of millions of individuals in society.

Similar to our initial study, the findings of this research suggest that authors, illustrators, and publishers of commercially popular graphic novels have not taken the opportunity to represent people with disabilities in a realistic manner, as commercially popular graphic novels mostly reflected the stereotypical portrayals defined by Biklen and Bogdan (1977).

In this sample of books a significant increase in the number of individuals and type of disabilities portrayed was discovered when compared to those specifically recommended to teens. While this finding is encouraging, the situational contexts and development of the characters fail to reflect the reality of teens with disabilities who read these graphic novels, nor do these books represent the majority of experiences of individuals with disabilities living in our society. This research also extends the discussion of the gendered depictions of disability in popular media.

We could not proffer diagnoses that were not readily evident; thus, we were limited to studying how physical disabilities were portrayed in graphic novels unless the textual narrative specifically stated an individual’s cognitive disability. We were also limited in our interpretations of the text and visuals as messages conveyed to young adults, as neither of us is a
young adult. Therefore, further research must be conducted to incorporate the voice of young adults to determine their views about representation of people with disabilities in graphic novels.

Considering the significant population of American public school students who have disabilities, it is perhaps unsurprising that a number of studies have demonstrated the importance of realistic presentations of people with disabilities in materials for youth (Ayala 1999; Dyches and Prater 2005; Heim 1994; Mellon 1989; Mills 2002; Riley 2005). Although the materials analyzed for this study may or may not specifically be marketed toward teens, they are marketed to an audience of adults that includes an even larger population of individuals with disabilities. Aside from the number of individuals and the types of disabilities represented in this sample of books, young adults see in best sellers the same stereotypical representations of disability seen in graphic novels specifically recommended for them. Those young readers who have disabilities, as well as those who do not, need to see themselves and others as valuable, unique, contributing members of society.

Works Cited


**Cite This Article**

# Appendix A: Books in Sample Studied

<table>
<thead>
<tr>
<th>Book</th>
<th>Disability(ies)Presented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brubaker, Ed. 2010. The Death of Captain America: The Man Who Bought America, Vol. 3. New York: Marvel.</td>
<td>orthopedic impairment (2); other health impairment</td>
</tr>
<tr>
<td>Title</td>
<td>Author</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
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<tr>
<td><em>the Move</em></td>
<td></td>
</tr>
<tr>
<td><em>Naruto, Vol. 40: The Ultimate Art</em></td>
<td>Kishimoto, Masashi</td>
</tr>
<tr>
<td><em>Naruto, Vol. 41: Jiraiya’s Decision</em></td>
<td>Kishimoto, Masashi</td>
</tr>
<tr>
<td><em>Beanworld: Wahoolazuma!</em></td>
<td>Marder, Larry</td>
</tr>
<tr>
<td><em>Watchmen</em></td>
<td>Moore, Alan</td>
</tr>
<tr>
<td><em>The Courtyard</em></td>
<td>Moore, Alan</td>
</tr>
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<td><em>MPD—Psycho, Vol. 8</em></td>
<td>Otsuka Eiji</td>
</tr>
<tr>
<td><em>The Incredible Hercules: Love and War</em></td>
<td>Pak, Greg, and Fred Van Lente</td>
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<tr>
<td><em>Eerie Archives, Vol. 1</em></td>
<td>Various</td>
</tr>
<tr>
<td><em>Showcase Presents: Superman Family, Vol. 3</em></td>
<td>Various</td>
</tr>
<tr>
<td><em>Secret Invasion: Runaways: Young Avengers</em></td>
<td>Yost, Christopher</td>
</tr>
</tbody>
</table>
### Appendix B: Books with Characters with Disabilities, Gender of Characters, Disability Representation, and Genre

<table>
<thead>
<tr>
<th>Books with Character with Disability</th>
<th>Gender of Person/People with Disability</th>
<th>Representation</th>
<th>Manga/Superhero</th>
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<tbody>
<tr>
<td>Author(s)</td>
<td>Title/Notes</td>
<td>Gender(s)</td>
<td>Attributed Features</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Marder, Larry</td>
<td>2009. <em>Beanworld: Wahoolazuma!</em> Milwaukie, OR: Dark Horse Books.</td>
<td>male</td>
<td>helpless</td>
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School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

The mission of the American Association of School Librarians is to advocate excellence, facilitate change, and develop leaders in the school library field. Visit the AASL website for more information.
Motivators and Barriers to Sexual-Health Information Provision in High School Libraries: Perspectives from District-Level Library Coordinators and High School Principals

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Abstract
Adolescents who receive current, accurate, reliable, and balanced sexual-health information are more likely to express healthier sexual attitudes and engage in healthier sexual behaviors than adolescents receiving limited or no sexual-health information. High school librarians have the potential to help meet sexual-health information needs of their adolescent patrons, thereby contributing to a healthier society. This Delphi study explored the role of high school librarians as sexual-health information provider, as perceived by two groups who supervise them: district-level library coordinators and high school principals. The two groups expressed conflicting expectations about high school librarians’ playing this role. Members of the groups identified twelve motivators and five barriers to sexual-health information provision in high school libraries, both supporting and further contributing to previous findings of related research.

Introduction
American adolescents currently receive unequal access to sexual-health education and information in the home and at school. They also consistently report expressing unhealthy sexual attitudes and engaging in unhealthy sexual behaviors when compared to adolescents in other industrialized countries. Such unhealthy attitudes and behaviors can potentially result in detrimental psychological and/or physiological effects for themselves, their current and/or future partners, and their existing and/or future children. A positive correlation exists between adolescents who have access to educational programs and information providing balanced perspectives of sexual health and development, and adolescents’ short- and long-term sexual attitudes and behaviors.

High school librarians have the potential to play the role of sexual-health information provider, thereby helping to bridge this information gap for their adolescent patrons and possibly contribute to healthier decision-making. High school librarians work within two professional
communities, each with their own expectations regarding sexual-health information provision for adolescents. The Library and Information Science (LIS) community typically encourages school librarians to play this role, while the education community can both encourage and discourage school librarians from playing this role. LIS literature has identified predominant factors serving as motivators and barriers to information provision in the school library; these factors can positively or negatively affect adolescents’ access to sexual-health information.

This baseline Delphi study explores the expectations district-level library coordinators and high school principals have about high school librarians’ playing the role of sexual-health information provider, and the factors library coordinators and principals perceive as encouraging and discouraging high school librarians from potentially playing this role.

Literature Review

Adolescent Sexual Behaviors
In 2009 46.0% of American adolescents, defined as any person between the ages of 13 and 19 years, had been sexually active, and numerous adolescents practiced unhealthy sexual behaviors. The Centers for Disease Control and Prevention (CDC) identify unhealthy behaviors as engaging in sexual activity at an early age, having multiple partners, and not using contraception. In 2009 5.9% engaged in sexual intercourse prior to the age of 13 years; 34.2% were currently sexually active; 13.8% had at least four sexual partners; and 38.9% did not use a condom during the most recent act of sexual intercourse (CDC 2010a).

Sexually transmitted disease (STD) contraction rates and pregnancy rates are higher among American adolescents when compared to rates among adolescents in other industrialized nations (Blinn-Pike 1996; Singh and Darroch 1999; Abma et al. 2004; Kirby 2007). Every year approximately 50% of the 19 million Americans contracting STDs are between the ages of 15 and 24, despite the fact that this age group represents only 25% of the national population. This age range covers both high school and college students, but the CDC, which provides the most reliable data, did not further divide this age group for this statistic. More cases of chlamydia and gonorrhea are reported among females between the ages of 15 and 19 than in any other age group. Among males of all ages, the 15- to 19-year-old age group reports the second-highest number of cases of chlamydia and gonorrhea (CDC 2008). Reported HIV/AIDS cases also increased among the adolescent age group between 2006 and 2009, although not all adolescents contracted the virus through sexual relations (CDC 2011).

In 2005 70.6 per 1000 (7.06%) females between 15 years and 19 years, and 1.6 per 1000 (0.0016%) females under the age of 15 years became pregnant (Ventura et al. 2009). Adolescent pregnancies negatively affect American society’s economic, educational, medical, and social services systems. These pregnancies also potentially negatively affect the adolescent mothers and their children’s physical and emotional health, educational success, and economic situation. Taxpayers spend approximately $9.1 billion each year on costs related to adolescent pregnancy. Adolescent mothers are less likely to complete high school and are more likely to remain single parents, to live in poverty, and to have health problems (e.g., obesity, anemia, hypertension, and STDs) than women who give birth later in life. Children born to adolescent mothers are more likely to have learning disabilities and health problems, and are more likely to be victims of abuse or neglect (Hoffman, Foster, and Furstenberg 1993; Moore, Morrison, and Greene 1997; Kirby 2007; National Campaign to Prevent Teen and Unplanned Pregnancy 2012).
**Sexual-Health Education and Information**

Most adolescents receive their sexual information through both formal and informal means. Formal means include schools, churches, and other organizations (Cornog and Perper 1996; Bleakley et al. 2009). Adolescents receiving their sexual information from formal sources engage in fewer risky sexual behaviors and hold more cautious attitudes about sex than adolescents receiving information from peer and popular media sources (Somers and Surmann 2005; Bleakley et al. 2009). When receiving age-appropriate sexual-health information from schools at a younger age, i.e., before or during the onset of puberty, adolescents are also less likely to engage in risk-taking behaviors (Somers and Surmann 2005).

Informal sources include peers, family members, and/or mass media in various forms, including but not limited to the Web, movies, television, periodicals, and books (Cornog and Perper 1996; Bleakley et al. 2009). More adolescents consult family members and peers than mass media resources, but when adolescents use mass media resources they gather information from television and movies more frequently than from the Web and periodicals (Sutton et al. 2002; Bleakley et al. 2009).

Informal resources, however, do not consistently provide accurate information and thus can initiate and/or perpetuate adolescents’ misconceptions about sexual health. Using peers and various mass media outlets as information sources more often results in unhealthy outcomes, meaning adolescents engage in risky sexual behaviors more frequently and at younger ages, and express more permissive attitudes and beliefs than their peers receiving sexual information from formal sources (Somers and Surmann 2005; Bleakley et al. 2009).

Federal and private health agencies, such as CDC’s Division of Adolescent and School Health (CDC 2010b), the CDC’s National Center for Chronic Disease Prevention and Health Promotion (National Center for Chronic Disease Prevention and Health Promotion 2011), the National Campaign to Prevent Teen and Unplanned Pregnancy (National Campaign to Prevent Teen and Unplanned Pregnancy 2011), and the Sexuality Information and Education Council of the United States (SIECUS n.d.), promote access to age-appropriate and accurate sexual-health information and education, including information on puberty, abstinence, STDs, HIV/AIDS, pregnancy and disease prevention, communication skills, and relationships. The CDC’s Division of Adolescent and School Health recognizes the benefits of students’ receiving sexual-health information in school and encourages schools to provide this information to improve the sexual health of American adolescents (CDC 2010b).

Title V, Section 510 of the Social Security Act, however, encourages public schools to teach abstinence-based sexual education, if and when sexual education is taught (USSSA 2009). For the 1998–2003 fiscal years, the U.S. federal government offered $50,000,000 per year to any state promoting abstinence education. Funding could be disseminated to school districts as well as community-based organizations (Dailard 2006). Abstinence programs provide limited information about sexuality, focusing on abstinence until marriage as the expected behavior, and often ignore other sexual-health topics for which adolescents have expressed information needs (Herz and Reis 1987; Hoff and Greene 2000). Thus, these programs do not adequately address the information needs of adolescents who choose to engage in premarital sex.
The U.S. Department of Health and Human Services evaluated four programs receiving Section 510 funds (Trenholm et al. 2007), ten states conducted program evaluations within three to seventeen months after the abstinence programs’ conclusions (Hauser 2008), and one private organization developed a meta-analysis of approximately 450 research studies on sexual education programs (Bleakley, Hennessey, and Fishbein 2006; Kirby 2007). These evaluations indicated no statistically significant long-term positive results of abstinence-based programs (Trenholm et al. 2007). Abstinence programs tended to change adolescents’ attitudes toward sexual behaviors immediately after completion of the educational course, but participation in these courses did not typically result in long-term behavioral or attitudinal changes. Adolescents were not more likely to remain abstinent, to delay onset of sexual intercourse, to return to abstinence, to use contraception, or to reduce their numbers of sexual partners. Despite these results, the U.S. Social Security Administration (2010) recently re-implemented Title V, Section 510 for the fiscal years 2010–2014. As before, states can receive $50,000,000 per fiscal year and then disseminate the money to organizations and school districts implementing abstinence education programs.

Abstinence programs are not entirely without merit, however, as adolescents participating in abstinence programs convey a greater factual understanding about sexual health, and demonstrate more cautious attitudes and behaviors than adolescents who have never participated in a sexual education program (Hoff and Greene 2000). Adolescents receiving access to a comprehensive presentation of sexual-health education and information, including information about puberty, abstinence, STDs, HIV/AIDS, pregnancy and disease prevention, communication skills, and relationships, however, typically demonstrated short- and long-term healthier behaviors and attitudes than their counterparts receiving no education and information, or receiving abstinence-based formal sexual education or information. Access to comprehensive educational programs and information “delayed the initiation of sex, reduced the number of sexual partners, and increased condom or contraceptive use…reduced the frequency of sex (including a return to abstinence)…and reduced unprotected sex” (Kirby 2007, 15).

Since the implementation of Section 510, statistically significantly fewer adolescents have received formal sexual-health education at school. Despite moderately negative effects of abstinence programs compared to comprehensive programs, these programs continue to be the norm in public schools offering sexual education programs (Alan Guttmacher Institute 2012). American adolescents have expressed a need for more information and education than current abstinence-based programs—or no programs—provide (Herz and Reis 1987; Hoff and Greene 2000). Adolescents in the U.S. also continue to exhibit behaviors suggesting they need more information and education than they receive now (Blinn-Pike 1996; Singh and Darroch 1999; Abma et al. 2004; Kirby 2007; CDC 2008). High school librarians can potentially assist in meeting the sexual-health information needs of their adolescent patrons, thereby contributing to a sexually healthier population.

**Librarians as Sexual-Health Information Providers**

School librarians play five roles as outlined in the American Association of School Librarians’ *Empowering Learners*: leaders, teachers, information specialists, instructional partners, and program administrators. As leaders, school librarians advocate for the 21st-century learning needs of their students. As teachers, school librarians teach patrons, including adolescents, how to locate, evaluate, and use information from a variety of sources, for multiple purposes, and within different contexts. As information specialists, they connect patrons to high-quality,
accurate, and current information. As instructional partners, school librarians collaborate with the
school community to improve the academic success of their students through lesson
development, instruction, and assessment. As program administrators, school librarians develop
library programs that identify and meet the 21st-century needs of their school community
members (AASL 2009).

Within these five roles numerous sub-roles exist, including that of sexual-health information
provider. Understanding and advocating for the health information needs of 21st-century
learners, teaching high school students how to find, evaluate, and use health information
resources, providing patrons with access to sexual-health information resources in multiple
formats, creating lessons to address health curricular needs, and developing programs identifying
and meeting both the curricular and personal needs of adolescent patrons fall within the five
primary roles a school librarian plays.

The American Library Association states librarians should develop collections “that support the
intellectual growth, personal development, individual interests, and recreational needs of
students” (ALA 2008). Sexual-health information resources can support the personal
development and individual interests of adolescent patrons. High school librarians have the
opportunity to provide their adolescent patrons with access to sexual-health information in both
print and electronic formats, as well as teach information literacy lessons for over six hours per
day, nine or ten months per year, over the course of several years.

The CDC encourages schools to provide information promoting abstinence while also addressing
the needs of adolescents engaging in sexual behaviors (CDC 2010b). School libraries are part of
the school system. LIS scholars also promote adolescent access to sexual-health information in
libraries, including school libraries, thus meeting the sexual-health information needs of their
adolescent population (Cunningham and Hanckel 1978; Campbell 1979; Fasick 1979; Chelton
1981; Walter 1994; Cornog and Perper 1996; Gross 1997; Levine 2002; Lukenbill and Immroth
2007). In the school library, adolescents can receive the benefits of formal sources with the
appeal of informal sources. School librarians can provide access to current and accurate
information representing a balanced view of sexual-health education. Because adolescents
typically prefer informal sources, librarians can select resources in a variety of formats appealing
to adolescents’ preferences: periodicals, Web resources, films, and books. Although adolescents
will be using informal sources, they are receiving carefully selected, high-quality information in
a formal setting, a circumstance that multiple studies suggest results in long-term sexually
healthier attitudes and behaviors (Cornog and Perper 1996; Somers and Surmann 2005; Bleakley
et al. 2009).

Despite encouragement from the CDC, ALA, and LIS scholars, as well as the data indicating
adolescents benefit from access to accurate and current sexual-health information received in
school, school librarians face challenges preventing them from playing the role of sexual-health
information provider. These challenges include, but are not limited to, censorship (Lukenbill and
Immroth 2007; Hill 2010; Whelan 2009; ALA 2010), curriculum requirements (Cornog and
Perper 1996; AASL 2007), and community standards (Lukenbill and Immroth 2007).

High school librarians can potentially contribute to a sexually healthier adolescent population
through meeting the sexual-health information needs of their adolescent patrons, but do they?
Members of two groups who supervise high school librarians, district-level library coordinators
and high school principals, shared their perceptions about high school librarians’ playing the role of sexual-health information provider and about the factors coordinators and principals perceive as encouraging and discouraging school librarians from doing so.

Research Questions
This Delphi study explores the potential role high school librarians play in providing sexual-health information for their adolescent patrons as perceived by two supervising groups: their district-level library coordinators and their high school principals. Participants shared perceptions, based on their professional experiences, to create a socially constructed understanding answering two research questions:

- Do district-level library coordinators and campus-level high school principals in Texas public school districts perceive their librarians as playing the role of sexual health-information provider?
- What factors do these participants perceive as influencing their librarians’ role as sexual-health information provider?

Method

Sample and Site
Members of two groups who supervise or direct high school librarians in public school districts participated in this study: district-level library coordinators and high school principals. For this study, high school is defined as a campus serving students in grades 9–12.

District-level library coordinators supervise or direct high school librarians within their district. They engage in leadership, administration, consultation, communication, and coordination between their librarians, the district staff, and the greater school community (AASL and AECT 1998). To participate in this study, each district-level library coordinator had to be a Texas Education Agency (TEA) certified librarian, currently employed in a Texas public school district, and currently employed as a district-level library coordinator.

Principals in Texas public high schools manage their individual campuses and act as liaisons between their individual campuses and the district-level administration. School librarians report directly to the principal. To participate in this study, each principal had to be currently employed as a principal in a Texas public high school, have been a high school principal for a minimum of one full academic year, and have a full-time TEA-certified librarian on campus.

Data Collection and Analysis
To collect data I used the Delphi technique, a method through which, over multiple rounds of data collection, a consensus is developed among a panel of informed individuals, based on participants’ experiences and perceptions. Participants’ contributions in the first round provide qualitative data that serve as the foundation for quantitative data-collection instruments in subsequent rounds. Typically participants engage in three or more rounds of data collection. In each round, data from the previous round is used to refine statements and opinions until the participant group reaches consensus (Ludwig 1997; Dwyer 1999; Cline 2000; Colton and Hatcher 2004; Lukenbill and Imroth 2009) or until the data consistently suggests a consensus
cannot be reached (Keeney, McKenna, and Hasson 2010). For this study, data collection consisted of three rounds.

**Round 1**
In Round 1 of this study, participants answered three open-ended questions designed to allow participants to state whether they perceive high school librarians as playing a role in providing sexual-health information for adolescent patrons, identify factors that encourage information provision, and identify factors that discourage information provision. Sixteen library coordinators and thirteen principals participated in Round 1.

The open-ended questions in Round 1 produced short narrative responses. To analyze these responses, I used content analysis. Content analysis is a systematic process for analyzing messages participants provide (Weber 1990; Stemler 2001). Relevant sentences, phrases, and/or words are extracted from larger bodies of text and assigned codes, or thematic phrases, based on the meaning of the extracted text (Powell 2003). Because this study is the first of its kind, no preexisting or prefabricated codes exist, so I used emergent coding. In emergent coding, codes and definitions develop through analysis based on themes the participants present in the raw data (Stemler 2001). During the initial round of coding, I developed a codebook of definitions for each theme based on the participants’ responses. I then reanalyzed the data using the codebook as a guide.

Participants identified seventeen factors that they perceive encourage school librarians to provide and twenty-two factors that they perceive discourage school librarians from providing sexual-health information for their adolescent patrons. Participants identified ten of those factors as both encouraging and discouraging. For example, seven library coordinators and four principals identified access to information as encouraging school librarians to provide sexual-health information, while one library coordinator identified this same potential factor as discouraging school librarians from providing such information. Thus, the same factor was identified as both encouraging and discouraging.

**Round 2**
The factors identified in Round 1 were presented in the Round 2 testing instrument using thirty-four 5-point Likert scale statements for which participants indicated their levels of agreement with each statement; levels ranged from “strongly agree,” through “agree,” “neutral,” and “disagree,” to “strongly disagree.” An empty comment box after each statement invited participants to contribute additional insights not addressed by the statements in the testing instrument. Ten principals and fifteen library coordinators responded in Round 2, for a return rate from Round 1 of 76.92% for principals and 93.75% for library coordinators. Response rates for both groups were above the recommended 70% (Bork 1993; Sumsion 1998).

I calculated the mean of each item. Items with a mean of 3.8 – 5.0 reached a consensus of agreement, meaning at least 70.0% of participants agreed with the statement. For example, the statement “High school librarians provide sexual-health information resources to address their adolescent patrons’ curricular information needs” received a mean of 4.6 among all participants. Thus, 90.0% of participants agreed with that statement, well over the minimum of 70.0%. Conversely, items with a mean of 1 – 2.2 reached a consensus of disagreement, meaning at least 70.0% of participants disagreed with the statement, thereby meeting a consensus of disagreement. For example, the statement “Legal liability encourages high school librarians to
provide sexual-health information resources for their adolescent patrons” received a mean of 2.2 among principals; 70% of principals disagreed with that statement, and thus reached a consensus of disagreement.

Library coordinators reached a consensus of agreement for eleven factors and a consensus of disagreement for three factors. Principals reached a consensus of agreement for two factors and a consensus of disagreement for one factor.

Round 3
For Round 3 I eliminated Round 2 factors for which participants arrived at a consensus. Participants used the same rating scale in Round 3 as in Round 2, but because library coordinators and principals as individual groups expressed distinctly different opinions regarding encouraging and discouraging factors, Round 3 required two separate testing instruments: one for library coordinators and one for principals. Factors that had reached consensus were removed, and statements not reaching consensus (mean between 2.3 and 3.7) were revised. Library coordinators responded to twenty-one 5-point Likert scale thematic statements, and principals responded to thirty-four 5-point Likert scale thematic statements. Two factors tested in Round 2 were divided into two or three statements to address subtle differences based on participants’ comments, thus adding to the number of items on the questionnaire.

One hundred percent of respondents from Round 2 participated in Round 3. Library coordinators reached a consensus of agreement for four factors and a consensus of disagreement for three factors. Principals reached a consensus of agreement for one factor and a consensus of disagreement for one factor. Data collection stopped after Round 3.

Results
Perceived Role of the Librarian
One of the three open-ended questions in Round 1 asked participants whether they perceive Texas high school librarians as playing a role in providing Texas adolescents with sexual-health information. Library coordinators and principals expressed distinctly different opinions (see table 1).

Table 1
Library coordinators’ and principals’ responses to the question “Do you perceive Texas high school librarians as playing a role in providing Texas adolescents with sexual health information?”

<table>
<thead>
<tr>
<th>Response</th>
<th>Library Coordinators</th>
<th>Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13 (81.25%)</td>
<td>3 (23.10%)</td>
</tr>
<tr>
<td>No</td>
<td>2 (12.50%)</td>
<td>7 (53.80%)</td>
</tr>
<tr>
<td>Maybe</td>
<td>0 (0.00%)</td>
<td>1 (7.70%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (6.25%)</td>
<td>2 (15.40%)</td>
</tr>
</tbody>
</table>

The two participant groups expressed conflicting views regarding high school librarians’ role as sexual-health information providers. Library coordinators perceive high school librarians as playing this role (81.25% agreement), whereas principals perceive librarians as not playing this
role (53.80% disagreement). One (6.25%) library coordinator and two (15.4%) principals replied with vague comments instead of definite answers, such as “the role of the librarian should be to order books and resources as requested by teachers, counselors, and administrators,” so these responses could not be clearly categorized as “yes” or “no.”

**Motivators and Barriers**
Motivators are factors about which participants reached a consensus as encouraging school librarians to provide sexual-health information resources. Barriers are factors about which participants reached a consensus as discouraging school librarians from providing sexual-health information resources (see table 2).

**Table 2**
*Factors on which participants reached consensus that the factors serve as motivators or barriers to provision of sexual-health information.*

<table>
<thead>
<tr>
<th></th>
<th>Library Coordinators</th>
<th>Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivators</strong></td>
<td>Access to information</td>
<td>Patrons’ curricular information needs</td>
</tr>
<tr>
<td></td>
<td>Adolescents’ lack of knowledge about sexual health</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appropriateness of content within resources</td>
<td></td>
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<td></td>
<td>Availability of resources</td>
<td></td>
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<tr>
<td></td>
<td>Confidentiality of patron circulation records</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emotional maturity of patrons</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Job responsibility</td>
<td></td>
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<tr>
<td></td>
<td>Patrons’ curricular information needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patrons’ personal information needs</td>
<td></td>
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<tr>
<td></td>
<td>Physiological maturity of patrons</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Professional guidelines</td>
<td></td>
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<tr>
<td></td>
<td>Rapport between librarian and student</td>
<td></td>
</tr>
<tr>
<td><strong>Barriers</strong></td>
<td>Conflict avoidance</td>
<td>Legal liability</td>
</tr>
<tr>
<td></td>
<td>Librarians’ personal beliefs</td>
<td>Librarians’ personal beliefs</td>
</tr>
<tr>
<td></td>
<td>Political climate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reconsideration request concerns</td>
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</tbody>
</table>

In Round 1 participants identified seventeen factors potentially encouraging sexual-health information provision and twenty-two factors potentially discouraging information provision. By the conclusion of Round 3, library coordinators reached consensus of agreement on twelve motivators and four barriers, and the principals reached a consensus of agreement on one motivator and two barriers.
Participants suggested two factors in Round 1 and reached a consensus of agreement or disagreement on these factors, but these factors are not considered motivators or barriers: “no factors” and “availability of time for collection development.” In Round 1, one library coordinator suggested a lack of time may discourage librarians from providing sexual-health information resources. Both participant groups reached a consensus of disagreement for that suggestion. Lack of time not serving as a barrier to information provision does not inherently mean an abundance of time motivates school librarians to provide such information. Thus, this factor was not included as a motivator to information provision.

Four principals purported in Round 1 that no factors exist encouraging librarians to provide sexual-health information resources for adolescent patrons. In Round 2, library coordinators reached a consensus of disagreement with the idea that no factors encourage librarians; thus, they acknowledge factors indeed exist that encourage information provision. By the end of Round 3, the ten principals came close to arriving at a consensus of disagreement (mean of 2.6) with the suggestion that no factors exist that would encourage information provision. Although “no factors” technically is not a definable factor and was excluded from table 2, library coordinators’ consensus of disagreement, principals’ close consensus of disagreement, and both groups’ arriving at a consensus of agreement on factors encouraging information provision negates the assertion that no factors exist to encourage information provision.

Discussion

Themes
LIS research has identified predominant themes encouraging and discouraging school librarians from adding controversial materials to their collections. LIS professional organizations and scholars have stressed the professional obligations librarians have to meet the curricular and personal needs of their adolescent patrons (Cunningham and Hanckel 1978; Campbell 1979; Fasick 1979; Chelton 1981; Walter 1994; Cornog and Perper 1996; Gross 1997; Levine 2002; Lukenbill and Immroth 2007; ALA 2008). Conversely, LIS literature has identified censorship, curriculum, and community standards as factors frequently discouraging information provision (Cornog and Perper 1996; AASL 2007; Lukenbill and Immroth 2007; ALA 2010; Hill 2010; Whelan 2009).

Participants addressed all of these themes at some point in the study. They agreed that professional obligations (professional guidelines and job responsibility) and patron needs (adolescents’ lack of knowledge about sexual health, their emotional maturity, physiological maturity, personal information needs, curricular information needs) serve as motivators to sexual-health information provision, as well as that censorship issues (concerns about reconsideration requests and self-censoring based on librarians’ personal beliefs) serve as barriers to information provision. Although members of both participant groups in Round 1 suggested that community standards in the form of the school community, parents, and the greater local community are both encouraging and discouraging factors, neither group of participants arrived at a consensus of agreement or disagreement regarding community standards as a motivator or barrier.

Participants also identified and reached consensus on multiple other factors not typically discussed in LIS literature. They perceive economic factors, confidentiality, rapport, legal
liability, conflict avoidance, and political climate as influencing a school librarian’s willingness to play the role of sexual-health information provider.

**Economic Factors**
During Round 1 Texas announced massive budget reductions to schools, resulting in slashed library budgets in some cases and elimination of library staff in others. Despite the fears of reduction in library monies, no participants identified limited budgets as a factor discouraging information provision. Instead, both participant groups suggested a market availability, or lack thereof, of age-appropriate resources, circumstances which, in turn, can affect access to these resources, as both encouraging and discouraging factors. By the conclusion of Round 3 library coordinators arrived at a consensus that the market availability of resources, the age-appropriate content within these resources, and access to these resources serve as motivators to sexual-health information provision. Principals did not arrive at a consensus for the factors of availability, access to, or appropriateness of resources.

**Confidentiality**
In Round 1 one participant suggested circulation systems’ keeping histories of student library records may discourage information provision. Library coordinators, however, arrived at a consensus of agreement that confidentiality serves as a motivator for information provision, as regulations, procedures, and technological safeguards can protect the confidentiality of patrons when borrowing school library materials.

**Rapport**
Rapport between school librarians and their adolescent patrons was a polarizing suggestion within both groups in Round 1. Library coordinators and principals both suggested school librarians have formed trusted relationships with students, and thus develop an environment whereby adolescents feel comfortable in using the school library to access sexual-health information resources. Conversely, both participant groups also suggested that limited interaction between school librarians and their patrons discourages adolescents from seeking such information in the school library, thereby discouraging information provision. Although principals ultimately remained neutral on this factor, library coordinators perceive the rapport between librarians and their patrons as a motivator.

**Legal Liability**
Principals expressed neutral opinions on the majority of factors tested. They quickly and strongly, however, reached a consensus of agreement regarding legal liability as a barrier to provision of sexual-health information. They stated that a fear of lawsuits and/or being held liable in any way for information provision discourages school librarians from providing sexual-health information resources. Library coordinators, conversely, did not suggest legal liability as a potential factor in Round 1, nor in later rounds did they arrive at a consensus of agreement or disagreement on this factor.

**Conflict Avoidance**
Library coordinators perceive conflict avoidance as a barrier to information provision. They expressed concerns regarding school librarians’ fear of conflict with multiple entities, including students, school employees, parents, and the local media, as well as the potential personal negative results they may experience from such conflict, including a formal reprimand or termination. Participants indicated that high school librarians’ desire to avoid conflict potentially
outweighs their professional obligations to provide resources meeting both the curricular and personal information needs.

**Political Climate**
Both library coordinators and principals initially suggested that political climate discourages school librarians from playing the role of sexual-health information provider. Participants indicated that the political climate of individual geographic sections within the state, as well as of the state as a whole—but not the national political climate—served as a discouraging factor, despite the fact that Section 510 of the Social Security Act is a federal initiative. No participants expressed knowledge of Section 510. Although principals almost arrived at a consensus of agreement (mean of 3.7), library coordinators did reach a consensus of agreement that political climate serves as a barrier to information provision.

**Expectations**
The results of this study suggest that the two participant groups supervising high school librarians have differing understandings, and perhaps expectations, of the role of high school librarians as sexual-health information providers. Library coordinators shared a more positive opinion about school librarians playing the role of sexual-health information providers for adolescent patrons, identified more encouraging and discouraging factors in Round 1, and reached consensus on more motivators and barriers in Rounds 2 and 3 than did high school principals. Principals typically remained neutral throughout Rounds 2 and 3, as evidenced by so few points of consensus and the means’ averaging close to 3.0 (3.0 represented neutral) for most factors. Principals also offered fewer additional comments than did library coordinators.

The library coordinator participants in this study have all served as campus-level librarians. Thus, they are knowledgeable about a school librarian’s roles and responsibilities in serving adolescent patrons. None of the principal participants indicated an LIS background. The principals’ often-neutral responses may indicate a lack of understanding about school librarians’ roles and responsibilities in meeting the information needs of adolescent patrons.

School librarians report directly to their principals, who set expectations for their individual campuses. Over 50% of the principals in this study disagree with the idea that high school librarians should play the role of sexual-health information provider, suggesting that their librarians may be discouraged from playing this role. Although the LIS community encourages sexual-health information provision for adolescents, librarians working on campuses with expectations discouraging provision of sexual-health information are faced with conflicting expectations. School librarians working within this role conflict may choose not to provide sexual-health information and, thus, deny adolescents information access. Further exploration of role conflict possibly experienced by high school librarians can provide additional insight.

**Conclusion**
American adolescents continue to make unhealthy decisions about their sexual health, a circumstance that can result in both short- and long-term negative consequences at the individual and societal levels. Educational programs in public schools have been one of the more widespread and effective means of promoting healthy sexual behaviors and attitudes, but adolescents do not receive equal access to such programs and information. As multiple research studies have concluded, adolescents with access to sexual-health information from formal sources, such as a school library, are more likely to express healthier sexual attitudes and engage
in healthier sexual behaviors than adolescents with limited or no access to sexual-health information.

High school librarians can play the role of sexual-health information provider by giving adolescents access to accurate, current, and authoritative sexual-health information resources, and teaching health-information literacy, thereby promoting healthy decision-making among adolescents. Multiple factors influence high school librarians’ willingness to play this role. By better understanding this perceived role, and the motivators and barriers to information provision, the LIS community can better advocate for our role in promoting positive healthy outcomes for our adolescent patrons.

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**Cite This Article**

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Retrospective Reflection: Insight into Pre-Service School Librarians’ Competencies and Skill Development as Revealed through Field Notes

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Note: In a slightly different format, this paper was presented at the AASL Educators of School Librarians Research Forum in Minneapolis, MN, October 2011.

Abstract
This paper seeks to expand our understanding of how educators, and in particular school librarians, acquire and use professional-practice knowledge. This exploratory study, grounded in “lived practice” (Spillane, Hunt, and Healey, 2009) uses reflective analysis to amplify competencies and skill development in pre-service school library education. The project positions graduate students and fifth-grade students as teachers and learners, and challenges pre-service school librarians to learn to teach by reflecting upon professional practice during their field experience. In this case study pre-service school librarians reflect-in-action, reflect-on-action (D. Schön, 1987), and reflect-after-action (retrospective reflection) via the use of field notes, student work, interviews with Pre-K–12 students, and the development and implementation of formative and summative assessments as the pre-service school librarians worked together with fifth-graders on the design, development, and implementation of a technology-enhanced curriculum project. This study addresses the need, identified by scholars in this and related fields (Melser, 2004; Ravid and Handler, 2001), “to provide more information about the dynamics of collaboration” between university and school partnerships (Ravid and Handler, 2001, xi).
Works Cited in Abstract


Introduction
This study draws on the voices and reflective accounts of two pre-service school librarians written prior to, during, and following their field experience with a class of fifth-graders; these graduate students’ written assignments over the course of the semester and the semester following their field experience; their experiences as pre-service school library educators; and on the first author’s and others’ research on teacher education, learning, and reflective practice. Findings from this study provide an opportunity to further our understanding of pre-service professional practice. Such revelations shed light on the issues and challenges graduate students face in pre-service practice and help to “make [their] learning visible” (Fiore and Rosenquest, 2010). Results from this study may also help university faculty identify possible gaps in pre-service educators’ academic preparation, and modify course and program structure to remedy such gaps.

Theoretical Framework
This paper relies upon John Dewey’s criteria for defining reflection as outlined in his book How We Think. Dewey explains:

- “Reflection thus implies that something is believed in (or disbelieved in), not on its own direct account, but through something else which stands as witness, evidence, proof, voucher, warrant; that is, as ground of belief” (1933, 8).
- Elements in reflective thinking include “(a) a state of perplexity, hesitation, doubt; and (b) an act of search or investigation directed toward bringing to light further facts which serve to corroborate or to nullify the suggested belief” (1933, 9).
- “Demand for the solution of a perplexity is the steadying and guiding factor in the entire process of reflection” (1933, 11).

Reflective Teaching Practice—Thinking Beyond Doing
The phrase reflective teaching practice was first coined by philosopher Donald Schön in his books The Reflective Practitioner (1983) and Educating the Reflective Practitioner (1987), and...
for the past twenty-five years it has been one of the most dominant theories of professional knowledge (Kinsella, 2010; Loughran, 2002; Newman, 1999; Raines and Shadiow, 1995; Rømer, 2003; Rose, 1992; Zimmerman, 2009). Although reflective practice has achieved widespread acceptance in the field of education and a wide range of health and social care professions, conceptual confusion amongst researchers, educators, and practitioners abounds and is frequently commented upon in the literature (Erlandson, 2005; Kinsella, 2010; Newman, 1999; Rodgers, 2002; Rømer, 2003). “Indeed, so broad and idiosyncratic is its application that some have suggested that ‘reflective practice’ is in danger of becoming an empty, meaningless phrase, that at once means everything and nothing” (Kinsella, 2010, 5). Schön’s work, influenced by the philosopher John Dewey, is a reworking of Dewey’s theory of inquiry (D. Schön, 1992). Kinsella (2006, 2010) adds to the discussion of the philosophical underpinnings and epistemological assumptions of the theory and provides a deeper interpretation of Schön’s work, underscoring the importance of reflective practice as a theory to advance the understanding of professions and practitioners. Kinsella’s key points are summarized and presented below.

**Reflective Practice, Reflection-in-Action, and Reflection-on-Action**

Two major themes from Dewey shape Schön’s epistemology of practice: (1) the relationship between intentional reflection and action, and (2) the concept of an artistry and aesthetics of practice (Kinsella, 2010, 7). Schön combines reflection with action in three of his pivotal constructs: *reflective practice, reflection-in-action, and reflection-on-action*. In each construct reflection transpires in and on actions that occur in practice in a dialectic fashion (Kinsella, 2010). Schön (1983) describes reflective practice as a critical assessment of one’s behavior as a means toward developing one’s abilities in the workplace, and as a dialectical process whereby thought and action are linked. This involves a “dialogue of thinking and doing through which I become more skillful” (D. Schön, 1987, 31). As Kinsella explains, Schön uses reflective practice as an “umbrella term” while reflection-in-action and reflection-on-action can be distinguished by the time in which the reflection takes place (2010, 7). Reflection-in-action occurs in the midst of practice, and reflection-on-action occurs retrospectively.

Professional practice also involves professional artistry or “the kinds of competence practitioners sometimes display in unique, uncertain, and conflicted situations of practice” (Kinsella, 2010, 8). Schön declares that reflection in action is the best way for any students, but especially students in professions (education, nursing, health), to connect their theoretical knowledge with practical knowledge (Zimmerman, 2009). Although many benefits are attributed to reflective practice, and educators of teachers incorporate reflection into class assignments and student fieldwork, reflection is not a common professional behavior amongst practicing teachers (Shoffner, 2008). One of the goals of this study was to demonstrate the value of active reflection not only for the professional development of pre-service educators, but for university faculty as well. Active reflection helps pre-service teachers and university faculty think about their experiences, formulate and analyze problems, consider alternative solutions, and then implement and assess selected solutions (Janssen, de Hullu, and Tigelaar, 2008). *Retrospective reflection* (Dewey, 1933), which has the potential to influence future action, is synonymous with reflection-on-action.

**Field Experiences as Learning Partnerships**

In the mid-1980s higher-education professionals in the United States insisted on reform in teacher education programs (Kirkpatrick, Lincoln, and Morrow, 2006). Researchers
recommended that professional education programs be immersed in extensive field-based experiences through the establishment of university/public school partnerships in which goals would be interconnected (Metcalf-Turner, 1999) and all stakeholders would have a voice in the decision making process (Catelli, Padovano, and Costello, 2000). University faculty, it was said, would benefit from such partnerships by working more intensely and in context with pre-service and in-service educators. Such partnerships would provide faculty the opportunity to integrate their teaching and research (Melser, 2004), and give faculty the chance to modify course and program structure based on “lived experiences” (Connelly and Clandinin, 1988). School-university collaborations are now an important part of the educational scene throughout the United States (Ravid and Handler, 2001). Such partnerships have become a cornerstone of educational restructuring (Lefever-Davis, Johnson, and Pearman, 2007), and national accreditation agencies have called for the establishment of systematic assessment “to document the capacity of the university/public school partnerships” (Kirkpatrick, Lincoln, and Morrow, 2006, 37). For university faculty, the opportunities to work more intensely and in context with pre-service and in-service teachers can provide substantial professional development, along with the chance to integrate their teaching and research (Teitel, 2001). As Matthew B. Miles and A. Michael Huberman have argued: “Field research is far better than solely quantified approaches at developing explanations of what we call local causality—the actual events and processes that led to specific outcomes” (1984, 132). This study explores the use of reflective practice field notes as a way to assess the legitimacy of a university/public school partnership, evaluate the effectiveness of the pre-service graduate program to prepare practitioners, and make visible the teaching and learning activities of pre-service educators as they work in the field.

Context for the Study

This study was situated in a midsized urban northeastern city as part of a university-based 42-credit library and information science graduate program. School library media majors, as with education majors in most states, are required to complete one hundred hours of field experiences prior to their two internships (student teaching). The final twenty-five hours of field experience are integrated within a 3-credit problem-based (PBL) capstone course, the evolution and the development of which the first author has described in other publications (Stefl-Mabry and Doane 2011 and 2008; Stefl-Mabry, Doane, and Radlick 2010; Stefl-Mabry and Powers 2004; Stefl-Mabry, Powers, and Doll 2006; Stefl-Mabry and Powers-Goodall 2005; Stefl-Mabry, Radlick, Doane, and Theroux 2007).

This study extends the development of this pedagogical model by using retrospective reflection to “bring us back to the lived realities of daily classroom life” (Fielding, 2007, 334) focusing on the pre-service graduate students’ perspectives. The course is designed to extend and enhance pre-service students’ understanding of teaching, learning, and assessment through active engagement in a collaborative real-world learning experience. Each student is a part of a team consisting of two graduate pre-service students, a Pre-K–12 in-service teacher, and an in-service school librarian. Together the team is tasked to design, develop, implement, and assess a small curriculum unit designed to enhance the existing curriculum of a Pre-K–12 class. The units typically include in-class activities, formative and summative assessments, and an integrated website with intentionally selected technologies and information resources to provide instructional support. Pre-service school librarians review literature related to their investigation, design in-class activities to get to know their students, develop data-collection strategies to inform the inquiry, analyze the data to determine their instruction’s effectiveness on student
learning outcomes, and share the results in a professional setting through publications such as this and community-based sharing events. This paper will highlight the lessons learned from the experiences and reflective activity of a team who created a nutrition project for fifth-graders using Glogster during the fall 2010 semester.

Participants
The participants of this study were two prospective school librarians completing the final course of a two-year school librarian program. One of the pair had a Bachelor’s degree in communications with a minor in history, and the other’s undergraduate degree was in international relations-strategic intelligence.

A small number of participants was selected in an effort to preserve the indivi
duality of participants in the analyses so that we could better understand how events, actions, and meanings are shaped by the unique circumstances in which these occur (Maxwell, 1996). Because a small number of individuals who are keen observers and knowledgeable is “more valuable many times over than any representative sample” (see also Andrade and Du, 2007; Blumer, 1969, cited in Fontana and Fey, 1994, 365; Rubin and Rubin, 1995), the participation of students who had been particularly reflective and forthcoming with their opinions in class was solicited by the professor. The sample was a purposeful one, chosen for its potential to illuminate areas in need of further study, not to represent a larger population.

Research Questions

Research Question #1: What information is revealed concerning competencies, skill development, and dispositions in pre-service school librarians’ reflective practice field notes?

Research Question #2: What challenges and concerns do pre-service school librarians encounter as they conduct their inquiry-based technology-enhanced fieldwork?

Research Question #3: What information can be learned from students’ reflective field notes that does not appear in students’ practicum papers?

Methodology
Pre-service school librarians’ written field notes and practicum papers were analyzed using qualitative analytic procedures (Strauss and Corbin, 1998). A process of data analysis similar to the analysis of other qualitative self-report data was followed. An adapted version of the consensual qualitative research methodology (CQR) (Hill et al., 2005) was used. CQR involves coming to a consensus during five analytic steps: (1) developing domains or topic areas, (2) coding the data, (3) constructing core ideas across cases while examining the data for confirmatory and disconfirmatory evidence, (4) charting the results, and (5) writing a narrative summary.

Traditional weekly field notes (describing one or more weekly onsite visits) and a practicum paper summarizing the field experience project (jointly written by the graduate students) were analyzed. Data were first organized by field notes in chronological order and then read in their entirety two times to establish familiarity (Dawson, 2006). The practicum paper was also read
twice. The field notes and practicum paper were then read a third time with a focus on identifying themes and/or patterns as they emerged from the data. During the third reading fourteen categories were used to code the data using TAMS Analyzer (Text Analysis Markup System)\(^1\). A first-pass summary of the coded data in the files revealed redundancies in several of the original fourteen categories. After a careful review several categories were modified either due to redundancies and/or failure to capture the essence of the data. Seven categories remained (see Table 1). Codes were defined in terms of the content of participants’ comments, rather than by length of utterance.

**Table 1. Final Codes with Frequencies**

<table>
<thead>
<tr>
<th>Code</th>
<th>Practicum Paper</th>
<th>S-Field Notes</th>
<th>D-Field Notes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>44</td>
<td>42</td>
<td>29</td>
<td>115</td>
</tr>
<tr>
<td>Group Work</td>
<td>34</td>
<td>61</td>
<td>53</td>
<td>148</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>14</td>
<td>13</td>
<td>7</td>
<td>34</td>
</tr>
<tr>
<td>Issues</td>
<td>7</td>
<td>61</td>
<td>41</td>
<td>109</td>
</tr>
<tr>
<td>Planning</td>
<td>18</td>
<td>42</td>
<td>38</td>
<td>98</td>
</tr>
<tr>
<td>Student Engagement</td>
<td>36</td>
<td>47</td>
<td>38</td>
<td>121</td>
</tr>
<tr>
<td>Technology</td>
<td>26</td>
<td>33</td>
<td>23</td>
<td>82</td>
</tr>
</tbody>
</table>

**Results**

Before proceeding with a discussion of the results, it is critical to remember that, as Hilary Putnam argues, our image of knowledge and objectivity wears a human face (1990, xvii). “Any view is a view from some perspective, and therefore incorporates the stance of the observer” (Maxwell, 1996, 29); in this case the observer’s stance is ours as authors. That being said, our analyses revealed six main findings. Each finding will be grouped as it relates to the first two research questions that framed this study. The third research question will be addressed separately.

**Research Question #1:** What information is revealed about pre-service school librarians’ competencies, skill development, and dispositions in their reflective practice field notes?

**Finding #1: Planning and time-management activities were critical factors for pre-service educators.**

As the graduate students worked on their project they acknowledged the importance of planning and time management:

“We found it incredibly helpful to map out a schedule for the project completion with our classroom teacher. Mapping out a schedule gave us an approximate end date and allowed us to begin scheduling a parent night for the students to showcase their hard work. While the schedule did offer us stability we also allowed it some flexibility. That flexibility in the schedule ended up being very useful since some days with the students were more productive than others."

\(^1\) TAMS is a convention for identifying themes in texts (webpages, interviews, field notes) and is a software application that was designed for use in ethnographic and discourse research, see [http://tamsys.sourceforge.net](http://tamsys.sourceforge.net).
The pressure of time proved to be a critical factor as the graduate students continued to work on the Glogster project:

“Again, the time factor is something which needs to be kept in check in regards to the students finishing their Glogs for the presentation day.”

“Another issue is still the time factor—there is still a lot to do and the number of days left to do all of it is getting less and less.”

This finding is supported by researchers who have suggested that time is one of the most significant inhibiting factors for teachers’ use of information communication technology (ICT), whether it is time to learn new skills, time to find out about technologies, time to find out about resources, time to plan and try out new approaches, time to reflect upon experiences and consolidate learning, and/or time to share those experiences with others (Condie, Munro, Seagraves, and Kenesson, 2007; Karasavvidis, 2009). In this project time was also a major obstacle for instructional support (see Finding #6).

Finding #2: Pre-service school librarians voiced concern and frustration when working with groups.

One of the most frustrating and challenging experiences for pre-service school librarians was facilitating group work. Evidence of their struggle can be heard in the following comments:

“Three of the four group members do not want to work together. E. tried to work with them for a time, and I checked on them also.”

“Sadly, there were a couple of groups where the members just don’t seem to be getting along and the writing was going very slowly.”

“There have been some personality conflicts which have started to emerge in some of the groups.”

“I was being pulled by each group for help.”

The graduate students were unsure whether it was proper to ask their in-service teacher to step in and help manage the groups. The following comments reveal that the graduate students were waiting for the teacher to step in and assist with classroom management:

“I am concerned about the one group which is not working well together. The students are getting frustrated with one another, and I do not know where S. and I take a step back and let M. [teacher] take control of the group or are we supposed to do that?”

“Both of us were hoping M. [teacher] would step in for discipline issues but we are not sure that will happen.”

“[We] are frustrated that she [teacher] has not stepped in to help with the group that does not get along.”
By the end of the project, as the groups gained more confidence and skills working together the
graduate students noted a change in the behavior of the groups:

“Some of the group members that were not too happy to be working in a group last time seemed to be happier this time around. Attitudes do make a difference in the group dynamics as the groups did work better together this time. The students seemed to be more confident this time working on their Glogs as they have had more and more experience every time we come in.”

Although as faculty we teach about the importance of collaboration and the ability of groups to
achieve far more than individuals working alone, more hands-on opportunities may need to be
integrated into the graduate program to provide pre-service educators more opportunities to learn
about group dynamics and how to facilitate groups. Graduate students need to feel comfortable
staying in the mess and learning how to tolerate and even embrace the idea that things will go
wrong in groups sometimes (Salmon, 2007, 80).

Finding #3: Highly structured assessment instruments facilitate the teaching and learning
experience for fifth-grade students and pre-service school librarians.

As the graduate students worked on their project, they found that incorporating a variety of
formative and summative assessment tools helped them and their learning partners throughout
the learning process:

“We continuously had assessment in mind during the course of the Glogster project. Very early in our field experience we drafted a project rubric to be used as summative assessment for Mrs. Nelson to approve.”

One of the most useful assessment tools created by the graduate students proved to be the
development of a checklist:

“Toward the end of the project, we developed a checklist in which the group members could check off each requirement that had been completed, letting both them and us know what was left to be completed and what needed to be focused on each time we had the opportunity to work on their Glogs. Once we provided this checklist to the students, they were able to chart their progress, allowing for the project to be completed in a quicker manner compared to the pace it was going without the checklist. This was very helpful as one of our major concerns throughout the project and especially toward the end was having enough time to finish, and the checklist was a positive tool to stay within our scheduled timeframe.”

Although the graduate students had initially developed a rubric for the Glogster project, they, as
well as the fifth-graders, found the checklist to be more useful:

“From our experience with the rubric we learned that when developing a rubric, it is important to provide specifics which can be defined. After the success of using a checklist with the students, we would implement the use of the checklist much sooner if we had to do it over.”
“The checklist offered a quick and easy way for the groups to see exactly what they had accomplished and what needed to be completed before they could tell us they were done. The checklist was a big success; the students enjoyed going through the list and checking elements off. It offered us a tool to use when going over their Glogs with them and assessing how far they had come (or how far they had to go). This was a tool we wished we had put in place even sooner.”

Research Question #2: What challenges and concerns do pre-service school librarians encounter as they conduct their inquiry-based technology-enhanced fieldwork?

Finding #4: Fifth-graders were enthusiastic consumers of technology.

Pre-service school librarians found that fifth-graders were eager to jump right in and begin exploring how to use Glogster, even though they were new to the software. Several students shared, without being prompted, that they wanted to create their own Glogs when they went home later in the day.

“When we started to present Glogster to the students, none of them had ever heard of the program, but when we started to talk to them and show them what it was, they grew more and more excited. After we started to show them all the things they could change and customize on their Glogs, many wanted to start right then; some of them were talking about making their own Glogs when they went home that day.”

Many of fifth-grade students did start their own Glogs at home:

“When we came back to the class the next time after introducing the project, numerous students were proud to tell us that they had gone home and started to make their own Glogs and that they could not wait to start the project in class.”

Students voluntarily extended educational activities beyond school day, and they especially liked the idea of linking their Glogs to another site:

“Being able to view their Glogs online or link them to another page (a couple yelled ‘Facebook!’) was appealing to them.”

For some students another motivating feature was the fact that Glogster was web-based and they could share their Glogs with family and friends:

“Some of the students were also excited that they were going to be able to show their family and friends the Glogs when they were done as they were going to be web-based.”

Pre-service school librarians also realized that their initial concerns about fifth-graders having difficulty learning to use a new software application were unfounded:

“From the students we learned much, especially not to underestimate their understanding of new technology. This project was the first time all of them used Glogster and by the
end they had all mastered it. Many even created accounts at home and created multiple Glogs, which they were eager to tell us about.”

Finding #5: Sharing computer resources was a frustrating experience for fifth-graders.

Unlike other programs, such as Google Docs, that allow multiple users to access and make changes to a project at the same time, only one student at a time could work on each Glogster project:

“This meant that everyone in the group would have to work on one computer and take turns. While some groups adapted to this, others did not, and it halted their progress, making us wonder at times if they were even going to finish.”

Sharing a computer was not only frustrating for the fifth-graders; it also proved to be frustrating for the graduate students:

“It was difficult to get some group members to share computer time with their other group members, which is frustrating for both the other group members and us as teacher-librarians.”

Finding #6: Fifth-grade students lacked information literacy skills.

Since the pre-service school librarians incorporated formative assessment strategies into their instructional activities, they were able to identify student weaknesses in the “lived practice” (Spillane, Hunt, and Healy, 2009) and then modify their instruction just in time to accommodate the students’ learning needs. Graduate students acknowledged that fifth-grade students were struggling with online research and that the students did not have much experience searching for or citing online resources:

“The reality was that many of the students had not done much research before this project, especially research in different formats such as print and online.”

To assist fifth-graders with their information literacy skills, the pre-service school librarians prepared extra activities, but admitted that they didn’t have as much time as they would have liked for more extensive instruction, citing time, once again, as a barrier to instruction:

“During the whole project process, we took the opportunity to teach many mini-lessons with the class. One of the more important lessons was about citing materials they used for their research and why.”

“Unfortunately, we did not have the opportunity to work extensively with the students as they were completing their online research due to timing issues. For many students, this aspect was probably the hardest to comprehend since they had never really completed any forms of online research.”

The graduate students also acknowledged that the most difficult concept for the fifth-graders to grasp was the difference between search engines and online sources:
“The students also do not understand that websites like Glogster, Searchasaurus, and Google cannot be their sources.”

“Their thinking is that, well, if it is online, then it must be a resource. It is important to try and explain to them that this is not the case and what an online resource actually is.”

In an effort to help fifth-graders develop this competency, the graduate students devoted more time to help them:

“We wanted the students to use multiple resources in order to find their information, providing them with an opportunity to learn and strengthen their research skills in both the print and online mediums.”

“...we took the time to work with the students to explain what an online resource was as many groups were citing the Glogster site or EBSCO’s Searchasaurus as their online resources. We worked with the each group one on one if they were still struggling; this was very helpful as the students were able to ask specific questions and gain hands-on experience searching for appropriate online sources.”

Research Question #3: What information can be learned from students’ reflective field notes that do not appear in students’ practicum papers?

Graduate students’ reflective field notes provided a much richer and deeper insight into what was happening over the course of the semester in the fifth-grade classroom than did their practicum paper. As Figure 1 illustrates, graduate students’ field notes provided more detail into what was happening in the fifth-grade classroom than did the practicum paper. In fact, many of the themes that are discussed in this study received very little mention in the practicum paper.

Figure 1. Coded Themes in Graduate Students’ Field Notes and Practicum Paper
Conclusion
Results from this exploratory study seem to suggest that curriculum changes may need to be made at the university level to ensure that pre-service graduate students receive more support and guidance in project planning and time management (DiGiano, Goldman, and Chorost, 2009), how to facilitate and support collaborative group work, and how to encourage more active reflection in field experiences and school library preparatory courses. As a result of this retrospective study the first author (university faculty), has re-examined her attitudes, beliefs, assumptions, and teaching practices as well. Admittedly this faculty member had preached about the importance of reflective practice but had not yet fully engaged in critical inquiry on her own professional practice. This critical analysis has led her to consider bringing about changes in her pedagogy and curriculum based upon the interpretations from this study to help her become “more skillful” (D. Schön, 1987, 31) and more mindful. The results from this study demonstrate how valuable a careful analysis—albeit even of a small sample—of students’ reflective practice field notes can be.

This study reveals that pre-service educators’ field notes are a rich source of data that can provide insight not only into the teaching and learning experiences occurring in the Pre-K–12 classroom, but may be useful in identifying gaps in educator preparation at the higher education level as well. As a result of this exploratory study, field notes from past semesters, as well as future semesters, will be examined to determine if the themes and patterns revealed here are consistent from semester to semester, and whether curriculum changes impact pre-service educators’ teaching and learning. “We need urgently to review the goodness of fit between schools and young people—and their commentaries on what helps them to learn in school and what gets in the way of their learning will help” (Rudduck, 2007, 588). The same, of course, can be said for our graduate students. The best way to master the art of teaching, as Alison Cook-Sather (2006) advised, is to listen to student feedback and make changes based upon what students say.

Works Cited


Cite This Article


School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

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Collaboration as School Reform: Are There Patterns in the Chaos of Planning with Teachers?

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Note: This paper was presented at the AASL Educators of School Librarians Research Forum in Minneapolis, MN, October, 2011

Abstract

Emphasis on collaboration is a significant thrust in both current school reform and school librarianship. Planning for instruction is generally included in various definitions and models of collaboration. Some research exists about individual planning done in isolation (Warren 2000), but little is known about teachers’ planning with other professionals. While school librarianship has been concerned with collaboration, we also have very little about the actual work of planning (Wolcott 1994). What does planning sound like? Would it sound chaotic to novices and other outsiders? To begin to develop a more robust model of what collaboration entails, this paper describes the patterns found in the planning meetings of a team of second-grade teachers and a school librarian. Transcripts from the team’s eight planning meetings across a school year were analyzed for patterns. The analysis identified these five activities: orienting, coordinating, drifting, making sense, and making connections. The findings of this study were significant for several reasons: (1) they provide a description of an actual year of planning between a school librarian and a team of teachers, (2) patterns were uncovered in the activities of planning, (3) these activities bear strong resemblance to many models of problem solving and instructional design, and (4) the role of the school librarian was particularly strong in the activity of making connections. While this study confirmed Wolcott’s (1994) suggestion that planning is not a linear process, the study did uncover persistent patterns in the types of activities that made up planning.

One year, as the school librarian at Obama Elementary School, I had a student intern who was completing hours for her school library practicum. Eager to have her understand collaboration, I invited her to join a planning meeting with the first-grade team. Obama Elementary School had a flexible schedule, and as the school librarian, I met regularly for an entire afternoon, at least once a month, to plan with teachers of each grade level. These meetings were held in the school library while assistants covered the teachers’ classes. This particular meeting was very productive with library books and lesson ideas tossed around, and included the scheduling of several lessons in the school library. The next day I asked the intern what she thought about the meeting, and she responded that it seemed really “chaotic.”
The intern’s reaction to what I had considered a good example of collaboration led to this study about planning by the school librarian together with teachers. Emphasis on collaboration is a significant thrust in both current school reform (Cochran-Smith and Lyttle 1999; Dufour and Eaker 1998; Fullan 2001; Hord 2004; Kane and Henning 2004; Schmoker 2004) and in school librarianship (AASL 2009; Bacon 2008; Branch 2005; Brown 2004; Buzzee 2002; Bush 2003; Doll 2005), and planning for instruction is generally included in various definitions and models of collaboration (Grover 1996; Loertscher 2000; Montiel-Overall 2005). Some research exists about individual planning done in isolation (Warren 2000), but little is known about teachers’ planning with other professionals. While school librarianship has been concerned with collaboration, we also have very little research about the actual work of planning (Wolcott 1994). What does planning sound like? Would it sound chaotic to novices and other outsiders? The purpose of this study is to describe the patterns found in the planning meetings of a team of teachers and a school librarian; the study is intended to begin the development of a more robust model of what collaboration entails. Such a model would enable school librarians to better articulate the work of planning and collaboration to new and pre-service school librarians, to the teachers we aspire to work with, and to the administrators whose support is needed for collaboration (Morris and Packard 2007). This research question guided the study: What kinds of activities characterize the talk of planning between a team of teachers and a school librarian?

Frameworks

Collaboration as School Reform
Tracing a century of school reform, Tyack and Cuban chronicle the efforts of policy makers to reform schools, concluding that the “persistent grammar of schooling” results in the maintenance of established classroom practices and difficulty on the part of many educators to accept and implement reform. Instead, they suggest, “Reforms should be designed to be hybridized, adapted by educators working together to take advantage of their knowledge of their own diverse students and communities and supporting each other in new ways of teaching” (1995, 135–36). This sort of collaboration has been hailed elsewhere as “our most effective tool for improving instruction” (Schmoker 2004, 431). Increasingly, the call is for teachers to move out of their isolation, to make their knowledge explicit, and to engage in collaborative inquiry about practice (Cochran-Smith and Lyttle 1999; Dufour and Eaker 1998; Fullan 2001; Hord 2004).

Collaboration in School Librarianship
The school-library literature has been replete with calls for collaboration. A few frameworks have been developed, most notably Grover (1996) and Montiel-Overall (2005). Grover distinguished collaboration from cooperation and coordination; cooperation and coordination involve some planning but little interdependence. Montiel-Overall (2005) drew on Loertscher’s (2000) taxonomy for librarians working with teachers. Montiel-Overall collapsed Loertscher’s ten levels into four: coordination, cooperation, integrated instruction, and integrated curriculum. While Grover and Montiel-Overall have similar constructs for coordination and cooperation, Montiel-Overall significantly considers each level as a form of “collaborative effort.” Montiel-Overall’s level of integrated instruction as that “jointly planned, implemented and evaluated” (2005) is most commonly recognized as a definition of collaboration. In Brown’s interview and focus-group study of successful teacher-librarian collaboration, she found that one of the important environmental factors was regularly scheduled planning meetings (2004). Given
planning’s importance to the collaboration process and the fact that planning could be considered evidence of collaboration, it’s surprising how little in the school-library literature has been written about planning.

**Teacher Planning**

In a review of the literature Warren (2000) found these influences on teacher planning: experience, schedules, availability of resources, and the interests and needs of students. One of the studies on which Warren reported, McCutcheon (1981), involved an in-depth study of twelve elementary school teachers, looking at how they planned, what they wrote down, and what they implemented. While this research found that teachers’ written plans were like shopping lists with items checked off as they were completed, McCutcheon also found that teachers’ richest lesson planning was mental and implicit, involving detailed mental rehearsals drawing on past repertoires of lessons. In a study where university researchers attempted to collaborate with teachers, Carlone and Webb (2006) found that teachers seemed to have a “storyline” for planning that included a “to-do” check-off list; the teachers resisted the researchers’ attempts to negotiate meanings of subject matter or curriculum objectives. Bisplinghoff suggested as well that “Traditionally, planning has been a topic that we teachers tend to step over, taking for granted that those same-sized little boxes in the teacher planning books can adequately contain us all” (2002, 121). In a study of new teachers in Canada, Prytula, Hellsten, and McIntyre (2010) found that new teachers viewed time during the school day to plan collaboratively with other teachers of lower value than individual preparation time. While these studies confirmed the isolation and individuality of teachers’ planning, Prytula, Hellsten, and McIntyre suggested the need for a new epistemological paradigm in teacher education more in line with the current shift toward knowledge creation and away from a knowledge-transmission view of education (2010).

**Teacher Planning in School-Library Literature**

Certainly, school librarians would be expected to embrace this epistemological shift reflected in the emphasis on knowledge creation and sharing found in the *Standards for the 21st-Century Learner* (AASL 2007) and through the roles of the school librarian outlined in *Empowering Learners* (AASL 2009): leader, instructional partner, teacher, program administrator, and information specialist.

In her 1994 article about teacher planning, Wolcott focused on the school librarian’s role of instructional consultant, which was identified in *Information Power* (AASL and AECT 1988); Wolcott suggested that the failure to achieve this role was, in part, a lack of understanding about how teachers plan. Surveying the research, she found that teachers plan for a variety of reasons, have different styles of planning, and that their planning was nonlinear, more mental than written, and influenced by published curriculum materials. Given these findings, she suggested that school librarians “set aside linear planning models,” accommodate teachers’ styles of planning, and leverage the role of school librarian as provider of resources.

In 2001 Callison addressed collaborative planning of lessons; he provided a fourteen-point model—including objectives, context, time frame, gathering or packaging resources, evaluation, and celebration—suggesting that not all elements need to be included in every plan and not necessarily in any prescribed order. Both Wolcott and Callison seemed to suggest that unit planning is the level of planning best suited to a team approach.
Franklin and Stevens (2008) noted the importance of written lesson plans when collaborating with teachers; these authors also noted the importance of knowledge of content and information-literacy standards, along with knowledge of resources and adaptations for different learners.

While we, as school librarians, continue to focus on collaboration with teachers as a worthy goal and we recognize that time set aside for planning is an important component of collaboration, we have largely failed to define what that planning might look and sound like to participants, and have paid little attention to what planning means to teachers. This study is one attempt to address that gap. Given that the work of planning and collaboration involves talk, a study of the discourse, or talk of planning was chosen as the method.

Gee and Green (1998) wrote about the study of discourse as a study of social practices. In particular they developed a heuristic to think about talk as accomplishing four building activities: identity building, activity building, connection building, and world building. This heuristic was particularly important in my analysis of kinds of activities found in the planning meetings.

**Methods**

**Setting and Participants**
The principal researcher for this study was the school librarian at the school, Obama Elementary, and thus served in a dual participant/observer role as both researcher and the school librarian (pseudonyms have been used for the school and all participants except the school librarian/principal researcher). This study was part of a larger discourse analysis and ethnographic study of a year of planning between a school librarian and a team of three second-grade teachers (Kimmel 2010, 2011, 2012). Obama was a small (fewer than three hundred students) urban school that had a flexible schedule and collaborative planning in place since it had opened five years previous to the study. Over 90 percent of the students at Obama Elementary were African American, and qualified for free or reduced lunch. Of the three teachers on the second-grade team only Dianna had returned to second grade from the previous year. Areyanna had “looped” with her first-grade class to second grade. Both she and Dianna had sixteen years’ experience teaching. Dianna had always been in second grade. Brittany was a first-year teacher. The curriculum coordinator attended six meetings and the classroom assistant attended two. The principal, Sally Hall, stopped by on one occasion, but never attended these meetings.

**Data-Collection Procedures and Data Sources**
Block grade-level planning meetings with second-grade teachers and the school librarian were held once monthly in September through April. Each of these meetings was digitally recorded using an iPod equipped with a microphone. In total, eight meetings were held, and each meeting lasted an average of one hour and 53 minutes, resulting in a total of 13.7 hours of recordings. Each meeting was transcribed in its entirety, resulting in 269 pages of transcripts. These recordings and their transcripts served as the primary data source. During these meetings the researcher kept field notes. Prior to each meeting, any e-mail correspondence related to the meeting was retained. Also, any artifacts, such as printed curriculum or resource lists developed by the researcher in anticipation of the meeting, were collected. Artifacts that resulted from the meeting, such as further resource lists, minutes, follow-up emails, schedules and lesson plans, were also collected and retained. Following each meeting the researcher wrote additional field
notes and analytic memos. Field notes included other interactions between the school librarian and the teachers on the second-grade team; these interactions included informal planning, hallway conversations, and e-mails. Following the ethnographic perspective, each participating teacher was interviewed approximately midway through the school year, at the end of the year, and a year later as a final member check. These interviews were also digitally recorded and transcribed.

Data Analysis
Following the suggestions of Sarroub, who recommends developing a timeline to “note transitions between various phases of the activity/talk (speech events) and the transitions between them” (2004, 113), one of the first stages in the analysis was to break the transcripts into five-minute segments and examine each segment for shifts or changes in topics. With as many as five participants at a meeting, this examination presented several problems. In five minutes it was not unusual for the topic to shift five or more times—often back to a primary topic or toggling between two topics.

The attempted timeline soon was as lengthy and unwieldy as the original transcript, and the one-directional timeline failed to capture overlapping topics or speakers, or multiple simultaneous conversations. Considering all the possible permutations among five speakers, the potential for complexity was seemingly exponential. The focus on shifts in conversation became too microscopic for this analysis.

Codes and Domain Analysis
When trying to answer the general ethnographic question, “What is going on here?”, Spradley noted that, while a researcher may make endless descriptive observations, it is necessary to also work to uncover the cultural patterns in a social situation and to cycle through analyzing and collecting data (1980, 85). Thinking of Gee and Green’s (1998) four building tasks (identity, world, activity, connection), the next phase of analysis involved naming segments of the planning talk according to what was being accomplished by each, and these names became preliminary codes. For example, the month of January looked like this:

Orienting, Troubleshooting, Informing, Reporting, Asking for materials, Grouping students, Setting goals, Talking about assessments, Joking, Teacher observations about students, Using humor, Making connections school-wide, Talk about student behavior, problem identification, and problem solving, Sharing tutor, Sharing assistant, Understanding county mandates, Mentoring, Scheduling Librarian, Coordinating schedules, Tabling a topic, Plan social studies, Directing assistant, Eating chocolate, Informing about materials, Describing a resource, Sharing lesson ideas, Building lesson plan, Showing books, Intercom interruptions, Using textbook, Reading aloud, Discussing concepts, Talking about what was done in previous grade, Teacher observations about teaching methods, Describing past lesson, Scheduling library lesson, Coordinating library lesson with classroom instruction, Scheduling computer lab, Talking about student understanding.

Employing a constant comparison (Creswell 2005, 406), incidents in the transcripts were compared to established codes, and codes were compared to codes. As a result of these comparisons, the codes were developed and refined with each subsequent data source. The following categories emerged from the codes in almost every meeting: planning social studies or
science units, scheduling, discussing sharing students for guided reading or spelling, talking about students, hearing announcements from the curriculum facilitator, housekeeping tasks (e.g., needing a calendar or pencil or a form to complete), and making personal remarks. Inspiration 7.6 mapping software was then used to group the activities semantically and create cover terms in a domain analysis (Spradley 1980). Cover terms were developed both from the data and by Gee and Green’s (1998) building heuristic.

Originally, these eight terms were identified: “agenda setting,” “making connections,” “resource sharing,” “planning,” “scheduling,” “making sense,” “students,” and “off-topic.” Subsequently, “resource sharing” became a part of “making connections” because resource sharing involved connecting a resource with curriculum. “Scheduling” broadened to become “coordinating,” which included following pacing guides and using schedules to coordinate sharing students or resources. Agenda-setting, as well as places in the talk where decisions were requested or summarized, or participants checked in with each other for understanding, was named “orienting.” In contrast to “orienting,” talk that was at first labeled “off-topic” was recognized to imply movement and the possibility of discovery, and was renamed “drifting.” Talk about students was generally of two types: making sense of student understanding and drifting away from the agenda to talk about student behavior, and so the category of “students” was divided and collapsed into “drifting” and “making sense.”

The activity labeled “planning” was problematic because everything could be considered part of planning, and therefore, “planning” was renamed “creating” because, in these places, participants were creating a lesson or instructional activity together. But “creating” was found to be a chain consisting of the activities “making sense,” “making connections,” “orienting,” and “coordinating.” Therefore, “creating” was folded into “coordinating.” The original eight terms were thus combined and refined into these five activities: orienting, coordinating, drifting, making sense, and making connections.

Findings

Overview of the Planning Meetings

The eight planning meetings were held approximately once a month during the 2008–2009 school year; the exception was the February meeting, which was postponed when several participants were ill and then was preempted by a winter storm that closed school for students, though Areyanna and I met to plan. During the meetings, science and social studies units generally alternated, accompanied by planning to integrate language arts and, occasionally, math. With the exception of the March 3 meeting, all teachers and I were present at each meeting. The curriculum facilitator was present for at least part of six meetings and the grade-level assistant was present at two of the meetings.

While all meetings shared common elements, the differences are worthy of note and understanding because they underscore the complexity and reality of teacher planning. One “pattern” in planning was motion. Each meeting was unique not only because of who was present and what curriculum unit was planned, but also because participants arrived late or left early, and because other critical issues often consumed planning time. An acknowledged purpose of these meetings attended by the school librarian was to plan and schedule lessons in the library. Table 1 provides an overview of each month; this overview captures the units, library lessons,
and critical issues discussed, as well as information about who was present and how long the recording lasted for each meeting.

Table 1. Overview of the Eight Planning Meetings

<table>
<thead>
<tr>
<th>Month</th>
<th>Timing</th>
<th>Curriculum Units</th>
<th>Who Was Present CF=Curriculum Facilitator Sue=librarian and researcher</th>
<th>Critical Issues</th>
<th>Library Lessons Scheduled</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>2 hr. 44 min.</td>
<td>Weather</td>
<td>Three teachers, Sue, CF (first part of meeting)</td>
<td>Guided reading groups</td>
<td>Windsock; author of the month</td>
</tr>
<tr>
<td>October</td>
<td>48 min. (iPod memory full)</td>
<td>Government and elections</td>
<td>Three teachers, Sue, CF</td>
<td>How do dinosaurs vote?; African American authors</td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>2 hr. 2 min.</td>
<td>Sound, holidays</td>
<td>Three teachers, Sue, CF (first half of meeting)</td>
<td>Adoption of new program: Fundations</td>
<td>Holiday rotation, onomatopoeia</td>
</tr>
<tr>
<td>December</td>
<td>1 hr. 14 min.</td>
<td>Sound</td>
<td>Three teachers, Sue</td>
<td></td>
<td>Sound that jazz makes; MLK program</td>
</tr>
<tr>
<td>January</td>
<td>1 hr. 51 min.</td>
<td>Maps</td>
<td>Three teachers (but 2 leave early), Sue, assistant</td>
<td>Literacy groups based on new assessment s</td>
<td>Landforms; Google Maps; letter to Obamas</td>
</tr>
<tr>
<td>February (held on March 3)</td>
<td>1 hr. 56 min.</td>
<td>States of matter</td>
<td>Sue and Areyanna (snow day); CF drops in at end</td>
<td></td>
<td>Popcorn; ice cream; paper</td>
</tr>
<tr>
<td>March</td>
<td>1 hr. 14 min.</td>
<td>Last 9 weeks’ plans; past and present; baseball</td>
<td>Three teachers, Sue, assistant, CF</td>
<td>Fundations and summer school; author visit;</td>
<td>School-wide Poetry Day and author visit</td>
</tr>
<tr>
<td>April</td>
<td>1 hr. 52 min.</td>
<td>Natural resources; economics; money; animal life cycles</td>
<td>Three teachers, Sue, CF (leaves after 16 min.)</td>
<td></td>
<td>Endangered animals</td>
</tr>
</tbody>
</table>
While these meetings addressed distinct topics and dealt with a variety of critical issues throughout the school year, a goal of the analysis was to identify patterns in the kinds of activities that comprised each meeting. The analysis identified these five activities: orienting, coordinating, drifting, making sense, and making connections, which are summarized with examples in Table 2.

Table 2. Kinds of Activities that Comprised Planning Studied

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orienting</td>
<td>Setting agendas, making decisions, checking in, getting back to topic</td>
<td>“So, we’re stopping here?” (Brittany, Sept.)</td>
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<tr>
<td></td>
<td></td>
<td>“Can I jump in?” (Jean, Nov.)</td>
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<tr>
<td></td>
<td></td>
<td>“Okay, girls.” (Dianna, Jan.)</td>
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<tr>
<td></td>
<td></td>
<td>“Where do we want to start?” (Sue, Feb.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“We’re done with social studies. Do you want to do science?” (Sue, Apr.)</td>
</tr>
<tr>
<td>Coordinating</td>
<td>Aligning schedules to share resources, students, or activities</td>
<td>“Are you following the pacing guide?” (Jean, Sept.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Finish lesson two tomorrow and do lesson three on Monday and lesson four on Tuesday.” (Areyanna, Sept.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“How many days in November – 30 or 31?” (Brittany, Oct.)</td>
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<tr>
<td></td>
<td></td>
<td>“You know how it is with books, because we all do it at the same time.” (Brittany, Jan.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Can you do it after lunch so that’s about twelve-thirty when you get here?” (Sue, Feb.)</td>
</tr>
<tr>
<td>Making</td>
<td>Connecting curriculum to resources, other curricula, or past experiences</td>
<td>“Your math goals fit perfectly with your weather goals.” (Sue, Sept.)</td>
</tr>
<tr>
<td>connections</td>
<td></td>
<td>“But you know we could definitely get a school board member to come to talk to your classes.” (Sue, Oct.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Do we have a book to go with that?” (Areyanna, Feb.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I have this little transparency of who provides goods, who provides services, from our old social studies unit or book.” (Dianna, Apr.)</td>
</tr>
<tr>
<td>Making</td>
<td>Understanding curriculum, teaching, resources, or student learning</td>
<td>“Alright, are we doing anything with the anemometer or are they just looking at it in the book?” (Areyanna, Sept.)</td>
</tr>
<tr>
<td>Sense</td>
<td></td>
<td>“Now do you have some kind of sheet that they are going to have while they do their listening walk, or are they just going to listen, and come back and write something down?” (Brittany, Nov.)</td>
</tr>
</tbody>
</table>
―This may make more sense to them after we make the model.‖ (Areyanna, Dec.)

―What are we doing with this book?‖ (Areyanna, Jan.)

―Is it like moving for a job? What is it? What are they trying to get at?‖ (Sue, Apr.)

<table>
<thead>
<tr>
<th>Drifting</th>
<th>Any ―other‖ talk that led away from the planning agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>―I get really depressed in January.‖ (Dianna, Dec.).</td>
</tr>
<tr>
<td></td>
<td>―I’m trying to do Malcolm’s eyes. Get him into resource or something.‖ (Areyanna, Jan.)</td>
</tr>
<tr>
<td></td>
<td>―Yes, Lord Jesus help you because they need a break from me and I need a break from them!‖ (Dianna, Jan.)</td>
</tr>
<tr>
<td></td>
<td>―The blue kisses have coconut in them, and the eggs are just chocolate.‖ (Sue, Mar.)</td>
</tr>
</tbody>
</table>

Data was entered into Nvivo8 software to calculate percentages of the transcript coded for each activity for each month, and monthly percentages were averaged. While Figure 1 represents average proportions of all of the meetings combined, striking anomalies were noted. For example, in March when we spent about a half-hour waiting for a teacher to arrive, the 39 percent of the meeting that was “making sense” and “drifting” consisted of 2 percent “making sense” and 37 percent “drifting.” The percentages do not represent weighted values for each activity. In particular, the activity of “orienting” might have been accomplished by a few words (such as “Alright, ladies”) to get the talk back on track. Generally, 10 to 15 instances of “orienting” talk occurred in a meeting, and each was relatively brief.

**Figure 1. Average Proportion of Each Activity in Planning Meetings**

![Figure 1. Average Proportion of Each Activity in Planning Meetings](image-url)
The graph in Figure 2 shows the total number of occurrences of each activity in all of the planning sessions. The types of activities are fairly evenly distributed. “Making connections” was the most frequent activity as well as the largest proportion of the talk. While “orienting” represented only 6 percent of the talk, there were almost as many occurrences of this kind of talk as of others. While “making sense” and “drifting” occurred with almost the same frequency, “making sense” consumed a larger proportion of the time.

**Figure 2. Total Number of Occurrences of Each Type of Activity**

![Diagram showing the number of occurrences of each activity](image)

Discussion

Every planning meeting included every type of activity. And every activity that was originally coded as “creating,” in which a new unit or lesson was planned, also included many of the activities in the final five categories. Given the similarities of these activities to many models of instructional design and problem solving, their presence in teacher planning also suggests the resemblance of teacher planning to learning and problem solving. In the following subsections, I will discuss each activity individually before returning to the larger picture and implications.

**Orienting**

The activity of “orienting” included talk where participants opened a topic, checked in with others, or summarized a decision. Engaged in the business of planning, participants were simultaneously telling each other what was meant by planning. Talk such as, “Okay, make sure I’m not missing anything,” or “Where do we want to start?” were ways to stay together in planning. At the beginning of the school year, this was a new team, and significantly more time was spent on “orienting” in the first planning meeting as the team began to develop norms for making group decisions and working together.

**Drifting**

In contrast to “orienting,” “drifting” was the place where the talk moved off-topic. Talk that was off-topic may have dealt with family or personal matters, and in this context was a way to get to know each other beyond the immediate setting and served to create bonds. “Brittany, you’re
getting like me,” Dianna teased. Very rarely could the talk be considered school gossip, but on occasion participants gained information about staff members or school procedures. Sometimes “drifting” conversation served as a place-holder while members waited for one of the teachers to join the meeting. Finally, drifting may have been a chance for teachers to vent about students or student behaviors. “Drifting,” while off topic, played an important role in planning as teachers and the school librarian shared information about themselves and the business of school.

Coordinating
The activity of “coordinating” was often about teachers’ schedules and pacing. Time is both resource and constraint for educators. Dianna stated in September, “There are only nine weeks in nine weeks.” Originally coded as “scheduling,” this activity was renamed when it became apparent that schedules were something teachers took for granted and when they talked about them in planning it was to change their schedules—often to facilitate the sharing of a resource such as a single copy of a book, a shared assistant or tutor, or the library. “Coordinating” often dealt with scheduling the library, deciding how to group students, and deciding how to coordinate the content of a library lesson with classroom lessons.

Making Connections
“Making connections” were the places in planning where connections were drawn between the planning topic and other topics, other resources, other years, and other grade levels. Sometimes connections were drawn to integrate the curriculum. For example, a math objective about reading a thermometer could be connected to a weather unit, or a planner might suggest that a science lesson about changing states of matter in manufacturing be connected to an economics unit about factory production. Teachers and the librarian often drew on past lesson plans or ideas they had encountered elsewhere. The school librarian was particularly key in connecting resources to unit objectives. Resources were defined broadly to include all kinds of print, technology, and community experts. The librarian also made connections with other grade levels or with school-wide events such as assemblies, author visits to the school, or a Poetry Day.

Making Sense
The activity of “making sense” was most often about teaching, curriculum, and students. “Making sense” about students frequently involved informal teacher assessments about students and how they understood concepts; as Dianna said, “You have to stay on top of the way they think.” These educators were more likely to engage in making sense about what or how they were teaching. In particular, curriculum objectives from the state were often so cryptic that teachers drew on textbooks or library books to understand the objectives. For example, in interpreting the meaning of “material” the librarian read from a book, “Scientists use the word differently. To scientists the word means anything that objects are made of.” In “making sense” about teaching, participants drew on one another’s varied expertise as a resource. The mix of new and experienced teachers facilitated this as Brittany might ask how something was done, providing the other teachers with opportunities to probe one another’s thoughts as they answered.

“A Good Model for Planning”
These findings were shared with the teachers in a member check after the analysis was completed, and they concurred with the naming and importance of the five activities. Brittany said, “I think a lot of the stuff you put on here, we do it not really realizing that we’re doing it,” and Dianna empathized that these activities were a “good model for planning” (her emphasis).
With the exception of “drifting,” these activities bear resemblance to various models of inquiry or problem solving (Dick and Carey 1996; Eisenberg and Berkowitz 2003; Pólya 1998).

The fact that this model does resemble models of instructional design and problem solving—with the statement of a problem (orienting), gathering data about the problem (making connections), creating a plan (coordinating), and evaluating the plan (making sense)—suggests that learning is also inherent in the plan, and that these are necessary steps in a "design for learning" (Wenger 1998).

The activity of "drifting" is perhaps a necessary inclusion as well given that this is a human endeavor, and important information about one another and the context were conveyed in these exchanges, or they simply served as a type of placeholder while we waited for participants. “Drifting” activities may have added to the sense of chaos from an outsider’s perspective but may also have provided the space necessary for participants to engage in the work of planning. Returning to the scenario that opened this paper, this analysis did find a sense of chaos in the frequent topic switches and the nonlinear proceedings, yet there were underlying patterns to the chaos, and these patterns suggest a model of problem solving and professional learning.

**Conclusion**

The findings of this study were significant for several reasons: (1) they provide a description of an actual year of planning with a school librarian and teachers for a grade level; (2) patterns were uncovered in the activities of planning; (3) these activities bear strong similarity to many models of instructional design or problem solving, suggesting the learning inherent in the planning activities; and (4) the role of the school librarian was particularly strong in the activity of “making connections.”

Wolcott (1994) suggested that we abandon the linear models of planning because that's not what teachers do when they plan. While this study supported the contention that planning is not a linear process, the study did uncover persistent patterns in the type of activities that made up planning. Perhaps linear models of planning or problem solving are valuable guides for the kinds of things we should expect in planning but are not tight prescriptions for how planning should proceed. The fact that this model does resemble models of instructional design and problem solving with the statement of a problem (orienting), gathering data about the problem (making connections), creating a plan (coordinating), and evaluating the plan (making sense) suggests that learning is also inherent in the plan and that these are necessary steps in a "design for learning" (Wenger 1998).

While extensive in coverage of an entire school year, this study of teacher planning is clearly limited in its scope to one particular team of teachers and one particular school year. Further research is needed to determine if the model can be generalized beyond this study. This study raises questions about the inclusion of the school librarian as an interesting variable to consider in comparison with teacher planning where the school librarian is not present. In educational research there have been literature and research into the practice of lesson study where teachers plan, implement, observe and assess a lesson together (Rock and Wilson 2005; Lewis, Perry, and Murata 2006). Moreillon (2008) has suggested the inclusion of the school librarian in lesson study, and Bilyeu (2009) has reported on the inclusion of a school librarian in the process. The lesson-study model would provide a possible framework for extending the findings of this study beyond planning through implementation of the plan and assessment of student learning.
Works Cited


**Cite This Article**

School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

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School Librarians and Response to Intervention

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Abstract
Response to Intervention (RtI) is a three-tiered model of instruction that increases learning for all students. RtI meets the requirements of the No Child Left Behind Act to provide research-based instruction and interventions for students as needed. RtI is supported with federal funds from the Individuals with Disabilities Education Act and federal Race to the Top grant funding.

School districts nationwide are adopting RtI. For this study school librarians in schools that practice RtI participated in an online survey. Results indicate that seven processes are needed to implement RtI programs. Sixty-two percent of the surveyed librarians have a role in one or more of these processes. The school librarian’s involvement differs depending on which processes are supported. Data demonstrate that, in support of RtI activities, librarians have opportunities to lead and assist teachers and to impact student achievement through each of the seven processes: getting started, training staff, planning interventions, assessing students, scheduling interventions, implementing interventions, and evaluating the RtI program.

Introduction
A growing body of research demonstrates the effectiveness of Response to Intervention (RtI) in improving student performance (Gersten et al. 2009; National Implementation Research Network 2011). As a result RtI is gaining support among educators and legislators throughout the United States. As of July 2011, forty-eight states have an RtI task force, and forty provide training in RtI. RtI is practiced in 70 percent of the elementary schools nationwide, in 47 percent of the middle schools, and 30 percent of the high schools (Institute of Education Sciences 2011).

RtI meets the requirements of the No Child Left Behind Act of 2001 (2002) to provide research-based instruction and interventions that help all students achieve grade-level expectations. RtI is supported with federal funds from the Individuals with Disabilities Education Act (2004). It aligns with the requirements for federal Race to the Top grant funding (U.S. Dept. of Ed. 2011). The goal of RtI is to increase learning for all students and to identify those students who need additional, more intensive instruction (Fuchs and Deshler 2007, 131).

School librarians are searching for ways to participate in Response to Intervention programs. The need for traditional library services and resources continues in schools with RtI. However, school
librarians may expand their roles as they participate in the processes required to implement RtI successfully. Little is available in the research literature about the role of school librarians in RtI schools. A scattering of articles urge school librarians to seek out training to build expertise on RtI and the resources that support it (Cox 2010; Gavigan and Kurtts 2010; Harris 2006; “Response to Intervention” 2011; Vandenbroek 2010). For the implementation process, the articles advise librarians to reinforce classroom learning when students are in the library, provide enrichment for students, and differentiate instruction through the use of technology. Librarians are encouraged to use personal learning networks to support and encourage teachers.

This is a preliminary study designed to gather data on the ways RtI is currently impacting the work of school librarians. It describes results from a survey and follow-up phone interviews with school librarians in schools where RtI is being implemented. The data revealed seven processes needed for RtI and the opportunities these provide for librarian involvement.

**Components of Response to Intervention**

Response to Intervention (RtI) is a three-tiered model of instruction and instructional intervention that uses evidence-based practice, systematic data collection, and data-based decision making (Missouri Dept. of Elementary and Secondary Ed. 2010a). RtI has been practiced in special-education programs for many years and in some districts has recently expanded into a school-wide initiative (Missouri Dept. of Elementary and Secondary Ed. 2011). It incorporates research-based instructional strategies, student-centered personalized instruction, and a high level of collaboration among school personnel to meet the instructional needs of individual students (Missouri Dept. of Elementary and Secondary Ed. n.d. and 2010b).

RtI builds clear connections between curricular, instructional, and behavior-management decisions and learner outcomes (Mellard 2010; National Center on Response to Intervention 2010). It requires a school-wide organizational framework that allows educators to use data to make decisions about instructional practice and curriculum. Whenever RtI is implemented as a school-wide initiative, it changes the work of everyone involved, including school librarians.

RtI employs data about students gathered from tests and other performance measurements. Components include screening of all students, monitoring progress, designing instruction in various tiers (or levels) of intensity, and relying on rules based on data for decision making. Instruction, assessment, and intervention are provided in a three-level system that maximizes student achievement and reduces behavior problems. RtI catches issues early and provides individual students with the supports they need to learn the content before moving on to new learning objectives.

Intervention occurs during blocks of time set aside in a school day, when students are divided by instructional needs and sent to work with teachers and other school personnel. Students who learned the content successfully in the first tier of instruction engage in enrichment activities during this period. Other students receive re-teaching of the content they did not learn in the first tier of instruction. Students identified as needing more intensive instruction work with various experts on individualized learning activities during the intervention period.

RtI is typically implemented first in the elementary grades. Although also beneficial in secondary education (Duffy 2007), it is more challenging to implement in secondary schools because of the
nature of student schedules. Its implementation is often supported and guided by a school’s professional learning community (DuFour, Eaker, and DuFour 2005). The subject areas most commonly targeted are reading, followed by math, with other subjects added as teachers’ expertise with RtI develops. Instructional strategies vary from highly programmed to more imaginative curricula, although, ideally, all strategies are research-based. Successful RtI programs provide intense training to teachers and other school personnel involved (Kurns and Tilly 2008).

Established Advantages
Schools that implement RtI experience a variety of benefits to students, teachers, and parents, including reducing the impact of substandard instruction and the need for remediation. Students arrive at school with varying levels of preparation (Mellard 2010). Some start out well prepared, while others arrive with multiple gaps in knowledge and missing skills, both problems that must be addressed. Identifying the knowledge gaps and missing skills in a timely manner helps these students to catch up and keep up with their peers.

Mellard (2010) cited data that suggest remediation costs nearly twice as much as initial instruction. The economic impact follows students to college if they struggle to catch up by taking developmental classes that don’t apply toward their degrees (Parsad, Lewis, and Greene 2003). Focusing attention on helping students learn the content at the same time as their peers avoids the need for remediation later.

When RtI guides practice, school personnel provide the best possible instruction for every student (Mellard 2010). Teachers use data on student performance to diagnose problems and design solutions for individual students. Teachers employ research-based instructional practices and continually monitor their own teaching practice, basing their judgments on student performance and behavioral data. Educators’ focus on proven instructional strategies and use student performance and behavioral data to ensure students get the help they need when they need it. They receive consistently good instruction, and they avoid both academic and behavioral difficulties.

Teachers receive ongoing and useful feedback on their instruction. They know from the data collected when their instruction is successful. They have the advantage of working in teams with other teachers and school personnel rather than facing teaching challenges in isolation. The teams collaborate on instructional decisions for each student based on student-performance data and research on best practice.

Parents also benefit from RtI in schools. They receive information early and in an ongoing manner about their child’s progress (Swartz, Geraghty-Jenkins, and Franklin-Guy 2011, 11). Teachers communicate with the home about the curriculum, instructional practices, support parents can provide, and student performance.

The RtI Model
RtI is divided into three levels of instructional activity, called tiers (Missouri Dept. of Elementary and Secondary Ed. 2010a; National Center on Response to Intervention 2010; Shapiro n.d.); see Figure 1. Tier 1 is regular instruction in the classroom. About 80 percent of the student population should learn the content well enough to progress to the next part of the
curriculum. If fewer than 80 percent meet the established learning goals, teachers know their instructional practice needs to be reconsidered and refined.

Tier 2 is the standard treatment protocol. It targets the 20 percent of students who did not learn the content in tier 1. They receive additional instruction, which may be differentiated, scripted, structured, and explicit. They may learn in small groups or receive individualized tutoring. This tier should provide successful learning for an additional 15 percent of the students.

Tier 3 is for problem-solving intervention. It is for the remaining 5 percent of students who have not yet learned the content in the previous two tiers. Students in tier 3 receive individualized instruction provided by instructors operating at very high levels of expertise and creativity. Tier 3 students may or may not be identified as needing special-education supports (Fuchs and Deshler 2007).

**Figure 1. The Three RtI Tiers**

![Figure 1. The Three RtI Tiers](image)

**Fidelity**
To make effective data-driven decisions, teachers use research-based strategies for interventions and implement them with fidelity. Fidelity, as it relates to RtI, implies that interventions are implemented as intended and that a data system is used to measure student outcomes from the interventions. Teachers and other school personnel have data that demonstrate that students are screened effectively, student learning is measured with care, and instructional decisions are based on data (Johnson et al. 2006, 4.2). The educators responsible for interventions are identified and are held accountable for student learning. They document their instruction with specificity, describing operations, techniques, and components used. Interventions are linked to improved outcomes.
A well-implemented program includes evaluation for fidelity and sustainability. Such a program requires multiple years to develop and is based on teachers’ working together (as in a professional learning community) to build consensus. The school day includes time to collaborate on ways to meet the needs of students in all tiers of instruction, including time to collect and analyze data. Planning time is also needed to continually improve teaching, assessment, and data management. Ideally, teachers and other school personnel in RtI schools receive generous professional development to support their individual sense-making, behaviors, values, attitudes, norms, and expectations.

**Method**

This preliminary study is part of a longitudinal study planned to uncover and track how school librarians support teachers and students in schools that practice RtI. This report is the first in a sequence of three biennial surveys. A mixed-methods approach was chosen as the research design. Mixed-methods research involves the collection and analysis of two types of qualitative data in this study. Creswell and Clark have argued that by combining different approaches to a research problem, a better understanding of the problem results, because the weakness of one approach is balanced by the strength of the other approach (2007).

In this study, the mixed-methods approach presented the researchers with a way of obtaining different but complementary data about RtI with the potential to merge or to compare and contrast data (Creswell and Clark 2007). No centrality measures were used with the data, but numeric tallies were made for several types of data. The survey results are based on responses from a non-random, opt-in, online sample of librarians in schools that practice RtI. Since the data are based on a non-random sample, a margin of error cannot be computed, and the results are not generalizable.

The first survey announcement, with a link to the survey, was distributed to school librarians in Missouri via the Missouri Association of School Librarians membership forum. Also, a survey announcement with a link was shared more widely with school librarians across the nation via the LM_NET listserv. The online survey was conducted in spring 2011. The survey consisted of three questions and a request for contact information for respondents willing to be interviewed.

Respondents were asked the following:

1. How has RtI changed what you do?
2. What is your role working with each of RtI’s three levels?
3. How do you collaborate with teachers in the RtI process?

In addition, for the purposes of information about RtI in the State of Missouri, respondents were asked if they lived in Missouri. Forty-two were from Missouri, and twenty-five respondents were from other states. Additional demographic information, such as whether the librarians were full-time or part-time and the grade levels of their buildings, was not gathered with this preliminary survey, which was exploratory in nature. Survey results were collected in a spreadsheet. Of the sixty-seven respondents who provided completed surveys, two were not school librarians. Their responses were removed from the data set.

Two types of qualitative data on the phenomenon of RtI and its impact on school librarians were
used to corroborate qualitative results and findings: (1) an online survey with open-ended questions directed solely at librarians in schools that are implementing RtI and (2) follow-up phone interviews with survey respondents to gain additional data on the context of RtI activities and to verify preliminary findings from the survey.

Data were analyzed according to the grounded theory method. Using open coding, survey data were analyzed to find “leads, ideas, and issues in the data themselves” (Charmaz 1988, 113). This coding is “the analytic process through which data are fractured, conceptualized, and integrated to form theory” (Strauss and Corbin 1998, 3). From the open codes, a preliminary conceptual ordering was generated, related to types of collaboration, and the data were reorganized based on this ordering and reanalyzed.

Following this second analysis of survey data, questions for the phone interviews were designed to explore the context of collaboration more deeply. Fifteen survey respondents who provided e-mail addresses were sent e-mail requesting an interview. Seven of these replied. The interviews were conducted, and the transcripts added to the data set.

This second phase of the data collection was an in-depth interview that consisted of nine open-ended questions:

1. Tell the story of how RtI started at your school.
2. How is RtI being implemented? For example is it in all subjects or just math and reading?
3. How has RtI changed what you do?
4. What resources do you use in RtI-related activities?
5. How do you integrate RtI with other instruction?
6. What is your role working with each of RtI’s three levels?
7. Tell us about a time when you were involved with RtI-related activities.
8. How do you collaborate with teachers?
9. What additional resources, services, or support would you like to have in administering RtI?

These data were analyzed again, and a more precise conceptual ordering, related to process, emerged. In grounded theory, “bringing process into the analysis is an essential part…[of] theory building” (Straus and Corbin 1998, 163). The discovery of multiple processes related to RtI indicated structure underlying the collaborative experiences of librarians in schools implementing RtI. Data were analyzed again using focused, selective coding related to these processes.

In the next section respondents are identified by number, using the prefix “R.” For example “R6” is the sixth respondent listed in the spreadsheet used to record data. Survey responses, along with transcripts of phone interviews with seven of the respondents (R6, R25, R33, R56, R65, R66, R67), formed the entire data set used for this study. Though the small number of phone interviews is a limitation, when added to the responses to the online survey, the data provided a preliminary snapshot of the school librarian’s role in the adoption of RtI practices. This work will inform the next survey in this longitudinal study.
Results
The purpose of this research was to discover and identify opportunities librarians have to impact student achievement through RtI. The survey data indicate that 38 percent [N = 25 of 65] of respondents who worked in schools where RtI is practiced are not involved in RtI in any way. Sixty-two percent [N = 40 of 65] described varying levels of involvement.

Prior research on RtI indicates a need for an evaluation process that ensures fidelity. Literature on the role of school librarians in RtI schools describes their involvement with two other RtI processes: getting started and implementing interventions. The implementation process and a fourth process, assessment, are integral to RtI. Training and planning processes are described in other RtI literature. The data from respondents in this survey revealed a seventh process, scheduling, is also needed to determine when, where, and how often interventions are delivered to students and who will deliver them. Thus, seven processes (figure 2) are in operation when a school implements RtI: getting started, training staff, planning interventions, assessing students, scheduling interventions, implementing interventions, and evaluating the RtI program. When the results in this study were organized according to these seven processes, the opportunities school librarians had to participate, support, or take the lead in their schools were clarified. The subsections below describe the librarians’ activities.

Figure 2. The Seven RtI Processes
Getting Started

During the start-up process, school and district administrators decide how to present the RtI process to parents and teachers and how to budget for resources. Respondents [N = 10 of 65] cited ways RtI was initiated in their schools. The first step was to build expertise. As one respondent noted, “There are lots of gurus” (R56). Mike Mattos and Pat Quinn were mentioned specifically as experts whose resources were used by administrators as they started looking at RtI. In Missouri, the Department of Elementary and Secondary Education (DESE) invited administrators representing a small number of districts to attend five information sessions at the DESE office at the state capitol. One respondent worked in a district that had administrators who attended these DESE sessions.

Two respondents noted that getting started is a multi-year process. One mentioned that the process was started last year to prepare for the current year. Another is in the third year and stated that she and the other teachers are still learning. “Everyone has a different idea of how it is supposed to run” (R65). A third respondent described how his district was creating a paper trail to determine how widely implemented RtI was in the district.

One of the respondents mentioned that her district created curriculum plans for RtI. This respondent served on the curriculum committee. Four respondents mentioned being involved in RtI work with district-level planning committees.

Training

According to respondents [N = 8 of 65], school personnel needed a process of ongoing training as they identified new student needs and discovered new strategies for addressing them. Some districts offer professional-development days devoted to RtI. One respondent reported that her district provided an online course on RtI. Another reported that all of the teachers in his building were trained at a state-funded professional-development center.

It was noted by three respondents that their schools used a professional learning committee (PLC) format for training. One noted that the PLC joined with the school’s professional-development committee to determine how to implement RtI. Another served on a PLC leadership committee whose members worked with department committees to provide RtI training to teachers.

Respondents described how they provided teachers with RtI training in the school library. One mentioned training teachers to enter data and run reports in the RtI assessment system; another mentioned training teachers to use report data. A respondent at the high school level mentioned that he teaches all the teachers in his building to search for readings by Lexile levels. Another explained that, through implementing RtI at her high school, she taught a teacher to recognize that “textbooks are written at 1200–1400 level” (R33), well above the reading level of most of the students. Another librarian mentioned that he offers suggestions for how to teach units for all three tiers of RtI. He does this by presenting lesson plans to teachers, then sharing ideas with them. In a similar vein, another respondent mentioned that she works with teachers to brainstorm interventions.

Planning

Like the training process, the planning process is also continual as students’ needs change daily, requiring new ways to allocate staff and resources. According to respondents, planning for RtI
takes a considerable amount of time. For 45 percent of our respondents [N = 29 of 65], planning took place during plan periods and department team meetings. Three respondents described planning with their professional learning communities (PLCs). Sometimes the planning is formal: “Bi-weekly collaboration sessions are required” (R2). Sometimes the planning is impromptu: Conversations take place over lunch and in the hall. One respondent reported e-mailing teachers to find out what they are doing in class so library instruction can be tied in during RtI time. Another reported, “I usually ‘invite’ myself to a scheduled meeting if I think I have something that would be of interest” (R6). A third respondent explained, “The library is in the area where the specials classrooms are, and teachers have to walk by when they take classes to specials. This is a time for impromptu planning” (R65). One respondent remarked that in her building less time is required for planning because the teachers already know and trust each other. “They know what each other brings to the table” (R66), so short planning times work well.

The respondents reported planning with all teachers in the building. Planning covered topics such as the types of interventions needed and who will provide them. Respondents who indicated they were from elementary schools worked with grade-level teams in reading, math, and writing. One responded, “I go to grade-level chairs and ask about pacing guides to align library activity” (R67). Another explained, “So far, I have just helped teachers by working individually on [students’] reading progress and goals” (R56). Another specified that he meets with Title I and special-education teachers. One respondent described how she recommends RtI intervention programs and provides bibliographies for teachers. Another respondent mentioned meeting with administrators and other specialists for tier 2 intervention: “The music teacher collaborated, too, and taught poetry and choral reading, repetition, rhymes; it was fun” (R66). The next year those students were reading on grade level. One respondent reported that she collaborates with other librarians in the district to share ideas.

Assessing Students
At the heart of Response to Intervention is the need to assess students regularly. Respondents [N = 18 of 65] explained that this process is done through universal testing [N = 6 of 65] or whenever a teacher notices that a student is not keeping up with instruction. Assessment also occurs during interventions to determine if instruction is working. For a respondent at a school where screening was universal, assessment was conducted “three times a year, which requires the library to be closed for a week at a time” (R6). A high school librarian explained that she gets a list of reading levels from eighth-grade teachers and uses them to target students for intervention in the library during freshman year.

Assessment is done with the help of computer software. In this study librarians mentioned using Scholastic Reading Counts, Renaissance Learning products, Study Island, and AIMSweb systems. These systems provide testing services, data storage, progress monitoring, and several types of progress reports. The data from the reports are used as a topic of discussion in PLCs and other collaborative planning meetings.

Four librarians indicated they are technology leaders in their schools because they use technology to track student progress during RtI. One respondent explained that he has an AIMS web manager account and “can get into everyone’s records and reports” (R65). The principal is the other person with a manager account. He “prints reports from STAR reading and math assessment every quarter” (R65). A high school librarian explained that she collects data from peer tutors and makes charts so that all students see their progress. Two respondents described
how they taught teachers to enter data and run reports. However, one respondent noted that he did not have access to view student data.

**Scheduling Interventions**

Once students who need interventions are identified, teachers schedule a time and a place for interventions to occur. Thirty-four percent [N = 22 of 65] of respondents mentioned scheduling, although the survey questions did not address this. A variety of scheduling practices for RtI were described. In two cases the RtI period is thirty minutes in the morning. One respondent specified it was late morning as students who need RtI might arrive to school late, and it was important that they not miss this period. Another takes students in the afternoon, working with them for twenty minutes at 3:00. A third said, “I am now an interventionist each morning for 30 minutes” (R24). A fourth said that every other week he has a class. A fifth respondent met with students three times weekly.

Data from this study indicated that scheduling individual students for RtI is dynamic. As soon as students are brought up to grade level, they can be moved to enrichment during the RtI period. In addition, new problems might be spotted at any time, and students are moved to an intervention class during RtI time. For this reason, tools are useful for maintaining a schedule of where students are and who they are with during the RtI period. One respondent reported using an Outlook calendar to help teachers with scheduling, while another reported, “I match students and teachers on a spreadsheet” (R22).

The library schedule can vary throughout the year in an RtI school. One respondent explained, “[The schedule for] Wednesday changes each week…. This year we will have one time with higher kids for a few weeks, then have a tier 2 or tier 3 group” (R65). Another reports, “Every 2–3 weeks students are reassessed and groups changed accordingly” (R64). One librarian described how sometimes teachers make specific requests for help with students; for example, “she plans… and I just appear to help her” (R49).

**Implementation**

The implementation of RtI can be as simple as re-teaching content or as complicated as requiring extensive intervention with trained professionals. Sixty percent of librarians in this RtI study [N = 39 of 65] had implemented interventions or enrichment related to the three RtI tiers. Implementing RtI in the library involved a variety of activities.

Several respondents reported that they found resources to be used for readers who need intervention. One described that he found resources around a theme for teachers, and also provided readers’ advisory and homework help. Another reported she “obtained many high interest-low reading level books for teens…and assists students in finding something appropriate and interesting to read for their intervention class” (R46). A third said, “I assist with program book selection” (R3). Having data, it is possible to “Look closer at what books go into a [student’s] hand; make sure they are the appropriate reading level, and that students are not being overly challenged” (R6).

With RtI, respondents noted that basic literacy skills might be taught in the library. One respondent reported that she used scripted quick-reads with students who struggle with reading. Another reported that he has struggling beginners repeat back to him whatever they were reading. He worked on fluency and comprehension, and “listens to them read, and has them
reread‖ (R66). Another explained how now, with RtI, she worked more on comprehension and depth of knowledge. She explained that she mentors by “talking with students and having them do critical thinking” (R67). She noted that nothing was assessed during this activity. Instead she concentrated on giving students choice, enrichment, and having students take risks.

Respondents described other enrichment activities. One librarian reported, “I will be working with above-grade-level readers in the 2nd grade. We are going to do author studies...” (R20). One respondent explained how he could use higher-level books for RtI: “Students are more willing to take a risk and read something different” (R67). One described how he integrated Web 2.0 tools during the RtI period. Another explained how she used technology to “help kids go farther.” During her RtI enrichment period, “one teacher does a film class, another does a cultures class, another fantasy football” (R56).

Evaluating the RtI Program
The final process, that of evaluating results to determine if RtI is successful school-wide, meaning all students are achieving at grade level, was mentioned by five [N = 5 of 65] of the respondents. This research indicated that the process of evaluation is less developed than the other six processes. Respondents stated that there was no set way to review teacher interventions and compare strategies that help students learn. As one respondent explained, there is “no data on how this is working. Hopefully the school will make AYP next year” (R6). Another reported, “There is a hodgepodge of what works….Continually evaluate. If it’s not working, try a different way….Everybody is willing to work together to find what works” (R66).

Issues and Benefits of RtI
Issues and challenges related to RtI were identified by respondents to this study, as were several benefits. Thirty-eight percent of the respondents [N = 25 of 65] indicated that they feel they are not involved with the RtI effort in their schools: “I have not been asked to participate” (R19), and “Basically the [librarian] is ignored” (R24). A chief complaint reported by librarians who are involved with RtI is that it is still new to schools and many processes have not been mastered yet; “Everyone has a different idea of how RtI is supposed to run. People don’t agree on who should be the interventionist within the tiers” (R65).

The librarian and other specials teachers were trying to figure out where they fit in: “I’m given no directions on what to do with [tier 1 students], so I treat them as a gifted and talented group” (R38). Because of their expertise with technology, a couple of the librarians complained they were used mainly for testing or data entry.

One respondent remarked that his school does not have sufficient resources. He would have liked to have enough books to interest all levels of students. However he calls this a “pipe dream” (R25) because there were over two hundred students in his school who need tier 2 or tier 3 interventions.

Two respondents expressed skepticism about the longevity of RtI. “Teachers question how long RtI is going to last” (R67). Another commented: “This is a rung on an evolutionary ladder in education. It won’t go away for at least 3 years” (R56).

However some respondents found benefits to implementing RtI. One said that because RtI placed emphasis on literacy, increased value was placed on the librarian’s position in her school. One
described how RtI promoted reading, which aligns with ALA/AASL standards for school librarians (ALA 2010).

Respondents [N = 5 of 65] noted that librarians and teachers were more aware of the range of reading levels. Others noted that they have more contact with students [N = 7 of 65]. They knew who the struggling readers were. One respondent explained that she recognized students who received intervention because she had worked with them before. Others explained benefits this way: “Now that I know which kids struggle, I try to let them spend more time with me” (R6). “We are making data available now, something we didn’t do very easily in the past” (R56). “Before, in a regular day, you couldn’t give that individual attention to students” (R67).

RtI also provided interventions that were more private for students. Since all students were assigned to an RtI period, “The kids are really accepting. [Students receiving interventions] are not looked down upon. Second- and third-graders are not so aware of who has a learning deficit” (R6). One librarian summarized the benefits of RtI: “RtI opened my eyes to the absolute needs a lot of these kids have” (R25).

**Summary and Discussion**

Response to intervention (RtI) is practiced in 70 percent of the elementary schools nationwide, in 47 percent of the middle schools, and 30 percent of the high schools (Institute of Education Sciences 2011). Respondents to this preliminary survey were school librarians who described their involvement in RtI schools. Though 38 percent of the respondents indicated they have not found opportunities to contribute to RtI initiatives in their schools, 62 percent have.

Analysis of survey results found that RtI entails the operation of seven processes. Each process presents a different set of opportunities for school librarians to become involved with RtI. The processes are: getting started, training staff, planning interventions, assessing students, scheduling interventions, implementing interventions, and evaluating the RtI program.

When starting RtI, respondents described the first step as building the expertise of administrators and teachers. For some, outside training was used to prepare a leadership team to bring expertise back to the school. Four school librarians in this study described how they took a leadership role in the start-up process by becoming involved in planning committees and curriculum committees.

Respondents described how the training process continues after RtI is underway. As with the process of getting started, continued professional development came from both external and internal sources. One librarian took an online course on RtI; another mentioned a state-funded agency that provided training. Professional learning communities (PLCs) were mentioned by three respondents. Librarians participated in the PLCs but also found other opportunities to provide training for teachers. For example, two mentioned teaching teachers how Lexile levels work. Also RtI requires extensive data collection and reporting, and two respondents, being technology leaders in their schools, were able to help teachers use RtI data systems to track student progress.

Planning was described by respondents as a process that is ongoing and occurs on both formal occasions, such as committee meetings, and informal occasions, such as hall conversations. For 45 percent of the respondents, RtI planning created opportunities for librarians to collaborate
with classroom teachers, specials teachers, special education staff, or reading specialists. During
planning meetings with grade-level and content-area teams, student progress was discussed and
ideas were shared for the types of interventions needed and who will provide them.

The assessment process is continual in an RtI school. Six respondents mentioned that assessment
is universal for their students; however, these and others described how teachers might call for
the assessment of individual students. Student data are stored, measured, tracked, and reported
using software applications suitable for use with RtI. Assessment data are used to assign students
to interventions and to monitor student progress. Assessment data might be available to
respondents, teachers, and administrators, though this varied. For example, one respondent
mentioned not being allowed to view data, and another reported having management-level
administration rights to the RtI assessment system.

Thirty-four percent of the respondents described the scheduling process that determines when
interventions for students are delivered. Information provided by respondents related to when
interventions were offered. For example, two respondents described how a thirty-minute class
was set up every morning for students; another mentioned scheduling twenty minutes a day in
the late afternoon. Though the time period might be stable from semester to semester, scheduling
individual students to receive RtI interventions is dynamic as students’ needs change frequently.
Respondents described how they might see enrichment students in their library one week and
struggling readers the next. Two respondents described how they used computer applications to
help with scheduling.

Sixty percent of respondents were involved in some way with the RtI implementation process in
their schools. Respondents described how, by having data available and students grouped by
ability, they were able to tailor library activities to student abilities. Librarians in this survey
provided a range of learning activities. Some taught basic reading skills to struggling readers.
Three respondents mentioned providing access to books at appropriate reading levels. One
provided enrichment by teaching Web 2.0 applications to students, another by doing author
studies, and another by offering students more challenging books.

A small number of respondents, 8 percent, mentioned that a process is needed for evaluating how
well RtI is working in schools. None of the librarians taking this survey described an operational
evaluation process. One respondent described how an evaluation process would oversee how
well interventions are working and present evidence for strategies that are successful. Another
respondent mentioned how an evaluation process could provide opportunities for collaborative
inquiry that could lead to improving the way RtI is implemented in the school.

Issues and challenges related to RtI include the lack of participation on the part of many school
librarians. Also, RtI is new to the respondents to this survey. One school librarian felt that it was
still unclear how RtI is supposed to run. Another mentioned the lack of resources in his school.
However, benefits from RtI were noted by respondents. Three noted how having data helped
them know the range of reading levels and which students were struggling. Seven respondents
noted that RtI gave them more contact with students. One respondent noted that because RtI
places emphasis on literacy, it aligns with AASL standards, and the position of the librarian has
become more valuable.
Conclusion

This study describes how Response to Intervention (RtI) provides opportunities for school librarians to become involved in an integral way with the mission of a school to improve student achievement. Prior research identified different processes that are needed to implement RtI. This research found that implementing RtI involves seven processes: getting started, training staff, planning interventions, assessing students, scheduling interventions, implementing interventions, and evaluating the program. Understanding how librarians are involved with these processes provided insight into the many roles of the school librarian in an RtI school.

This study found that the resources and services provided by librarians in RtI schools are, for the most part, familiar ones, such as providing appropriate reading materials for students, collaborating with teachers to create successful lessons, and finding new and exciting ways to employ technology in teaching. However, the research also found that the seven RtI processes present new opportunities to provide resources and services. For example, if RtI is new to a school or district, librarians can be involved in the initial curriculum planning. Also, RtI requires ongoing professional development, as new problems, new tools, and new types of interventions arise. Some of the librarians in this study, as teacher leaders, became part of the ongoing training process. RtI requires continual planning to match interventions to student needs. Forty-five percent of the respondents in this study took part in the RtI planning process in their schools in some way. The scheduling process includes matching times and teachers with student placement during the RtI period. The assessment process involves the use of specially designed software applications. Some librarians in this study took the role of technology leaders in this process, maintaining RtI systems, training teachers, and providing reports.

The process for implementing RtI interventions provided the most opportunities for the school librarians in this study to be involved. RtI occurs in designated class periods and is provided to students grouped by need. Thus, library activities that occurred during an RtI period differed, depending on the level of intervention needed. For students in tier 1, who did not require additional instruction, the RtI period was used for enrichment. For students in tiers 2 and 3 interventions in the library included basic literacy instruction and reading practice. An evaluation process could lead to improvement in this and the other five processes.

This study provided insight into how RtI affords school librarians opportunities for more collaboration. RtI reveals which students struggle academically and provides data that indicate the level of help they need. This study provides examples of how school librarians are involved in the seven processes that lead to student success through RtI. The benefits of RtI for librarians include having data on student reading levels and having time to give students the individual attention they need.

Works Cited


Mellard, D. 2010. “Response to Intervention: Research, Best Practice, and a National Perspective.” Presentation, Response to Intervention Professional Development Institute, Warrensburg, MO.


Cite This Article

School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

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School Librarians as Technology Integration Leaders: Enablers and Barriers to Leadership Enactment

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Abstract

The highly technological environment of 21st-century schools has significantly redefined the role of school librarians by presenting the opportunity to assume leadership through technology integration. Despite the abundance of literature that has suggested the need for and the importance of school librarians to be a proactive leader in technology integration, this role is one that has been ignored in the research arena and left undefined for school administrators, teachers, and the school librarians themselves, leading to uncertainty concerning how school librarians enact this role in practice. This research, based on distributed-leadership theory, investigates current practice of accomplished school librarians to identify what factors are enabling some to thrive as technology integration leaders and what factors are hindering others. This report of the results includes the initial identification and categorization of the enablers and barriers experienced by school librarians in enacting a leadership role in technology integration, a discussion of implications for the profession, and areas of future research.

Introduction

The changing information landscape and highly technological environment of 21st-century schools has significantly redefined the role of school librarians. As technology has become a crucial element of teaching and learning, school librarians, as information specialists and educators, have the potential to lead through technology integration. As a result, school librarians are continually directed by theorists and researchers in this area (e.g., Everhart and Dresang 2006; Hanson-Baldauf and Hughes-Hassell 2009; McCracken 2001; Shannon 2002) to assume a leadership role in integrating technology in schools. When defining the responsibilities of school librarians, the professional standards and guidelines that define and guide practice for school librarians (AASL 2007; ALA and AASL 2010; ISTE 2010; NBPTS 2010) all mention the role of leadership, especially in the area of technology integration. Yet the broad and general nature of these standards and guidelines offers little practical guidance for practicing school librarians, who need more clarification and role definition, along with explicit techniques or strategies for enacting the leadership role.

Technology is transforming not only access to information, but also the skills needed to interact
with and use it, as well. “Effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyze and synthesize the information, and present it professionally” (ISTE 2008, 6). Technology integration is the seamless infusion of technology as resource to enhance the learning in the content areas. School librarians have a vital role to play in integrating technology to help students develop 21st-century skills to enable them to use technology as a tool for learning and ensure they are prepared to succeed and participate a digital society. This increasing reliance on technology to interact with and use information has moved information literacy to the forefront in education, and presents the opportunity for school librarians to enact a leadership role within their schools through technology integration (Asselin 2005; Hanson-Baldauf and Hughes-Hassell 2009; Hughes-Hassell and Hanson-Baldauf 2008; ISTE 2010). Yet, despite the valuable contributions school librarians can make in implementing technology integration initiatives, they remain an untapped resource, due to the indefinite nature of this role.

Statement of the Problem
Because of their knowledge of pedagogical principles and curriculum, paired with technology and information expertise, school librarians are in a unique position to serve as leaders and valuable assets through making meaningful contributions toward the integration of technology and learning. Yet, despite the demands and opportunities for school librarians to accept this critical technology-integration leadership role, this role is one that has been ignored in the research arena and lacks theoretical foundation to guide enactment. The ambiguity surrounding the technology-integration leadership role has led to school librarians who are uncertain how to assume this role and, thus, are ill-prepared to enact this vital role (Asselin 2005; Tilley and Callison 2001; Everhart and Dresang 2006; Everhart, Mardis, and Johnston 2010; Shannon 2002, 2008; Vansickle 2000).

Research Purpose and Research Questions
To encourage and support school librarians in assuming a leadership role in technology integration, research is needed to learn more about the technology-integration leadership practices of school librarians who are currently successfully enacting this role. Therefore, this research investigates the enablers and barriers that accomplished practicing school librarians—defined in this research as those who are National Board Certified—experience in enacting a leadership role in technology integration. Some school librarians do perform this role and are quite successful, yet many school librarians have not assumed this role. This research examines the practices of those who have met the rigorous standards of National Board for Professional Teaching Standards certification, those school librarians who have demonstrated “essential knowledge, skills, dispositions, and commitments that allow them to practice at a high level” (NBPTS 2010, v) and are assumed to be experts in their field, including technology integration.

The specific purpose of this research is to identify what is enabling those most-accomplished school librarians to thrive in the role of technology-integration leader, as well as the barriers they face. An additional purpose of this research is to categorize and examine the identified enablers and barriers in relation to the practitioner’s level of involvement in technology leadership. To investigate these enablers and barriers, this research addresses the following research questions:

- RQ1: What enablers or supporting factors do accomplished school librarians perceive in
enacting the role of leader in technology integration?

- **RQ2:** What barriers or constraining factors do accomplished school librarians perceive as preventing or hindering their enactment of the role of leader in technology integration?
- **RQ3:** What is the association between accomplished school librarians involved at a high level in technology-integration leadership and the identified enablers in comparison to the other participants?
- **RQ4:** What is the association between accomplished school librarians involved at a low level in technology-integration leadership and the identified barriers in comparison to the other participants?

The goal of this research is to serve as a foundation on which to build research-based strategies to support practicing school librarians who seek to overcome barriers, and to distinguish those factors that enable this vital role to be achieved in practice.

**Review of the Literature**

School librarians are expected to accept and fulfill numerous roles in daily practice; one of these roles is that of a leader in the area of technology integration. The ever-changing and advancing environment of 21st-century learning has necessitated this evolution of the school librarian and presents opportunities for leadership.

**Leadership Directive**

The evolution of the role of the school librarian is present in the standards and guidelines that define and guide practice for school librarians. The guidelines from the AASL (2009) reiterate the belief that the school librarians should act as leaders within their school communities, ensuring that the current generation of learners are equipped with the skills and knowledge they need to succeed and participate in the technological society of the twenty-first century. School librarians are charged “to play a leading role in weaving such skills throughout the curriculum so that all members of the school community are effective users of ideas and information” (AASL 2009, 46). It is this “weaving” or the integration of technology into the curricular areas where school librarians, based on their knowledge of pedagogical principles and school curriculum, along with their technology expertise and collaborative experience, can serve as leaders and valuable assets to their schools (Asselin and Doiron 2008; Everhart, Mardis, and Johnston 2010; ISTE 2010). Leadership plays a prominent role in the AASL guidelines and is representative of a larger directive for the school librarian profession in general: to accept, embrace, and enact a leadership role, especially in the area of technology integration.

As further evidence for the evolution of the school librarian’s role, the *ALA/AASL Standards for Initial Preparation of School Librarians* (AASL 2010), approved for National Council for the Accreditation of Teacher Education, frequently mention leadership and technology when describing the standards for the preparation of future school librarians. These standards assert that school librarians provide leadership, instruction, and collaboration in the use of instructional technologies and should move beyond the role of provider of resources to one who leads in the use or integration of these resources for learning. This focus on technology-integration leadership is also echoed in the *Library Media Standards* from the National Board for Professional
Teaching (2012); this document defines school librarians as “accomplished...visionary leaders in their schools and in the profession” (2012, 22). These standards recognize that the school librarian can use technology to connect and create meaningful instruction and to model technology integration, and, therefore, to provide leadership in the integration of technology.

### Leading Teachers and Students

Technology is transforming not only access to information, but also the skills needed to interact with and use it, as well. As a result of these transformations, information literacies have emerged as the new literacies and a critical issue in the field of education (Asselin 2005; Asselin and Dorion 2008; Kuhlthau 2010; Kuiper, Volman, and Terwol 2005; Livingstone 2008). Information literacies or “the ability to find, evaluate, analyze, and synthesize information” (Smolin and Lawless 2003, 571) go beyond simply knowing how to use technology tools and extend to also include understanding how to apply the tools in learning (Asselin 2005; Greenhow, Robelia, and Hughes 2009; Kuhlthau 2010; Kuiper, Volman, and Terwel 2005; Smolin and Lawless 2003), as well as to create and communicate new knowledge (AASL 2007; Partnership for 21st Century Skills 2009).

Students are being bombarded with information in both their academic and personal lives, and it is the responsibility of school librarians as educators to prepare students for their future and “develop information skills that will enable them to use technology as an important tool for learning, both now and in the future” to actively, safely, and ethically participate in the digital culture (AASL 2007, 2). To accomplish this preparation, it is critical for the school librarian to partner with teachers to address the needs of the 21st-century learner (Asselin 2005; Hanson-Baldauf and Hughes-Hassell 2009; Hughes-Hassell and Hanson-Baldauf 2008; Kuhlthau 2010).

Students cannot be expected to benefit from technology if their teachers are neither familiar nor comfortable with it. Although teachers are excited about the potential instructional benefits of digital resources and technology, many are overwhelmed, and need assistance and leadership in incorporating the most appropriate technology efficiently and meaningfully for both teaching and learning (Anderson and Dexter 2005; Asselin and Dorion 2008; Brush and Saye 2009; Duke and Ward 2009; Ertmer 2005; Glazer et al. 2009; Lei 2009; Lemke et al. 2009). Through leadership activities, school librarians can act as agents of change to support, encourage, assist, and facilitate the integration of technologies into daily practice (Asselin and Dorion 2008; Hughes-Hassell and Harada 2007; Branch and Oberg 2001). Among these leadership activities are keeping teachers abreast of new technologies and helping teachers understand the importance of integrating information technologies across the curriculum to create relevant learning experiences for students (AASL 2009; Asselin 2005; Asselin and Dorion 2008; Branch and Oberg 2001; Everhart, Mardis, and Johnston 2010; Hughes-Hassell and Harada 2007).

### Current Relevant Research

The most current research to date in this area is by Everhart, Mardis, and Johnston, who defined and investigated the leadership practices of the school librarian in technology integration. The *School Library Media Specialist Technology Integration Survey* (PALM Center 2009),
developed through the research of Everhart, Mardis, and Johnston, is the first instrument to define and investigate the school librarian’s technology-integration leadership practices. Results from the 2010 survey concluded that National Board Certified school librarians feel committed to and have experienced success in technology leadership with students to a great extent and with teachers to a lesser, but not insignificant, extent. Yet, school librarians reported much lower levels of involvement in technology leadership activities outside of their school building, such as district-wide policymaking, and information-sharing activities with peers and community members (Everhart, Mardis, and Johnston 2010).

The 2009 research by Hanson-Baldauf and Hughes-Hassell, who explored school librarians’ perceived competencies with and usage of Web 2.0 technologies and the barriers school librarians believe impede the use of Web 2.0 technologies in teaching and learning, serves as an initial step in the investigation of school librarians and technology integration. Hanson-Baldauf and Hughes-Hassell found that a significant number of school librarians do not feel competent with “emergent technologies such as social-networking and file-sharing tools, [and the majority] only rarely or occasionally used podcasts, wikis, blogs, Web design tools, and electronic whiteboards” (2009, 6). School librarians agreed on the importance of integrating technology into their instruction, but fewer felt “well prepared” to do this (2009, 8).

The limited research in the area of school librarianship in the context of technology leadership also supports the contention that school librarians must embrace their leadership role in technology integration. A compilation of state studies (Scholastic Research & Results 2008) examines the work of school librarians and their impact on student achievement, and identifies two roles of the school librarian that impact student achievement: leader and technology facilitator. Those studies revealed that school librarians who exhibit leadership were more likely to plan and teach cooperatively with teachers, provide training for teachers, and take responsibility for technology integration (Lance, Hamilton-Pennell, and Rodney 2000; Lance, Rodney, and Hamilton-Pennell 2000). Findings also include a connection between leadership and collaboration, in that classroom teachers were more willing to collaborate with school librarians who had taken the initiative to become assertive, involved leaders in the school (Rodney, Lance, and Hamilton-Pennell 2002). Additionally, research indicates that in schools with “best-practice library media programs,” the school librarian “acts as an innovator, transformation agent, and a technology integration leader” (Smith 2006, 16).

The school library is one of the most technology-rich spaces in many schools, with the school librarian serving as one of the school’s experts in information technology integration (Massey 2009); therefore, technology-integration leadership has emerged as an essential competency for 21st-century school librarians (Shannon 2002).

**Theoretical Framework**

This research assumes that the leadership practices of school librarians are essentially those of teacher leaders and is based on the educational leadership theory of distributed leadership. Teacher leaders are those teachers that assume informal and formal leadership responsibilities outside the classroom, create a participatory environment where all learn from each other, and engage with others in working together for student learning (Barth 2001; Harris and Muijs 2005; Katzenmeyer and Moller 2009; Spillane 2006; York-Barr and Duke 2004). The complex environment of 21st-century schools has increased demands on educational leaders and has served as the impetus for a paradigm shift in educational...
leadership (Anderson and Dexter 2005; Kowch 2009) that moves away from relying only on the traditional individual standalone formal leader toward searching for ways that principals—along with other school leaders—can work together for school leadership.

Distributed-leadership theory has emerged as a possible solution, in that it promotes a situation where multiple people work together, pooling their abilities and expertise (Harris 2004; Spillane, Halverson, and Diamond 2001) and places emphasis on the importance of context and leadership practice. This perspective asserts that leadership is about more than just people in formal leadership positions and attempts to acknowledge all contributors, formal or informal, who participate in leadership practice (Spillane 2006). The most contemporary interpretation of distributed-leadership theory from Spillane defined leadership as “the activities tied to the core work of the organization that are designated by organizational members to influence the motivation, knowledge, affect, or practices of other organizational members as intended to influence their motivation” (2006, 11) and leadership practice as “the activities engaged in by leaders, in interaction with others in particular context around specific tasks” (2006, 5). Spillane has asserted that in a distributed approach, it is necessary to start by examining leadership practices and then to explore interactions among leaders, followers, and their situation. A fundamental proposition of distributed leadership is that “the situation is not simply a context within which school leaders practice; it is a defining element of practice” (Spillane 2006, 22). Aspects of the situation define leadership practice, and, therefore, it is necessary to understand how these aspects enable and constrain leadership practice.

Distributed leadership provides a solid theoretical foundation for research on leadership practices and can illuminate the multiple dimensions of leadership that occur in a school. The concepts and propositions in Spillane’s interpretation of distributed-leadership theory served as the impetus for this research, formed the theoretical basis, and presented a means for exploring and analyzing the leadership activities, actions, and role of school librarians.

Conceptual Framework

There is a dearth of research examining school librarians’ role in technology integration and leadership; therefore, it was necessary to extrapolate from education research, specifically the area of teacher leadership due to the informal nature of that leadership role. Teacher leadership research provides a wealth of investigations that seek to identify what enables some teachers and deters others from enacting a leadership role in schools; the research was conducted in a variety of school contexts (Buckner and McDowelle 2000; Harris 2004; Katzenmeyer and Moller 2009; York-Barr and Duke 2004).

Zinn’s (1997) research on the study of enablers and barriers to assuming leadership responsibilities resulted in a classification system that categorizes both enablers and barriers into four domains and has been used previously by researchers (Caffarella and Zinn 1999; Harris and Muijs 2005; Katzenmeyer and Moller 2009; Robertson 2008) to sort and describe barriers and supporting factors to teacher leadership. Zinn argued that enablers and barriers are clustered in four domains: “(1) people and interpersonal relationships, (2) institutional structures, (3) personal considerations and commitments, and (4) intellectual and psychosocial characteristics” (1997, 243) and each domain contains indicators of enablers and barriers.
Zinn’s framework, uniquely developed through research investigations of teacher leaders, also proposes that teacher leadership is a practical endeavor, and, therefore, any descriptions of enablers and barriers must be grounded in everyday practice. The research reported here, like that of Zinn, focuses on the practices of technology-integration leadership by school librarians and assumes that the factors that can both enable and constrain teacher leadership are the same factors that impact school librarians when enacting a leadership role in technology integration.

**Method**

The collection of new research is not always a necessary step in the research process; it is sometimes possible to examine a new research question using previously collected data, or secondary analysis: the “further analysis of an existing dataset which presents interpretations, conclusions or knowledge additional to, or different from, those presented in the first report on the inquiry as a whole and its main results” (Hakim 1982, 1).

A thorough investigation of the literature was conducted to ascertain what research has been and is currently being conducted in this area; the investigation revealed that, while research in the general area of school librarians and technology leadership is scarce, recent survey research had
been conducted by University of North Carolina at Greensboro (Hanson-Baldauf and Hughes-Hassell 2009), in addition to the survey research (in which the researcher participated) sponsored by the Partnerships Advancing Library Media (PALM) Center at Florida State University (FSU) (Everhart, Mardis, and Johnston 2010). The survey from FSU uniquely added the variable of leadership practice and contained questions that addressed concepts of enablers and barriers to enactment of the leadership role. Due to my professional relationship with the primary investigators, I was aware that the data collected from the two questions addressing enablers and barriers had not been analyzed or reported. Original survey research rarely uses all of the data collected, and this unused data can provide answers to or different perspectives on other questions or issues. Therefore, the research reported here employs the secondary analysis method to use unused archived survey data to investigate the enablers and barriers that accomplished practicing school librarians encounter in enacting leadership in technology integration.

To ensure congruency, appropriateness, and quality of the primary study and the resulting dataset, Stewart and Kamins’ (1993) evaluative process was employed before finalizing data selection. This process for evaluating a dataset involves six questions: (1) What was the purpose of this study? (2) Who was responsible for collecting the information? (3) What information was actually collected? (4) When was the information collected? (5) How was the information obtained? (6) How consistent is the information obtained from one source with information available from other sources? To answer these questions, documentation of the primary study and published information from the original study were used; the other investigators from the primary study were also consulted.

Finding that this data would adequately address the research questions and that the primary method of data collection was appropriately suited to this research, I selected applicable data from respondents’ answers to two open-ended questions from the end of the School Library Media Specialist and Technology Integration Survey (PALM Center 2009); these questions asked participants to respond with enablers and barriers that facilitate or constrain their technology-integration leadership involvement. These questions asked respondents to “Think back about the activities in the preceding statements, specifically those in which you are fully involved. What enables you to be involved at that level?” and “Again, think about those activities addressed earlier. Are there any activities in which you’d like to be more involved than you are right now? If so, please tell us about the barriers that hinder your involvement” (PALM Center 2009). No other research to date serves to identify the enablers and barriers to the enactment of a leadership role in technology integration. Therefore, the use of open-ended questions was vital to allow participants to express factors that enabled and constrained their technology-integration leadership involvement without participants’ being limited by any preconceived categories.

**Sample**

The study participants for this secondary research are the same as those from the primary study, National Board Certified (NBC) school librarians practicing at the elementary, middle, and high school levels in various schools across the United States. National Board Certification is the highest credential in the teaching profession and less than 2 percent of school librarians in the United States are NBC. The participants in this sample are uniquely positioned to inform this research, because due to their documented accomplishment in meeting the rigorous standards of the National Board for Professional Teaching Standards, they are assumed to be experts in the areas of technology integration.
and leadership.

Respondents for the primary study were solicited by sending invitations to NBC school librarians whose e-mail addresses could be ascertained from information available on the National Board for Professional Teaching Standards organization website. This group contained approximately 35 percent of the population of 2,100 NBC school librarians in the United States. Participants were also solicited via postings to various national and state school librarian electronic message groups (Everhart, Mardis, and Johnston 2010). The invitations and postings resulted in 295 usable survey responses. The research reported here is based on those respondents who answered the two open-ended questions addressing the variable of interest, enablers, and barriers to the enactment of the leadership role in technology integration; 279 (94.5 percent) participants answered the enabler question, and 263 (89.1 percent) answered the barrier question.

**Instrumentation**

*The School Library Media Specialist and Technology Integration Survey* (PALM Center 2009) consists of three sections: thirty demographic questions covering areas such as staffing levels, education and experience of the school librarian, and Internet access; sixty statements related to technology-integration activities; and three open-ended questions that asked respondents to discuss barriers, enablers, and other factors that influenced their leadership practices (Everhart, Mardis, and Johnston 2010). Response choices for statements related to technology-integration activities used a Likert scale that reflected the respondents’ degree of leadership in the context of the particular integration activity (0=not my job; 1=rarely involved; 2=partially involved; 3=substantially involved; 4=fully involved), and each response choice was fully explained in the survey instrument. Additionally, researchers in the PALM study ranked each of the Likert scale items that represented technology-integration leadership activities; each practice was ranked as an entry-level practice, an adaptive-level practice, or a transformative-level practice. An index score was calculated for each respondent based on his or her answers to those questions. Since this instrument is newly developed, inability to assess reliability is one of the limitations in this research.

This secondary research uses the data obtained from the two open-ended questions at the end of the original survey that asked about enablers and barriers, the descriptive data obtained through the questions at the beginning of the survey, as well as each respondent’s index score or level of technology leadership involvement as determined in the original study.

**Data Analysis and Results**

To extract the specified enablers and barriers from the text of the open-ended questions, the content analysis was performed to code the data into categories using the *a priori* coding scheme of exhaustive and mutually exclusive categories taken from Zinn’s conceptual framework, “Four Domains of Supports and Barriers to Teacher Leadership” (1997). This framework explicitly lists descriptor indicators within each category of specific enablers and barriers that reside in each domain. In the study reported here, each participant response was analyzed to determine manifest and latent content, and to extract individual descriptors of enablers and barriers. The data was hand-coded by the most finite enabler and barrier descriptor and by broader category
based on the conceptual framework and the supporting literature. Intra-coder and inter-coder reliability testing were conducted, both providing acceptable agreement percentages of or close to 100 percent.

The content analysis and data coding resulted in the identification of the enablers and barriers school librarians experience in enacting a leadership role in technology integration. Most participants listed more than one enabler and more than one barrier in their responses, resulting in identification of 724 enablers and 366 barriers, which were then coded based on the conceptual framework. Statistical Package for the Social Sciences (SPSS) was used to calculate frequency distribution tables to illustrate the occurrences of specific enablers and barriers as well as their categorizations into the four domains. These resulting frequency tables (see Table 1 and Table 2) served to provide results for research questions one and two.

Table 1. Frequency distribution of enablers for school librarians’ enacting leadership role in technology integration.

<table>
<thead>
<tr>
<th>Enablers</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive principal</td>
<td>70</td>
<td>9.67</td>
</tr>
<tr>
<td>Opportunities for a leadership role and responsibilities</td>
<td>69</td>
<td>9.53</td>
</tr>
<tr>
<td>Desire to make a difference for students and teachers</td>
<td>69</td>
<td>9.53</td>
</tr>
<tr>
<td>Professional development opportunities</td>
<td>60</td>
<td>8.29</td>
</tr>
<tr>
<td>Sense of obligation to get involved</td>
<td>48</td>
<td>6.63</td>
</tr>
<tr>
<td>Commitment to continual professional growth</td>
<td>41</td>
<td>5.66</td>
</tr>
<tr>
<td>Expertise</td>
<td>36</td>
<td>4.97</td>
</tr>
<tr>
<td>Collaborative teachers</td>
<td>33</td>
<td>4.56</td>
</tr>
<tr>
<td>Professional organizations</td>
<td>33</td>
<td>4.56</td>
</tr>
<tr>
<td>Personal belief and values</td>
<td>22</td>
<td>3.04</td>
</tr>
<tr>
<td>Personal interest in technology</td>
<td>19</td>
<td>2.62</td>
</tr>
<tr>
<td>Professional responsibility</td>
<td>18</td>
<td>2.49</td>
</tr>
<tr>
<td>Supportive district personnel</td>
<td>17</td>
<td>2.35</td>
</tr>
<tr>
<td>District-level support</td>
<td>17</td>
<td>2.35</td>
</tr>
<tr>
<td>Respected and valued by staff</td>
<td>16</td>
<td>2.21</td>
</tr>
<tr>
<td>Dual role as instructional technologist and school librarian</td>
<td>16</td>
<td>2.21</td>
</tr>
<tr>
<td>Education</td>
<td>16</td>
<td>2.21</td>
</tr>
<tr>
<td>Funding</td>
<td>15</td>
<td>2.07</td>
</tr>
<tr>
<td>Technology resources</td>
<td>15</td>
<td>2.07</td>
</tr>
<tr>
<td>Experience</td>
<td>14</td>
<td>1.93</td>
</tr>
<tr>
<td>Supportive teachers</td>
<td>12</td>
<td>1.66</td>
</tr>
<tr>
<td>Flexible schedule</td>
<td>12</td>
<td>1.66</td>
</tr>
<tr>
<td>Time</td>
<td>11</td>
<td>1.52</td>
</tr>
</tbody>
</table>
Full-time clerk 10 1.38
Collaborative instructional technologist 7 0.97
Full-time on-site tech support 5 0.69
Supportive school climate 5 0.69
Stipend 5 0.69
Volunteers 5 0.69
National Board Certification 4 0.55
Personal time 2 0.28
Personal finances 1 0.14
Family support 1 0.14
Total 724 100.00

Note. The % represents the percentage that the specific enabler was found in relation to all the total identified enablers (n = 724).

Table 2. Frequency distribution of barriers to school librarians’ enacting leadership role in technology integration.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>94</td>
<td>25.68</td>
</tr>
<tr>
<td>Exclusion from leadership role and responsibilities</td>
<td>40</td>
<td>10.93</td>
</tr>
<tr>
<td>Lack of funding</td>
<td>33</td>
<td>9.02</td>
</tr>
<tr>
<td>Inadequate staffing</td>
<td>25</td>
<td>6.83</td>
</tr>
<tr>
<td>Competitive instructional technologist</td>
<td>21</td>
<td>5.74</td>
</tr>
<tr>
<td>Climate of competition with district tech department</td>
<td>21</td>
<td>5.74</td>
</tr>
<tr>
<td>Technology resources</td>
<td>21</td>
<td>5.74</td>
</tr>
<tr>
<td>Uncollaborative teachers</td>
<td>19</td>
<td>5.19</td>
</tr>
<tr>
<td>Fixed schedule</td>
<td>19</td>
<td>5.19</td>
</tr>
<tr>
<td>Unsupportive principal</td>
<td>17</td>
<td>4.64</td>
</tr>
<tr>
<td>Lack of role definition</td>
<td>12</td>
<td>3.28</td>
</tr>
<tr>
<td>Unsupportive teachers</td>
<td>10</td>
<td>2.73</td>
</tr>
<tr>
<td>Lack of district personnel</td>
<td>7</td>
<td>1.91</td>
</tr>
<tr>
<td>Lack of professional development</td>
<td>6</td>
<td>1.64</td>
</tr>
<tr>
<td>Insufficient expertise</td>
<td>6</td>
<td>1.64</td>
</tr>
<tr>
<td>Family obligations</td>
<td>4</td>
<td>1.09</td>
</tr>
<tr>
<td>Discomfort with leadership role</td>
<td>3</td>
<td>0.82</td>
</tr>
<tr>
<td>Feelings of frustration</td>
<td>3</td>
<td>0.82</td>
</tr>
<tr>
<td>Personal finances</td>
<td>2</td>
<td>0.55</td>
</tr>
<tr>
<td>Personal inhibitions</td>
<td>2</td>
<td>0.55</td>
</tr>
</tbody>
</table>
The identified enablers and barriers, the categorization, and the frequency tables that resulted from the content analysis were used in the next step of analysis. In this next step, the researcher chose to examine the enablers of those participants who are highly involved in technology-integration leadership; it is important to learn from this highly specialized group of accomplished school librarians and to identify enablers that have benefitted those who are involved in technology-integration leadership at the highest level. The researcher also chose to examine the barriers facing those accomplished school librarians who, despite their experience and knowledge, are involved in technology integration at a low level; it is important to learn what barriers hindered even these NBC school librarians. Identification of both enablers and barriers experienced by the NCB school librarians was regarded as a first step toward helping all school librarians examine their own situations and take steps to improve their own levels of technology-integration leadership.

Since this research uses nominal data, nonparametric tests that make no assumptions about the distribution of the data were necessary (Vaughan 2008). An association measure called percentage difference (Fielding and Gilbert 2006; Rudestam and Newton 2007) was employed as a “method to make a statement about the degree or amount of relationship by comparing percentages based on a condition” (Rudestam and Newton 2007, 145). In this case the condition is the participants’ “level of involvement” in technology-leadership activities. Bivariate comparison tables were constructed; these tables show the frequencies of mention (in percentages) of the enablers by respondents with different levels of involvement—those school librarians involved at a high level in technology integration practice versus the other school librarian participants—and then the percentage difference between the two groups’ frequencies of the enablers they experienced was calculated. This same procedure was followed to compare the barriers experienced by accomplished school librarians involved at a low level in technology-integration leadership versus the other participants. The results of these comparisons informed the findings and conclusions reported below.

**Findings and Conclusions**

The first step in this study was to identify the factors that enable and constrain school librarians to be fully involved in technology-integration leadership practices. As data was analyzed, certain enablers and barriers were identified more frequently than others, and overall themes that coincided with the Zinn (1997) categorization emerged. The identified enablers and barriers are discussed below in the context of the literature from the fields of school librarianship and teacher leadership, and according to categorization by Zinn’s “Four Domains,” beginning with relationships found in Domain One, followed by the institutional structure of Domain Two, the personal considerations and commitments of Domain Three, and, finally, the intellectual and psycho-social characteristics found in Domain Four. The percentage differences comparisons from research questions three and four contribute additional data on what enablers were identified more frequently by accomplished school librarians highly involved in technology leadership and, conversely, on the barriers identified by those with a low level of involvement in technology leadership.
Domain One: Relationships

Relationships were found as frequently occurring enablers for accomplished school librarians’ enacting a leadership role in technology integration, yet these same relationships can also constrain leadership enactment as revealed through the findings of this research.

Principals

The most frequently cited enabler for school librarians’ enacting a leadership role in technology integration was a supportive principal. This finding aligns with research from multiple studies from the school librarianship literature that identify principal support as vital (Church 2008; Hartzell 2002; Lance, Rodney, and Russell 2007; Shannon 2009; Todd 2005). When principals have a positive working relationship with school librarians, principals can serve as advocates and a source of support to promote school librarians as instructional partners; principals can also encourage teachers to collaborate (Oberg 2009). The quality of the relationship between the principal and the school librarian impacts the school library and the librarian’s place within the school (Church 2008; McCracken 2001; Oberg 2009; Oberg, Hay, and Henri 2000).

Respondents commented on encouragement they received from their principals as the librarians assumed a leadership role and responsibilities, such as “I have a principal who supports my position wholeheartedly. He encourages me to continue to grow in my knowledge of technology and promotes me as a technology leader.” Others described enabling respectful relationships where leadership was shared and their opinions were valued, with responses such as “my principal values my opinion in technology-related matters” and a “supportive principal who appreciates and uses my experience.” This finding demonstrates a connection to principal support that can provide encouragement for teachers to take on an active role beyond the classroom to enable their development as teacher leaders (Buckner and McDowelle 2000; Katzenmeyer and Moller 2009; York-Barr and Duke 2004).

Accomplished school librarians involved at a high level in technology-integration leadership practices identified the importance of principals’ support more frequently than did other participants, revealing that principals enable these librarians—who characterized themselves as highly involved in technology-integration leadership—to assume these leadership responsibilities by promoting them as leaders, recognizing their expertise, and providing encouragement. This research did not identify unsupportive principals as a frequent barrier to technology-integration leadership as Zinn’s research did. Yet, this lack of congruence may be attributed to the fact that, while many of the identified barriers such as funding, scheduling, staffing, technology resources, and opportunities for leadership are not explicitly related to the principal, they could be indirectly attributed to the principal.

District Administrators

Administrators other than the school principal were found to be enablers for
school librarians’ providing technology-integration leadership, and respondents frequently spoke of a district school library coordinator or supervisor who facilitated their efforts in technology-integration leadership. One comment was that “district level media personnel in our school district is the driving force for LMS to be involved with technology as a tool for improving instruction.” This finding is notable because this facilitating relationship with district administrators is not prevalently mentioned in the literature about teacher leadership, and only limited research exists in the school librarian literature that examines this connection (Baumbach 2003; Hughes-Hassel and Hanson-Baldauf 2008; Underwood 2003).

Respondents commented on the benefit of having this administrator represent their interests in district-wide decision-making. For example, they made statements such as “our director of libraries understands that the library is and should be on the leading edge of technology and information literacy. She is always included in decisions and allows us to serve on district committees to give input.” Overall, the statements reflected that a strong district library administrator represents the interests of school library programs and school librarians at the district level through giving voice to concerns, addressing issues with decision-makers, and positioning school librarians to lead.

Accomplished school librarians highly involved in technology-integration leadership identified district library personnel more frequently as an enabler than did other participants. The district library supervisor as an enabler is a relationship that has emerged from this research and appears to be unique to school librarians. This consistency and support across a district may be key to school librarians’ developing as leaders.

Teachers
Collegial relationships with teachers were identified as facilitating school librarians’ enactment of a leadership role in technology integration and were found to be the second-most-frequent relationship necessary for technology leadership involvement. Aligning with the literature (Katzenmeyer and Moller 2009; York-Barr and Duke 2004; Zinn 1997), these findings highlight the importance of collegial relationships with fellow teachers as a crucial enabler because these relationships allow for sharing of ideas, working toward common goals, supporting one another, and guidance through a common sense of purpose (Tschannen-Moran 2009).

This relationship of support, a feeling of respect, trust, and a sense of value were found to be vital enablers in facilitating accomplished school librarians’ enacting a leadership role in technology integration. Respondents spoke not only of teachers’ supporting them in their efforts through serving as “critical friends,” but also through respecting and valuing school librarians’ contributions to technology integration efforts and in librarians’ willingness to collaborate with teachers. For example, one respondent shared that “a lot of support from the faculty, especially in their willingness to allow my input into their classroom teaching strategies” was what enabled the respondent to function as a technology-integration leader.
These supportive relationships lead to a feeling of trust and a sense of self-value, enabling leadership enactment (Beachum and Dentith 2004).

This important relationship with fellow teachers was reinforced as school librarians involved at a high level in technology-integration leadership activities identified collaborative teachers as an enabler more frequently than other respondents who are not highly involved. The importance of relationships with colleagues is echoed in the school librarianship literature, which reveals that cultivating accepting and trustful relationships with teachers is vital for enacting leadership (McCracken 2001; Oberg 2009; Underwood 2003). The findings reported here demonstrate this same connection; collaborative relationships with teachers facilitate and serve as a critical support for school librarians’ involvement in technology-integration leadership. These findings yet again reinforce the fact that collaborating with teachers is a vital part of the job for school librarians.

Uncollaborative and unsupportive teachers were frequently cited as barriers that constrain school librarians from enacting a leadership role in technology integration. Respondents confirmed previous research (McCracken 2001) that identified teachers unwilling to collaborate and resisting change as barriers to technology-integration leadership; respondents made comments such as “teachers in the building...prefer to work alone. It is very hard to work with teachers that have that mind set” and “a lack of motivation to learn and use new technologies by some faculty members is a major source of frustration.”

**Other School Librarians**
The identification of professional organizations as an enabler for technology leadership enactment for school librarians is an important finding of this research because professional organizations in general are cited infrequently in the existing research of school librarianship and teacher leadership. The most recent ALA/AASL *Standards for Initial Preparation of School Librarians* state the expectation that school librarians “become active contributors in education and information professional organizations and use publications, conferences, and virtual professional development experiences and opportunities to engage in social and intellectual networks that address best practice in school libraries” (2010, 13). Not only do professional organizations provide support for school librarians through relationships with other school librarians, but the research reported here finds that professional-growth opportunities from professional-organization activities such as conferences and publications served as enablers as well.

Respondents recognized that professional organizations facilitate their technology-integration leadership efforts and that “through diverse professional involvement in district, state, and national level professional organizations, I have gained exposure to different communities and am able to discuss and implement new strategies for technology integration.” School librarians who have access to a strong and active network of other school librarians are more committed to ongoing professional education, mentoring, advocacy, and policy development.
than those who do not (Dekker as cited in Oberg 2006).

The accomplished school librarians highly involved in technology-integration leadership identified professional organizations as an enabler more frequently than those who are not highly involved, revealing the importance of professional organizations as providing a network of fellow school librarians to learn from and share with. Respondents commented on the “strong community of librarians” that enabled their efforts. Often only one school librarian is in the building, and this finding about the recognition of professional organizations as an enabler demonstrates the importance of developing relationships with other school librarians that share the same interests, can act as mentors, and can provide support to facilitate school librarians’ involvement in technology-integration leadership.

**Instructional Technologists**

An instructional technologist is defined as a building-level person who works with teachers to teach or integrate technology in the curricular areas. In this research, a competitive relationship with instructional technologists was the most frequently mentioned relationship barrier constraining accomplished school librarians from enacting a leadership role in technology integration. A collaborative instructional technologist was found to be an enabler, but only in a small number of cases. This is an emerging relationship as schools search for ways to deal with the ever-expanding presence of technology in schools.

Very limited research has been done in this area, but the existing studies (Nguyen 2007; Seavers 2002) urge school librarians and instructional technologists to collaborate and work as a team to benefit students and teachers. However, further research is needed to clarify and define the roles and responsibilities of each member of this team (Nguyen 2007). As the role of technologist has become even more instructionally focused, the boundaries between the role of school librarians and instructional technologists have blurred. To collaborate, it is important for these professionals to develop an understanding of both their roles and an awareness of the areas in which the roles overlap.

A lack of clarity and definition of the two roles was reflected in the identification of a competitive relationship with instructional technologists as a barrier that school librarians involved at a low level in technology-integration leadership cited more frequently than other respondents. Respondents confirmed this with comments about lack of control in technology decision-making, being excluded from working with teachers when technology was involved, not being allowed to conduct technology-related staff development, and having technology taken away from them. One respondent stated, “There is a major barrier between me and the technology facilitator as far as being able to work collaboratively. The roles are currently blurred and create conflict.”

As the lines blur between these two roles, school librarians may feel threatened by instructional technologists. School librarians were once the sole person responsible for technology in their schools, but now the increased presence of
Instructional technologists has resulted in school librarians who are no longer seen as the technology expert in their schools and are excluded from technology decision-making. A competitive relationship may arise from territorial battles over technology as a resource and from conflicting viewpoints relating to access. Instructional technologists are often given an increased level of authority over technology and serve as gatekeepers who, by controlling filters and passwords, restrict even school librarians’ access to Web resources. As this instructional technologist role expands to include working with teachers to integrate technology into the curricular areas, school librarians may feel that they have to compete to retain their places as leaders in technology integration.

Interestingly, serving in a dual role as school librarian and instructional technologist was found to enable involvement in technology-integration leadership. In examining the percentage differences, the biggest difference between school librarians involved at a high level in technology-integration leadership and those who are not at a high level occurred in relation to identification of this enabler. Librarians highly involved in technology-integration leadership were far more likely to have this dual role than were librarians who were involved at only a low level. This finding demonstrates that when school librarians do not have to contend with a competitive, threatening instructional technologist, school librarians are more often enabled to be highly involved in technology-integration leadership; conversely, competitive instructional technologists can constrain school librarians’ technology-integration leadership involvement.

**Domain Two: Institutional Structure**

The world of education is full of formal and informal structures that can either support or constrain teacher leadership; these structures include policies, procedures that determine the allocation of resources such as funding, time, scheduling, staffing, and technology, as well as norms and expectations that can form the aspects of school climate that influence roles and opportunities in efforts to take part in leadership (Katzenmeyer and Moller 2009; McCracken 2001; Oberg 2009). The most frequently occurring barriers identified were barriers related to institutional structure.

**Leadership Opportunities**

Opportunities for authentic leadership roles and responsibilities were the most frequently occurring enabler facilitating involvement in technology-integration leadership, and school librarians highly involved in technology-integration leadership mentioned these leadership opportunities more frequently than did other participants. The connection with principal support emerged here, in that administrative support, in conjunction with the decisions that the administrator makes for the school, has a great effect on the opportunities available for school librarians to develop and practice the skills needed to be leaders.

This research finds that leadership opportunities, such as serving on leadership, technology, and curriculum committees at the school and district level served as natural enablers for involvement in technology-integration leadership. When educators are part of decision-making, they feel that their expertise is valued, and
they increase their commitment and participation in the school (Barth 2001; Buckner and McDowelle 2000; Katzenmeyer and Moller 2009; Spillane 2006).

Also, respondents described serving in a leadership role by providing staff development for their faculty. School librarians have the potential to serve as leaders through “forg[ing] partnerships” with teachers and sharing their expertise with the teaching staff by using collaborative activities, and by designing and teaching staff-development workshops (Zmuda and Harada 2008, 39). These opportunities for leadership are vital in providing school librarians with the experience, confidence, and skills necessary for leadership involvement.

The barrier most frequently experienced when trying to enact a leadership role in technology integration was found to be the exclusion from leadership. Respondents’ comments reflected purposeful exclusion from leadership opportunities, as well as simply being ignored. They also mentioned feeling of lack of control because “technology decisions are made by those at the top with no input from the school librarian” and being “excluded from the school leadership team and therefore decision-making.” Accomplished school librarians involved in technology-integration leadership at a low level identified this exclusion from leadership opportunities as a barrier more frequently than did other participants, again demonstrating the importance of opportunities for leadership involvement. Some respondents attributed this exclusion to conflicting role definitions, school principals, and competition with instructional technologists. Yet again, the over-arching influence of the school principal is illustrated in these findings because often it is the principal who chooses those who are included and excluded in leadership opportunities.

Professional-Development Opportunities
The second-most-frequently occurring enabler identified in Domain Two was opportunities for professional development. The research into leadership by teachers supports the assertion that, to be most effective, professional development for teacher leadership needs to focus not just on development of teachers’ instructional skills and content knowledge, but also on developing leadership skills and understandings to enhance the leadership role; these skills include personal, interpersonal, and group skills needed for successful leadership (Barth 2001; Harris and Muijs 2005; Katzenmeyer and Moller 2009). Yet school librarians in this research did not mention professional development related to leadership skills as an enabler. This may be attributed to the lack of recognition of school librarians as leaders by principals, resulting in school librarians’ being excluded from or ignored for leadership-related professional-development opportunities. Another cause may be that professional development focusing on leadership for school librarians is limited.

Accomplished school librarians perceived professional-development activities and opportunities that were devoted to technologies and learning as essential for developing expertise in technology and technology integration—expertise that would enable them to lead. Not surprisingly, this research revealed the important connection between leadership and expertise; to assume a leadership role in
technology integration it is important to have the necessary technology expertise, including the knowledge and skills to integrate technology into instruction. Yet participants’ lack of mention of leadership skills and leadership-related professional development indicates a missing piece in the training that school librarians perceive as necessary.

**Resources**

The majority of barriers this study identified are related to resources. Time is the most frequently noted barrier constraining involvement in technology-integration leadership practices. Respondents commented on not having enough time to work with teachers, to plan, to learn about technologies, and to devote to any one activity because of the various tasks for which school librarians are responsible, and multiple respondents noted “too much to do” and “not enough time to devote to any one role to be fully involved in accomplishing it.” Others mentioned that they were assigned other duties not related to the library; among these time-consuming duties were: “teaching language arts classes,” “teaching physical education classes,” “serving as lunch monitor,” and acting as “a substitute teacher.” Time constraints were also closely tied to the barriers of a fixed schedule and the lack of a clerk.

This finding aligns with the literature relating to leadership by teachers; this literature notes that time is an issue for all teachers, with too much to do in too little time. “Time is a barrier when priorities are not clearly established. Frequently, multiple competing goals interfere with successful completion of a few key ones” (Zinn 1997, 349). Teacher leaders need time for leadership (Katzenmeyer and Moller 2009; Harris and Muijs 2005), but it is difficult for teacher leaders to find adequate time during regular school hours to take on the extra tasks often associated with teacher leadership (Beachum and Dentith 2004).

A fixed schedule was identified frequently as constraining involvement in technology-integration leadership by leaving no flexibility to collaborate with teachers or assume any additional responsibilities. Those school librarians involved in technology-integration leadership at a low level identified a fixed schedule more frequently than did those involved at a high level. While fixed schedule was mentioned frequently as a barrier, a flexible schedule was not mentioned frequently as enabler, suggesting the those with a flexible schedule either take it for granted or do not recognize the benefits.

Lack of clerical assistance was also identified as a constraining technology-integration leadership enactment as school librarians who had no assistance were busy doing clerical work—paperwork, shelving books, checking books in and out, and managing textbooks—and, therefore, had no time to be involved in technology-integration leadership.

Finally, deficiencies of technology resources, including an insufficient quantity of resources, lack of fully operational equipment, and dated equipment, were found to be barriers. A lack of funding was sometimes mentioned as tied to this lack of technology, and respondents frequently mentioned budget cuts in conjunction
with the elimination of personnel, both clerical and professional, and a lack of resources. The identification of these barriers again demonstrates the permeation of the principal’s influence because, in most situations, the principal allocates resources, determines schedules, and makes staffing decisions (Church 2008; Hartzell 2002; Henri, Hay, and Oberg 2002; Shannon 2009).

A lack of a role definition, while not identified as one of the most frequently occurring barriers, warrants discussion due to its connection to other barriers. Respondents perceived that the school-librarian national professional guidelines lacked a definition of the technology-integration leadership role. Some participants were unsure of their actual role in technology integration and perceived a lack of guidance on how to add the technology-integration leadership role to all of the other various role expectations for school librarians.

This lack of role definition is also mentioned as constraining their involvement in technology-integration practices because teachers were unaware of the school librarians’ role in the process and did not even recognize that school librarians could or should lead technology-integration efforts. One respondent shared that “there is ambiguity in our district over our role. In fact, some of the media specialists are strongly discouraged from trying to be involved in technology training. Our district does not understand the role of the library media specialist.” Another respondent expressed that this lack of role definition extends even further stating that there is a “lack of understanding of the role of a library media specialist at the state and national level.” This lack of role definition is also demonstrated in the competitive relationship with instructional technologists. Finally, respondents declared that principals had no idea what the role of school librarians is in technology integration or in leadership.

It is this lack of role definition and guidance for enactment that served to drive this research and is identified as an explicit barrier, but also one that contributed to other identified barriers, as well. The literature of school librarianship repeatedly reflects this lack of role definition as a barrier in enacting many of the roles and responsibilities of school librarians (Hartzell 2002; McCracken 2001; Zmuda and Harada 2008). School librarians consistently expressed the concern that administrators and colleagues have only minimal knowledge of the profession of school librarianship and do not understand the school librarian’s role within the school, and certainly did not perceive school librarians as teacher leaders.

The roles of school librarians have been evolving and changing throughout the years as librarians make the effort to adapt to the needs of students, but unfortunately a feeling of disconnect remains between the role expectations stated by national-level professional leaders and those perceived by the professionals enacting the roles (Seavers 2002). This disconnect is evident in this research into school librarians’ perceptions of their role as leaders in the integration of technology.
Domain Three: Personal Considerations
Less than 1 percent of respondents identified enablers or barriers relating to personal commitments. A few factors, including need for personal time, financial problems, and need to provide family support were listed, but none to a great extent. The low frequency in noting enablers and barriers in this area may be due to the professional nature of this survey, in that it asked about work-related tasks, and participants did not think to mention personal issues or intentionally avoided commenting on non-work-related considerations (Dillman, Smyth, and Christian 2009).

Domain Four: Intellectual and Psycho-Social Characteristics
Enablers identified in Zinn’s framework as intellectual and psycho-social characteristics were found most frequently as facilitating leadership involvement in technology integration for these accomplished school librarians. These characteristics impact a teacher’s willingness and ability to engage in a leadership role and assume responsibilities, and provide a teacher with the beliefs, value system, desire to learn and grow professionally, and the confidence to support educators in leadership endeavors (Zinn 1997; Caffarella and Zinn 1999).

Desire to Make a Difference and Sense of Obligation to Get Involved
The perception that one can make a difference in the lives of students and teachers was prominently identified as the most-frequently occurring enabler in this domain facilitating school librarians’ involvement in technology-integration leadership. This research demonstrates the commitment of accomplished school librarians to ensuring that students are equipped with the skills and knowledge they need.

Respondents often noted a responsibility for advocacy on behalf of students to ensure access and equity; respondents commented on the importance of ensuring that students can use technology in their learning to be equipped for their future, and of making sure that teachers know how to integrate technology to benefit the students. A respondent noted “being a leader in technology makes me a better educator for the next generations, and I always want to give my students the best preparation for life that I can offer.” Serving as an advocate for students is often stated in the standards that guide practice and in the professional literature, and has evolved as a competency for school librarians who are leaders.

Teachers who are leaders exhibit this same commitment to create a better world and thus better education for all children. It is this link between teacher leadership and moral purpose, as well as the goal of equipping all children for success, that frequently motivate teachers to become involved in activities related to school leadership (York-Barr and Duke 2004). This sense of moral purpose and meaning is noted by Oberg (2009) in her study examining the role of school library programs and the organizational cultures of schools; she notes that the moral purpose of the school library program is to make a difference in the lives of young people and that school library professionals also reflect this motivation. The intrinsic reward of improving learning outcomes for students makes school librarians’ work gratifying, and commitment to equipping students for success was identified as an enabler for technology-integration leadership enactment.
These findings illustrate the parallels between teacher leaders and these highly accomplished school librarians in taking ownership of, and responsibility for, maximizing student learning.

A personal sense of obligation to get involved in technology-integration leadership activities was recognized by participants as an enabler. Accomplished school librarians reflected willingness with comments that reflected feeling a need to get involved and a personal commitment to being an actively involved part of the learning community; they spoke of getting involved because their involvement is needed. Those respondents highly involved in technology-integration leadership activities identified more frequently than did other participants a self-motivated obligation or need to get involved as facilitating involvement in technology-integration leadership. This finding is also consistent with the research from the school-librarianship literature that asserts that part of demonstrating leadership in schools is being proactive, and getting involved in learning and working with others in integrating technology (Branch and Oberg 2001).

**Commitment to Continual Professional Growth and Learning**

In this research, the commitment to continual growth, as demonstrated through self-initiated efforts by school librarians, was a prominent enabler that facilitated school librarians’ involvement in technology-integration leadership practices. These efforts to achieve continual growth are designated differently from “professional-development opportunities,” which represent formal professional-development leadership opportunities through institutional structures. Additional self-initiated efforts, such as furthering one’s education by taking college-level courses and voluntarily participating in the National Board Certification process were also identified. Teacher leadership is connected to teacher learning, and teacher leaders need opportunities for continuous professional development to develop their role (Harris and Muijs 2005).

Aligning with the literature, this research conveys the importance of professional growth in leadership involvement, but respondents frequently noted informal professional growth activities that enabled them to be involved in technology-integration leadership practices. Respondents commented on their efforts and commitment to continual learning and staying current, including personal informal self-initiated efforts such as reading journals, attending conferences, reading webpages, and attending webinars. When asked how they prefer to learn to use technology tools and applications, school librarians in the 2008 research by Hughes-Hassell and Hanson-Baldauf also chose methods that indicated self-motivation and a willingness to learn technology on their own time to develop their expertise. Technology is constantly changing, and this commitment to continual learning is essential to stay current, to advance, and to hone the skills and knowledge that are mandatory to lead technology-integration efforts.

**Expertise and Experience**

The respondents frequently identified a unique combination of curriculum and technology expertise as enabling their involvement in technology-integration leadership through sharing this expertise, and working with teachers to identify
instructional needs and to recognize technologies that will serve as effective tools in the learning process. This finding is also reflected in the school-librarianship literature, which indicates that school librarians demonstrate a high level of technology-integration abilities, as well as self-confidence that has developed as a result of their expertise and technology knowledge (Hanson-Baldauf and Hughes-Hassell 2009; Massey 2009). Numerous participants spoke of their “personal skills,” “knowledge,” and “expertise” in technology use and integration, all of which were recognized as enablers for respondents’ involvement in technology integration. Respondents also attributed their involvement in technology integration with expertise in other areas, such as instruction, assessment, and accommodating diverse learning styles.

This awareness of internal enablers suggests that self-confidence in their technology-integration expertise, and opportunities to build this sense of efficacy in their leadership abilities based on knowledge and skills are vital to facilitating leadership enactment. It is the assertion of this researcher that school librarians do have a unique expertise that presents the opportunity for leadership in the integration of technology.

Implications
This research serves as the initial identification of enablers and barriers that accomplished school librarians experience when enacting—or attempting to enact—a technology-integration leadership role. While the overall goal was not generalizability, the results of this research have implications of interest to the school library profession as a whole.

Research and Literature
Currently, very little research exists that examined leadership roles of school librarians and none that examined school librarian leadership practices in technology integration. This research addresses that void by contributing needed information about the enablers and barriers to the technology-integration leadership role and practices of school librarians. The findings serve as a foundational piece of research regarding the role of school librarians as technology leaders and provide a starting point for future investigations of technology-integration leadership by school librarians.

Conceptual Framework
The need for and the creation of an adapted framework to classify the enablers and barriers to technology-integration leadership enactment is an important aspect of this study. Zinn’s (1997) teacher-leadership conceptual framework of enablers and barriers was applied in the context of school librarians as teacher leaders in technology integration since no enablers and barriers were identified in the school-librarianship literature. This framework is most relevant and applicable to this study of school librarians as technology-integration leaders, because of the informal nature of the role and the expectation for school librarians to lead teachers in the area of technology integration. This study finds that while some of the factors that can both enable and constrain school librarians’ leadership of teachers are the same factors that will impact school librarians in enacting leadership in technology integration, many enablers and barriers are unique to the school librarian’s role. This realization established the need for
the creation of the adapted framework, “Johnston’s Domains of Enablers and Barriers to School Librarian Technology Leadership” (see figure 2).

**Figure 2. Adapted framework: Johnston’s domains of enablers and barriers to school librarians’ technology leadership. Italics indicated additions to Zinn’s framework.**

<table>
<thead>
<tr>
<th>Domain 1: People and Interpersonal Relationships</th>
<th>Domain 2: Institutional Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENABLERS</strong></td>
<td><strong>BARRIERS</strong></td>
</tr>
<tr>
<td>-Personal support system at work (other teachers)</td>
<td>-Lack of personal support at work (other teachers - resistant to change, opposed to technology integration efforts)</td>
</tr>
<tr>
<td>-Positive working relationship with school administrators</td>
<td>-Passive or active opposition from administrators in sharing authority</td>
</tr>
<tr>
<td>- Mentorship or modeling relationship from respected colleagues</td>
<td>-Tense relationship with principal or school administrators</td>
</tr>
<tr>
<td>-Collaborative team work with teachers</td>
<td>-Lack of collaboration, teachers work on their own</td>
</tr>
<tr>
<td>-Mutual respect and interdependency of the staff</td>
<td>-Lack of professional respect from other staff, resentment</td>
</tr>
<tr>
<td>-Supportive relationship with district library personnel</td>
<td>-Lack of support from district library personnel</td>
</tr>
<tr>
<td>-Collaborative relationship with school-based instructional technology specialist</td>
<td>-Competitive relationship with school-based instructional technology specialist</td>
</tr>
<tr>
<td>-Support from membership in professional organizations</td>
<td><strong>ENABLERS</strong></td>
</tr>
<tr>
<td></td>
<td>-Provision of necessary resources (e.g. funding, personnel, time, technology)</td>
</tr>
<tr>
<td></td>
<td>-Flexible scheduling (full-time clerk, 2nd school librarian)</td>
</tr>
<tr>
<td></td>
<td>-Adequate staffing for technology and digital collections</td>
</tr>
<tr>
<td></td>
<td>-Up-to-date, functioning technology equipment</td>
</tr>
<tr>
<td></td>
<td>-Technical support</td>
</tr>
<tr>
<td></td>
<td>-Serving in a dual role as school librarian and instructional technologist</td>
</tr>
<tr>
<td></td>
<td>-Opportunities for authentic leadership roles and responsibilities</td>
</tr>
<tr>
<td></td>
<td>-Ongoing opportunities and time for formal and informal leadership training</td>
</tr>
<tr>
<td></td>
<td>-Clearly defined role definitions (leadership roles and responsibilities)</td>
</tr>
<tr>
<td></td>
<td>-Climate of collaboration and collegiality</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain 3: Personal Considerations and Commitments</th>
<th>Domain 4: Intellectual and Psycho-social Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENABLERS</strong></td>
<td><strong>BARRIERS</strong></td>
</tr>
<tr>
<td>-Support and encouragement of family members and friends</td>
<td>-Lack of support or active discouragement from family and friends</td>
</tr>
<tr>
<td>-Resources to meet the demand of everyday life (e.g. financial)</td>
<td>-Family or other responsibilities that conflict with leadership roles</td>
</tr>
<tr>
<td>-Major life transitions or crisis</td>
<td>-Personal health issues or concerns</td>
</tr>
<tr>
<td>-Continued good health</td>
<td>-Cultural and/or religious values that conflict with responsibilities</td>
</tr>
<tr>
<td>-Cultural and/or religious values affirming leadership efforts</td>
<td><strong>ENABLERS</strong></td>
</tr>
<tr>
<td></td>
<td>-Strong personal beliefs and values that demand excellence</td>
</tr>
<tr>
<td></td>
<td>-Sense of obligation to get involved in technology integration</td>
</tr>
<tr>
<td></td>
<td>-Perception that one can make a difference in the lives of students and colleagues</td>
</tr>
<tr>
<td></td>
<td>-Commitment to learning, staying current, and continual professional growth (informal, self-motivated)</td>
</tr>
<tr>
<td></td>
<td>-Technology expertise (technical skills, but also integration for instructional purposes expertise)</td>
</tr>
<tr>
<td></td>
<td>-Experience</td>
</tr>
<tr>
<td></td>
<td>-Education or personal knowledge/skills</td>
</tr>
</tbody>
</table>

**Theory**

The findings of this research have implications for the distributed-leadership theoretical foundation. This research is the initial application of distributed-leadership theory to the examination of the technology-leadership role of school librarians; this study contributes to the ongoing research into distributed leadership as a viable model for leadership in schools. The distributed-leadership theoretical proposition that necessitates understanding how aspects of a situation can enable or constrain leadership practice is supported in this
research because the identification of these enablers and barriers contributes to the understanding and definition of the technology-integration leadership role for school librarians.

However, this study also has implications that illuminate the limitations of distributed-leadership theory. The findings from this study reveal that many challenges must be addressed for distributed leadership to be implemented as intended; the findings reinforce the idea that the principal is key to distributed leadership. Distributed leadership requires true delegation of responsibility and authority, and without principal support distributed leadership cannot succeed. Further examination and clarification are needed regarding the role of principals in distributed leadership, as well as investigations into how leadership can effectively be distributed and to whom.

**School Librarian Preparation**

Identification of the enablers and barriers that accomplished school librarians encounter when attempting to enact a technology-integration leadership role is valuable information for professors working with pre-service school librarians; this knowledge of enablers and barriers also has implications for school-librarian-preparation programs. Future school librarians can be taught how to identify enablers and to develop strategies to use them to their advantage. Conversely, pre-service school librarians can also be taught to identify barriers that even the most accomplished school librarians encounter and to develop strategies for reducing and overcoming the barriers in future practice.

The findings from this research can be useful for planning curriculum to better prepare school librarians to assume active leadership roles. School-librarian-preparation programs should help pre-service school librarians to develop competencies that support the concept of teacher leadership and teach leadership skills, such as effective communication, relationship building, problem-solving, conflict resolution, time management, and other skills that will prepare school librarians to assume leadership roles.

**Practice**

The primary implication of this research is the identification of the enablers and barriers that can facilitate and constrain accomplished school librarians’ involvement in technology-integration leadership. The ambiguity surrounding the technology-integration leadership role has resulted in school librarians who are uncertain how to perform this role in practice. This research informs practice by providing support for school librarians by identifying factors that will enable enactment and by identifying barriers that must be overcome to achieve this vital role in practice. These findings are useful to furthering the understanding of this role for practicing school librarians who seek to enact or expand their leadership role in technology; the findings also serve as a foundation on which to build strategies that can be implemented in practice.

**Future Research**

This identification of what facilitates or constrains accomplished school librarians’ technology-integration leadership provides for many areas of future research. This research to investigate the enablers and barriers experienced by school librarians,
affecting their ability to enact a leadership role, should be replicated with a broader population to include all certified school librarians nationwide, thereby expanding the population studied; replication with a larger sample would serve as comparison research and contribute to the reliability of the new instrument used in this study, as well as the newly created framework resulting from this study.

Future research should also allow for a mixed-method design that would include participant interviews as follow-up to the survey data collection; these interviews would allow researchers to delve further into the experiences of practicing school librarians, and in the process, develop a more nuanced understanding of what facilitates or constrains technology-integration leadership.

Several of the enablers and barriers identified in this study require further investigations. The competitive relationship with instructional technologists emerged as one of the most frequently noted barriers, and further research examining the roles of school librarians and instructional technologists is needed to determine responsibilities, overlap, effectiveness, role clarification, and collaboration opportunities. Respondents also identified as an enabler serving in a dual role as both the school librarian and the instructional technologist. This is yet another emerging role that needs clarification and definition. Research that examines the roles of the school librarian, the instructional technologist, and/or school librarians serving in a dual role may provide important insights to support future role designations.

Another enabler, professional organizations, needs further research to examine exactly which professional organizations respondents are referring to and which they find most beneficial. The importance of professional organizations is evident in the frequency with which they were named as an enabler and activities of professional organizations such as conferences, workshops, and journals were also identified as professional development. Very little research has examined school librarians’ membership in professional organizations; exploration of possible associations between active participation in professional organizations, relationships with colleagues, professional development, expertise, and leadership enactment would yield useful insights that could inform practice, and guide officers and staff of professional organizations as they serve their members.

This study reveals that the support of principals and teachers is vital in facilitating school librarians’ technology-integration leadership. Further research needs to be conducted to examine relationships between school librarians and other members of their school communities in the context of technology integration. Because of their overarching influence, further investigation of principals’ actions and attitudes as enablers and barriers would be particularly useful. This survey could be adapted for populations of principals and teachers to gain insight into their perceptions of school librarians as technology-integration leaders.

**Conclusion**

This research serves as the initial identification of enablers and barriers that school librarians experience when attempting to enact leadership role in technology integration and has
implications of interest to the school library profession. The most frequently occurring enablers facilitating school librarians’ technology integration leadership are a supportive principal, opportunities for a leadership role and responsibilities, the desire to make a difference for students and teachers, professional development opportunities, and a sense of obligation to get involved. While the barriers identified most frequently as constraining technology integration leadership are time, exclusion from a leadership role and responsibilities, lack of funding, and inadequate staffing. Many enablers unique to school librarians emerged, such as support from professional organizations, support from district library administrators, serving in a dual role as school librarian and technology specialist, and technology expertise. While barriers identified by school librarians that differ from those identified by teacher leaders include competitive relationships with instructional technologists, lack of support at the district level from a library administrator, and lack of technology expertise. The findings from this research contribute to the understanding of this role, propose a framework for future inquiry, and serve as a foundation on which to build research-based strategies to support practicing school librarians seeking to overcome barriers, and conversely, to highlight those factors that enable this vital role to be achieved in practice.

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**Cite This Article**
<http://www.ala.org/aasl/slr/volume15/johnston>

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Strengths and Opportunities: School Librarians Serving Students with Special Needs in Central New York State

Renee F. Hill, Assistant Professor, School of Information Studies, Syracuse University

Abstract

The programs and services offered at school libraries will be accessed by K–12 students with a range of physical and cognitive abilities. School librarians must be equipped to address the information-seeking needs of all patrons, including those with special needs. An electronic survey was conducted to collect data from school librarians working in central New York State school districts; the purpose of the survey was to identify the strengths this group of school library professionals brought to the task of providing services to students with special needs.

This paper shares the answers to five research questions and presents opportunities for improvement. Study results indicate that the respondents showed strength in several of the examined areas. Results also reveal practices that school librarians might implement to increase and improve library services for students with special needs.

Introduction

The once-popular depiction of school librarians as stern, student-shushing, book-shelving, paraprofessionals has been replaced with a more appropriate understanding of school librarians’ role in the school community. School librarians are certified information specialists who are also trained educators with the ability to reach every student in the school environment (Franklin 2011). At one time, school librarians operated separately from classroom teachers and were generally called upon only to relieve classroom teachers of instructional duties during break time (Franklin 2011). The expectation today is that school librarians will seek opportunities for instructional delivery by collaborating with general and special educators to meet all students’ needs (Dow 2010; Franklin 2011; Zmuda and Harada 2008).

Study Purpose and Research Questions

During the 2007–2008 school year (the most recent year for which statistics are available), approximately 6.6 million students in America’s public schools had some type of disability (IES
2009a). Because of the large number of students with special needs, school librarians must have an understanding of their unique education and information needs and be prepared to meet these needs through the library program (Allen and Hughes-Hassell 2010). This study was conducted to collect data from school library practitioners in school districts in central New York State. The inquiry is a pilot test that replicates a Master’s thesis study conducted by Kendra Allen (2008) and was intended to gather data that will guide the design of a broader national study. Study results highlight the participants’ current strengths and show areas where reported challenges present opportunities for success regarding school librarians’ interactions with students with special needs. Analyzed data can serve as a useful first step in discussing how school librarians might position themselves to meet the needs of all 21st-century learners, regardless of their cognitive or physical abilities.

Five questions were explored via the study:

1. How do school librarians rate their knowledge level of best practices for serving students with special needs?
2. What resources do school librarians use to become informed about best practices for serving students with special needs?
3. How do school librarians rate their knowledge level of the students with special needs enrolled at their schools?
4. What types of services and accommodations do school librarians offer to students with special needs?
5. What level of collaboration do school librarians have with special education teachers?

**Literature Review**

The Individuals with Disabilities Education Act (IDEA) was implemented to ensure that students with special needs would have opportunities to receive free, appropriate educations equivalent to those of their peers without physical disabilities, health impairments, or cognitive challenges (U.S. Dept. of Ed. n.d.). IDEA’s tenets do not apply only to the traditional classroom; they must also be present in all areas of the school environment, including the school library. Numerous studies have concluded that students who attend schools with certified school librarians have higher achievement levels (as measured through standardized tests) than their counterparts who do not. (Examples include Lance 2002; Small, Snyder, and Parker 2009.)

Concern about K–12 school library services for students with special needs is not a new topic. An edited book published almost three decades ago (Macon 1982) included contributions from seven researchers about subjects as varied as “characteristics of the handicapped” and “selecting materials for the mainstreamed library.” While much of the terminology in the book is outdated, the core purpose remains relevant: School libraries and librarians must play an active role in educating students with special needs.

Recent literature related to the school librarian’s role in special education presents sound practical perspectives. Allen, for example, examined “the relationship between school library media programs and special education programs [in North Carolina] in the context of meeting

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1 The term “students with special needs” refers to Pre-K–12 students who are eligible for special education services as defined by the Individuals with Disabilities Education Act <http://idea.ed.gov>.

2 The state of New York has the third-largest population of K–12 students with disabilities enrolled in public schools in the U.S. (IES 2009b).
the unique needs of students with disabilities” (Allen 2008). Alana M. Zambone and Jami L. Jones (2010) provided an outline of the various types of learning challenges that might be present in a school environment. Colleen Brind’Amour’s (2010) survey of school librarians and special educators in Western New York State exposed gaps in perception about the level and quality of library experiences for students with special needs. In 2011 I shared perspectives from pre-service school librarians; these perspectives could be useful for shaping LIS curriculum in the area of preparing future practitioners for serving individuals with disabilities in K–12 environments (Franklin 2011).

The United States is not the only country where the relationship between school librarianship and special education has been examined. For example, in 1999 Janet Murray considered the effectiveness of training made available to Australian school librarians to prepare them to serve students with special needs. Vida Jouzatis (2004) contemplated best practices in Canadian school libraries for serving students with specific learning disabilities. Abdullah Abrizah and Ruslina Ahmad (2010) examined barriers to service provision to “special education needs” students enrolled in schools in Malaysia.

Many opportunities for additional research around the topic of library services for students with special needs exist, as is illustrated in the results of the third phase of a study conducted by a team of researchers who examined school librarians’ impact on public school students throughout the state of New York. The researchers found that respondents reported lower knowledge levels about serving students with special needs than any other topic about which school librarians were asked (Small, Shanahan, and Stasak 2010). The study results were important for measuring the New York librarians’ perception of their ability to serve students with disabilities. New research efforts and subsequent reports must facilitate dialogue about the various methods school librarians use to effectively teach students with special needs how to seek, manage, and use information. This study contributes to such literature.

Methods

Participant Recruitment
Study participants were recruited from the area served by one of New York’s largest Boards of Cooperative Educational Services (BOCES)3, which provides services to the school districts in three counties in the central New York region. The school librarians in the one school district in the region that does not receive BOCES services were also contacted. Each school librarian in the BOCES and individual school district (a total of 157 individuals) was sent an e-mail explaining the study’s purpose; the message included a link to the electronic survey questionnaire.

Survey Instrument
The electronic questionnaire consisted of twenty items that allowed respondents to reflect upon their experiences related to providing library services to students with special needs. The survey instrument contained fifteen multiple-choice items, three open-ended items, and two Likert-type scale items. While the survey was not timed, it is estimated that participants were able to finish

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3 New York’s BOCES support schools by providing a broad range of “shared educational programs and services to school districts within the state” (BOCES of New York State, 2011).
the questionnaire within ten to twelve minutes. To protect participants’ confidentiality, no identifying information (such as IP address, personal contact information, or school district name) was collected. Demographic information collected pertained to such characteristics as respondents’ work environment and years of service.

Study Limitations
A call for participation was issued during the last three weeks of the school year. The researcher believes this resulted in a low response rate. The responses represent a convenience sample of a very small section of school librarians in the specified school districts. Because of the low response rate, the results cannot be considered representative of the entire target population, nor can they be generalized to make predictions about other populations (such as other New York State school districts).

Findings

Demographic Data
Fifty school librarians accessed the electronic questionnaire; forty-three submitted responses that contained complete information (27 percent of the total possible participants). Eighteen respondents provided library service at elementary schools, seven at middle schools, twelve at high schools, and six respondents worked in other types of school settings. These settings include K–8 schools, schools serving students in grades 7 through 9, and schools that serve students in grades 8 and 9. Two respondents “float” between two or more schools in their district.

Respondents represented a broad range of experience. Nine school librarians had been providing service for five years or less; ten respondents had been school librarians for six to eleven years; fourteen respondents had been delivering service for twelve to seventeen years, and ten had been school library administrators for eighteen years or more. None of the respondents had earned National Board Certification.

RQ 1: Knowledge Level of Best Practices for Serving Students with Special Needs
The first research question asked: How do school librarians rate their knowledge level of best practices for serving students with special needs? To answer this question, the school librarians used a scale to rank their level of knowledge about best practices for serving students with special needs (a score of 1 indicated no or very little knowledge, a score of 5 indicated high knowledge). The majority of respondents (n = 22 or approximately 51 percent) ranked themselves as having average knowledge (a score of 3) about how best to serve students with special needs. Eleven (approximately 25 percent) ranked themselves as 4, indicating that they had a moderate level of knowledge. Six respondents (almost 14 percent) indicated that they had a moderately low level of knowledge (a score of 2), and only four librarians (about 9 percent) reported having a high level of knowledge about the best ways in which to serve the unique needs of students enrolled in a special education program. No respondent indicated having no or a very low knowledge level. Table 1 contains these responses.
Table 1. Knowledge of Best Practices in Special Education

<table>
<thead>
<tr>
<th>Knowledge Level</th>
<th># of Respondents</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (no/little knowledge)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>13.9</td>
</tr>
<tr>
<td>3 (average knowledge)</td>
<td>22</td>
<td>51.2</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>25.6</td>
</tr>
<tr>
<td>5 (high knowledge)</td>
<td>4</td>
<td>9.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>43</td>
<td>100</td>
</tr>
</tbody>
</table>

RQ 2: Resources Used to Learn of Best Practices for Serving Students with Special Needs

Research question two was posed as: What resources do school librarians use to become informed about best practices for serving students with special needs? One of the goals of this study was to learn more about print, electronic, and other resources that school librarians consult to become more knowledgeable about best practices. With respect to print and electronic resources, an open-ended question was included in the survey questionnaire that allowed school librarians to share the names of the publications and Web resources they regularly peruse. The respondents indicated being readers of a wide variety of professional literature. Respondents frequently listed Booklist, School Library Journal, School Library Monthly (formerly School Library Media Activities Monthly), and Knowledge Quest as publications read on a regular basis. Study participants also indicated visiting a number of library-related electronic resources including websites, blogs, and wikis. However, the range of these resources was so large that a concise itemization could not be produced.

Survey respondents were asked to make a distinction between how they actually receive information about best practices for serving students with special needs and how respondents would prefer to do so. One questionnaire item allowed respondents to select multiple options from a list of nine potential information sources to indicate all of the ways they receive information about best practices. A second item presented the same list of information sources but allowed for only one selection so that each respondent’s preference could be recorded. The top five ways school librarians actually received information were from special education teachers (88 percent), other school librarians (30 percent), general education teachers (28 percent), professional literature (26 percent), and school-sponsored professional development (26 percent). The top five ways school librarians would prefer to receive best-practice information were similar. However, different from how they actually received best-practices information, the respondents reported that in addition to receiving information from special educators (59 percent), other school librarians (9 percent), or general educators (9 percent), they would also like to have information presented to them from professional development activities offered through their school district or BOCES (9 percent), or by attending professional conferences (7 percent). Figures 1 and 2 present respondents’ actual and preferred methods for becoming informed about special education best practices.
Figure 1. Sources of information about general best practices for serving students with special needs and numbers of respondents using each source.

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>7</td>
</tr>
<tr>
<td>Other school librarians</td>
<td>13</td>
</tr>
<tr>
<td>Special education teachers</td>
<td>38</td>
</tr>
<tr>
<td>General education teachers</td>
<td>12</td>
</tr>
<tr>
<td>Professional literature</td>
<td>11</td>
</tr>
<tr>
<td>Library-related electronic resources</td>
<td>8</td>
</tr>
<tr>
<td>School sponsored professional development</td>
<td>11</td>
</tr>
<tr>
<td>District/BOCES sponsored professional</td>
<td>9</td>
</tr>
<tr>
<td>Attending professional conferences</td>
<td>10</td>
</tr>
<tr>
<td>Do not receive this information</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 2. Preferred sources of information about general best practices for serving students with special needs and number of respondents preferring each source.

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>0</td>
</tr>
<tr>
<td>Other school librarians</td>
<td>4</td>
</tr>
<tr>
<td>Special education teachers</td>
<td>24</td>
</tr>
<tr>
<td>General education teachers</td>
<td>4</td>
</tr>
<tr>
<td>Professional literature</td>
<td>1</td>
</tr>
<tr>
<td>Library-related electronic resources</td>
<td>1</td>
</tr>
<tr>
<td>School sponsored professional development</td>
<td>1</td>
</tr>
<tr>
<td>District/BOCES sponsored professional</td>
<td>4</td>
</tr>
<tr>
<td>Attending professional conferences</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>
RQ 3: Knowledge about Serving Students with Special Needs

Research question 3 was: How do school librarians rate their knowledge level of the students with special needs enrolled at their schools? Three questionnaire items addressed this question. First, study respondents ranked their perceived level of knowledge about the students with special needs that access their school library programs. The majority of the school librarians (n = 20 or just over 46 percent) believed that they had moderate knowledge (a score of 4) of the special education students in their school environment. Twelve respondents (almost 28 percent) perceived themselves as having average knowledge (a score of 3) about their special education students. Six librarians (13.9 percent) reported a moderately low knowledge level (a score of 2) and five (11.6 percent) believed they had a high level of knowledge concerning students with special education needs in their schools.

Similar to the method used to determine sources of information about best practices, two items asked respondents to consider seven options, and then indicate all of the ways they actually received information about students enrolled in special education programs in their schools. Respondents were then asked to indicate the one method they most preferred. The librarians reported receiving information via multiple means including special education teachers (79 percent), general education teachers (30 percent), individualized education plans (IEPs) (7 percent), and the principal and parents (both 5 percent). When required to choose a preferred method for receiving this type of information, the majority of study respondents (n = 36 or 84 percent) indicated that they preferred to receive information about the special needs students in their school from special education teachers. Only four respondents would prefer to receive information from their principals or from general education teachers, and three suggested attendance at meetings other than IEP meetings would be their preference. No respondents selected parent interaction or attendance at IEP meetings as preferred methods.

RQ 4: Services and Accommodations Offered

The fourth research question asked: What types of services and accommodations do school librarians offer to students with special needs? Survey respondents were able to select as many options as were applicable to indicate materials they purchase specific to educating students with special needs, modifications librarians make to the library, and modifications they make in instructional delivery. The school librarians surveyed for this study implemented a wide array of materials specific to meeting the needs of special learners in their respective school environments. Forty respondents (93 percent) indicated that they include books with high interest level and low reading level in their collection. Thirty-three librarians (77 percent) offer audio books as selections for students. Thirty librarians (70 percent) select materials that accurately portray children and youth with special needs. Figure 3 contains a complete listing of responses to this item.

With regard to physical library space, 74 percent (n = 32) of the responding librarians indicated that their school libraries had wide aisles so that students with wheelchairs (and other ambulatory devices) could easily navigate the environment. Fifty-eight percent (n = 25) have libraries with computer stations built high enough to accommodate an individual using a wheelchair. Forty percent (n = 17) of the respondents make sure to place frequently used materials on shelves that are easily reached by students with physical disabilities.

Some school librarians responding to the survey assisted students with special needs by including their family members in library services. For example, thirteen librarians (30 percent) allow parents to check out materials from the school library. Seven respondents (16 percent)
have information in their collections about specific disabilities; the same number of librarians also includes resources that address parenting and child-development concerns.

**Figure 3. Library materials included in the collection for the benefit of students with special needs and the number of respondents reporting inclusion of each type of resource.**

<table>
<thead>
<tr>
<th>Accommodation Type</th>
<th># of Respondents</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low reading level/high interest books</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Large-print books</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Audio books</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Books with accurate and non-stereotypical portrayals of children and youth with disabilities</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Print materials suggested by special programs teachers</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Assistive technology devices</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>The school library does not offer materials for students with special needs</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Other (unique answer supplied)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

One item allowed respondents to select all of the accommodations and/or modifications they make in delivering instruction to students with special needs; respondents were also able to insert their own words to describe in-use instructional modifications that did not appear on the list in the survey instrument. The most frequently selected accommodation was repetition of instruction (n = 32 or 74 percent). Almost the same number of respondents (n = 31 or 72 percent) indicated that they adjust the pace of their instruction and use visual cues to assist students. Individualized instruction about how to use library facilities is provided to students with special needs by twenty-four librarians (56 percent). Twenty-three respondents (53 percent) pair students without disabilities with students who have special needs during library instruction activities. **Table 2** contains information about instructional delivery accommodations.

**Table 2. Accommodations Made for Instructional Delivery (multiple selections possible).**

<table>
<thead>
<tr>
<th>Accommodation Type</th>
<th># of Respondents</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition of instruction</td>
<td>32</td>
<td>74</td>
</tr>
<tr>
<td>Adjust pacing of instruction</td>
<td>31</td>
<td>72</td>
</tr>
<tr>
<td>Use visual cues or reminders</td>
<td>31</td>
<td>72</td>
</tr>
<tr>
<td>Guided or individualized instruction on how to use library</td>
<td>24</td>
<td>56</td>
</tr>
</tbody>
</table>
Pairing students with special needs with students who do not have special needs

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust group size</td>
<td>16</td>
<td>37</td>
</tr>
<tr>
<td>Use picture books with large, clear illustrations</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Other (unique answer supplied)</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>Use big books</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>No accommodations made</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

RQ 5: Collaboration with Special Education Teachers

The final research question examined through this study was: What level of collaboration do school librarians have with special education teachers? Twenty-eight school librarians (65 percent) indicated having collaborated with special educators at some point during their careers. Collaborative activities almost exclusively occurred through instructional activities involving special education teachers; only two respondents had attended IEP meetings, and only one had helped to create IEP goals.

Discussion

The data described above help to illustrate the strengths of the survey participants. The following sections discuss what the collected data imply about opportunities for the respondents to expand and improve services for students with special needs.

Knowledge Levels

No respondents indicated having no or very little knowledge of general best practices for educating students with special needs or the students enrolled in special education in their respective schools; very few indicated having a moderately low level of knowledge in these areas. High knowledge level in both areas is a goal to strive for because understanding general issues related to special education and having specific knowledge about patron needs allows school librarians to design and/or modify programs and services to make the library welcoming and useful for all who enter.

Use of Resources

One way that educators can stay abreast of current and emerging issues related to students in general—and those with special needs specifically—is to read literature written by researchers and practitioners. Respondents listed a wide variety of print and electronic resources that informs their professional activities. These resources ranged from research-inclusive journals (e.g., Knowledge Quest) to highly practitioner-focused magazines (School Library Journal). None of the respondents indicated reading publications that were specific to special education. As was communicated by more than one respondent, a school librarian’s schedule leaves little time available to read professional literature. However, in addition to the experience gained by actually working with students with special needs, school librarians can be exposed to important
issues about this population by reading articles and web-based documents that inform them about library and special education practices.

Almost all of the school librarians who participated in this study receive information about best practices and students enrolled in special education at their schools from sources such as general educators, special educators, professional development activities offered in their respective schools and districts, and attendance at professional conferences. However, a surprising finding was that only two respondents actually receive information about students with special needs at their schools from the children’s parents and none preferred to get information from parents. Parents are not necessarily frequent users of school library materials, but they can be integral members of a school library program (LaBoon, Salerno, and Meraz 2010; Pipkin 2009). Parents of students with special needs are particularly useful resources because they can share valuable first-hand insight regarding solutions to accessibility challenges (Copeland 2011). School librarians can benefit from the knowledge parents have to offer by inviting them to contribute as library volunteers.

**Library Services and Accommodations**

The school librarians surveyed showed particular strength in the range of instructional accommodations they were able to implement. In fact, only one respondent did not adjust instructional practices to address any special educational needs. All of the school librarians who participated in the survey reported that they include in their collections materials that address specific needs and interests of students with disabilities (including, in addition to the listed options, Braille books). This finding is particularly relevant because to fully serve library patrons, all students’ needs must be taken into consideration (Copeland 2011). These data indicate that the librarians in the sample are aware of the importance of providing materials for students of varying abilities.

Most of the respondents work in school libraries that adjust the library space to accommodate the needs of patrons with physical limitations. Apart from the options available for selection, three respondents also reported that the computers in their libraries offered touch screens and modified keyboards. However, ten respondents work in school libraries with no existing modifications for students with special needs. It is possible that these librarians work in schools where no students need modified environments to fully access the library and its materials. However, it is important for school librarians to be vigilant about moving toward incorporating universal design principles to enable access to the largest range of patrons (Blue and Pace 2011).

Based upon survey responses, one area with potential for advancement is in library services offered to the families of students with special needs. While thirteen school librarians indicated that they allowed parents to check out library materials, and fourteen have resources in their collections that address parenting and child-development issues as well as information about specific disabilities, most study participants (n = 25 or 58 percent) do not offer services designed to provide information to families of students with disabilities. Including family members in school library programs and services is not a state or federal mandate. However, creating an environment that is welcoming to and inclusive of parents and other family members who care for students with special needs helps school librarians to foster a sense of concern and mutual respect between the school librarian and members of the students’ family.
Collaboration with Special Educators

Twenty-eight respondents have worked collaboratively with special educators; twenty-six shared examples of these collaborative efforts, which included such activities as preparing unit plans and consulting with special education teachers so that needed materials would be available to their students. Because special education teachers have been extensively trained to design instruction for students with special needs, it is imperative that school librarians seek their expert input when planning library programs and services (Farmer 2009; Franklin 2011). So while it is positive to note that a number of the school librarians surveyed have been involved in collaboration with special educators, an opportunity for improvement in this area is readily apparent because the collaboration percentage is not close to 100. School librarians must seek opportunities to align themselves with the educators who work daily with students with special needs. To assess and improve school librarians’ own instructional design methods, as well as accommodations needed in the school library space, librarians can draw upon knowledge and experience of special education teachers.

Another opportunity for collaboration comes in the form of IEP construction. Only two school librarians indicated having attended IEP meetings, and only one contributed to goals and objectives included in this important plan that guides a student’s education. Because of school librarians’ myriad responsibilities, it may not be probable or even possible for them to be present at IEP meetings. However, school librarians—in consultation with special education teachers and administrators—should have the opportunity to contribute information-literacy goals to IEPs so that students with special needs will be able to participate to the fullest extent possible in the programs and services the school library has to offer (Farmer 2009).

Additional Opportunities

While this study focuses on the strengths possessed by a specific population of existing school librarians, as well as on areas where opportunities for growth might be considered, the responsibility for leveraging these opportunities does not rest solely with K–12 school librarians. Data collected in the study suggest several potential areas of opportunities for other individuals with some level of involvement with school libraries and school librarianship.

More than one survey respondent indicated that exposure to concepts related to serving students with special needs would have been a useful component of LIS Master’s program studies. This perspective affirms Franklin’s 2011 article about the importance of preparing pre-service school librarians to serve students with special needs. Students enrolled in a school library certification program who served as study participants believed that school library programs should include a full course or, at the very least, readings and assignments to specifically address methods for serving students with special needs in the school library. Data presented in the former study and in the current investigation indicate that an opportunity exists for the colleges and universities responsible for preparing school librarians to implement changes in curriculum to include education about the role that librarians will play in educating special learners in the K–12 environment.

A majority of the survey respondents both currently receive and prefer to receive information about best practices to use with students with special needs from special education personnel. Fewer school librarians reported receiving or preferring to receive this information through their schools or school districts. This circumstance presents an opportunity for building-level
administrators and school districts to offer professional-development seminars led by special educators (from within or outside the school or district) that expose school librarians to best practices for strengthening their provision of service to students with special needs.

Conclusion
School librarians are innovative information specialists who are capable of serving all students, regardless of abilities or special needs. Data analyzed for this study were collected from a selection of individuals so small that the results cannot be generalized across populations. Additional research is needed to collect data from a statistically representative sample of school librarians. However, the results of this study can be used to infer potentially useful methods for assisting school librarians in ensuring that—in the words of one respondent—“students with special needs have equal access to materials and instruction.”

Works Cited


Cite This Article


School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

The mission of the American Association of School Librarians is to advocate excellence, facilitate change, and develop leaders in the school library field. Visit the AASL website for more information.
The Status of Statewide Subscription Databases

Karla S. Krueger, Assistant Professor, School Library Studies Division, Department of Curriculum and Instruction, University of Northern Iowa

Abstract
This qualitative content analysis presents subscription databases available to school libraries through statewide purchases. The results may help school librarians evaluate grade and subject-area coverage, make comparisons to recommended databases, and note potential suggestions for their states to include in future contracts or for local purchase. All states had similar periodicals’ indexing vendors; therefore, this study’s focus was online subject reference databases. Results portrayed seventy-nine unique databases across thirty-three states analyzed. Most states studied (81 percent) had a wide variety of online reference subject content; twenty states (61 percent) included one or more general reference databases; seven states with no general reference had a range of titles in health, literary criticism, science, history, biography, and/or art. However, not all content areas were equally represented: examples: health (61 percent), literary criticism (55 percent), science (42 percent), history (39 percent), biography (33 percent), and arts (15 percent). There was disparity in six states with no general reference and gaps in subject coverage. In one state, the only secondary reference tool available was NoveList for readers’ advisory. Another state’s only secondary subject reference title was HeritageQuest. Additionally, pro/con databases, readers’ advisory, and elementary general reference online databases were available in just over half of the states (51 percent); access to general encyclopedias online was offered by only 48 percent of states surveyed.

Literature Review
Growing Demand for Complex Text
The Common Core State Standards (CCSS) have impacted the school curriculum, including information literacy. Rebecca Hill explained that complex texts span the curriculum from math and science to literature and history with subtle, but important, differences among texts from various genres. Six elements comprise a complex text, in the “RSVP” definition:

1) Relationships [are] subtle...among ideas and character
2) Sophisticated information
3) Structured organization
4) Style, tone and use of language are often intricate
5) Vocabulary is demanding and highly contextual
6) Purpose of the text is implicit though sometimes ambiguous (ACT Educational Services 2006)” (Hill 2011, 43)

Complex texts expose students to complex ideas and often require multiple readings and scaffolding to develop deeper understanding.

The Common Core State Standards’ reading standards specify that text complexity should increase throughout each year so that texts of benchmark grade levels are achieved by the year end. The definition incorporates a “range of text types, with texts selected from a broad range of cultures and periods,” to include literature and informational texts such as “exposition, argument, and functional text in the form of personal essays, speeches, opinion pieces, essays about art or literature, biographies, memoirs, journalism, and historical, scientific, technical, or economic accounts (including digital sources)” (NGACBP and CCSSO, 2010, 57).

AASL’s Standards for the 21st-Century Learner (2007) have been aligned with the Common Core State Standards (CCSS) through the Crosswalk of the Common Core Standards and the Standards for the 21st-Century Learner (2012) available on the AASL website. For example, in the crosswalk AASL standard 1.1.6 “Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning” is matched with Common Core Standard CC.3.R.I.7 “Integration of Knowledge and Ideas: Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).”

**Digital Content Complexity**

The above CCSS definition of complex text suggests inclusion of “digital sources” (2010, 57). Hill explored ways in which digital sources for complex text might be identified. Hill described digital content as a sort of textbook that uses nonfiction as a springboard to include links to video and primary source documents. She noted that no textbooks made the CCSS list of “exemplar texts” (2011, 44), and that schools lack the “time and the necessary expertise to identify resources that will enhance their curriculum” (2011, 45). She concluded that school librarians have the necessary skill set to do intelligent online searching, to assess student readers, and “to determine what a valid useful tool is and what is junk” (2011, 45). Thus, the school librarian’s unique awareness of resource materials nicely merges with the intersection of technology and literacy in the tasks of building digital curriculum resources such as pathfinders and online guides that organize the best complex texts available in a manner useful for meeting the CCSS.

School librarians commonly access and organize a variety of digital content. Doug Johnson’s definition of digital resources provided a concrete outline of seven varieties of sources that may be part of school library collection management through purchase or subscription:

- Online databases such as full-text periodicals (EBSCO, ProQuest, InfoTrac)
- Online reference sources (ABC-CLIO, Facts on File, H.W. Wilson, World Book Online, Encyclopaedia Britannica Online)
- Streaming video collections (United Streaming, PowerMediaPlus)
- Commercial search engines (netTrekker, C.E.R.F)
- E-books (Thomson Gale, NetLibrary, Follett)
Online tutorial services (Atomic Learning)
Software licenses for productivity and curriculum programs (Microsoft Office, Inspiration, Accelerated Reader). (2007, 46)

Although this definition expresses librarians’ understanding of digital content, the line between digital subscriptions and free Web content is often unclear to teachers, a circumstance which further emphasizes the need for school librarians to be specialists involved in digital content organization. Theresa D. Williams, Bonnie J. Grimble, and Marilyn Irwin (2004) found that if teachers were unfamiliar with subscription content, they resisted requiring students to use it. Williams et al. explored 164 high school teachers’ opinions of electronic resources and how these opinions influenced their students’ use of electronic resources in the high school library. These researchers found that if teachers were more familiar with library electronic databases, they were more likely to direct their students to use electronic databases instead of the Web. Accordingly, teachers encouraged use of the Web first if they felt more comfortable with the Web than they did with the databases, even though respondents said they knew databases had more reliable and focused information. These teachers said they found the Web to be “faster, more current, easier to use, and greater in scope of information than electronic databases.”

Williams et al. concluded by calling upon school librarians to design instruction for teachers to help them figure out when and how to direct their students to use electronic resources; to share specifics of how sources differ in scope, currency of information, credibility, reliability, and ease of use; to deliver personal instruction to teachers rather than rely on online tutorials; and to assess database holdings to ensure they meet curricular needs.

Whereas Williams et al. found limitations in teachers’ expectations for digital content and an overreliance on the free Web, Bettina Fabos studied the actual Web content itself and observed how students navigated the commercial environment of the Web, an area of research she said had not yet be adequately studied, in contrast to the plethora of studies about the process of teaching with technology. From a communications-studies perspective, she interviewed and observed elementary, middle, and high school librarians, teachers, and students in one large school district in the Midwest. She learned that despite the conscious efforts of school librarians and collaborating teachers, their diligent instruction in Boolean and advanced searching did not deter students from using only the first page or two of the search results list, which “contained redundant and heavily commercialized Web content—not ‘the whole Web,’ as students supposed” (2002, 60). Moreover, teaching webpage-evaluation skills was “pointless in helping students determine the legitimacy of polished corporate sites that are hugely invested in having an online presence, in appealing to target audiences, and in seeming as credible and trustworthy as possible” (2002, 60). She concluded most students were “more comfortable wading through ads, shopping pages, and redundant sites than they were wading through more comprehensive texts on particular topics” (2002, 58).

Likewise, Lucy Holman Rector’s content analysis of Wikipedia articles in comparison with comparable ones in encyclopedias used empirical data to support concerns about Wikipedia’s accuracy. Wikipedia was less accurate (80 percent compared with 95–96 percent for other reference sources) and had troubling quotations and “verbatim text from other sources with no citations” (2008, 7). In spite of this research, however, librarians reported elementary students (Fontichiaro and Harvey 2010) through college scholars (East 2010) have relied increasingly on Wikipedia for their research.
The above reports of inconsistent use and quality of online sources further validated Hill’s (2011) call for school librarians’ involvement in identification of digital content for helping students meet the CCSS. Finally, the following CCSS and AASL standards resonate with research about the commercialization and political influence on the free Web. CCSS standard CC.8.SL.2 states students should “analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation” (NGACBP and CCSSO 2010, 49). Likewise AASL standard 1.3.2 touts student responsibility to “seek divergent perspectives during information gathering and assessment” (AASL 2007, 4). Fabos argued that however well-intentioned educators may be about having students evaluate the motives and bias behind information, the commercialized Web prohibits student researchers from simply gathering sources with a range of perspectives. She concluded:

...students and researchers looking for noncommercial, or at least nonmainstream, content, trying to gather a wide range of information containing as many disparate viewpoints as possible, or trying to access research that is controversial will not be successful, ultimately, in a research environment controlled by commercial interests. (2005, 521)

Thus, school librarians will benefit from in-depth knowledge of statewide subscription databases of their own and other states as they consider ways to identify and organize content and to increase text complexity to support learning.

Libraries Shifting from Print to Digital

Surveys have shown that school libraries increasingly rely on funding outside the library, especially for periodicals and technology materials (Farmer 2011), and 55 percent expect budget lines will shift (AASL 2010). The national survey School Libraries Count! AASL’s National Longitudinal Survey of School Library Programs: Supplemental Report on Digital Content and Resources tracked movement of print to digital contents (AASL 2010). Although 72 percent of respondents “moved less than five percent of previous hard copy materials to digital content,” 4 percent of schools “report moving 25 percent or more of their materials to digital content.” Most of those reporting extensive reliance on digital content were high schools and schools with over 2,000 enrolled. Elementary schools and other schools with enrollment of less than 999 students were the least likely to have moved their materials to digital formats.

Unfortunately, according to School Library Journal’s Spending Survey, one-third of school libraries showed decreased budgets, and half stayed the same; only an eighth showed an increase. High schools were hardest hit with 40 percent showing decreased budgets; high schools were also most likely to have out-of-date collections (Farmer 2011).

Digital Collection Development

The process of reference-collection management for a school library has always been challenging. The process involves weighing the quality and scope of similar subject reference tools across publishers to select those that best meet curricular needs, while staying within the budget. However recent trends have further complicated the process.
One complicating trend is the merging of reference content into database groupings and providing content in seemingly duplicative ways. For example, global-issues information may be purchased as individual e-books available in a cross-searchable database platform, as a global-issues mega-database, and/or as an interactive portal for global issues—all for the same age level, and all from the same vendor. Mary Ellen Quinn, editor of Booklist’s Reference Books Bulletin, described this confusion over these trends in the subscription database model: “There seems to be much less emphasis on creating content than on serving up existing content in different ways” (2011). Another confusing factor is the frequency of buyouts and mergers of major reference publishers, a circumstance that eventually blurs the line between publisher and vendor.

Another trend in reference-collection management is the shifting of at least a portion of collection purchasing to statewide agencies. In 2011, School Library Journal’s Spending Survey showed that two-thirds of all school libraries reported statewide access to digital resources. Additionally, a quarter of elementary and middle school libraries and just over half of high school libraries purchased digital sources beyond statewide or district purchases. Survey respondents’ spending on “Web-based resources” averaged $3,153 (median of $238), which was 27 percent of the average total budget of $11,384; however, spending on “Web-based resources” was only 3 percent of the median total budget of $7,350 (Farmer 2011, 43) due to the disparity in the budgets. “More than 70 digital products, such as reference titles, database aggregators, and ebooks...were identified by respondents as part of their collections—or subscribed by them” (Farmer 2011, 45). Suppliers of reference titles most frequently mentioned were (in alphabetical order) EBSCO, Gale, ProQuest, SIRS, InfoTrac, JSTOR, Project MUSE, and netTrekker.

School Libraries Count! showed similar trends in schools’ digital subscriptions: “nearly one in two schools (49%) report that their libraries have more than five database subscriptions. This trend is stronger among schools with high enrollment, private schools, the Northeast, Midwest and areas with high poverty” (AASL 2010, 14).

Nancy Everhart, Melissa Johnston, and Marcia A. Mardis also showed a need for digital-resource collection management in their survey of National Board Certified school librarians’ technology leadership. While 76 percent of respondents were involved in collection management for digital resources and 72 percent ensured that students could access these resources beyond school, librarians were less likely to apply evaluative criteria in selection of digital resources (64 percent) or to assess the “effectiveness of digital resources” (56 percent) (2011). Thus, the authors recommended school librarians continue to develop leadership in “processes to systematically collect, manage, and assess the effectiveness of digital resources” (2011).

Summary
In summary, the growing need for complex text identified in the CCSS coincides with an era of increased demand for digital content and potential abandonment of traditional textbooks (Hill 2011). Yet, teachers are constrained for time to develop needed curricular resources. Further, teachers often lack knowledge of electronic databases, a circumstance which increases their likelihood to consent to students citing less-reliable sources from the free Web (Williams, Grimble, and Irwin 2004). The commercialization and political messages on the Web prevent students from being successful when purposely seeking out multiple perspectives (Fabos 2002, 2005). Library budgets are decreasing, and collections are shifting toward more digital content (AASL 2010; Farmer 2011). As a result, school librarians must take on new roles in technology
leadership related to digital-collection management and organization (Everhart, Johnston, and Mardis 2011; Hill 2011). The context of school libraries shows a need for school librarians to be immersed in understanding of the CCSS, collaborative practice, and the Standards for the 21st-Century Learner. Additionally, school librarians need to be vigilant in their understanding of current digital content to support these standards.

Despite these studies pointing to evidence for the need to integrate quality digital resources in the school curricula, empirical research about the contents of those library digital resources—especially online reference and databases that are dividing and combining content in new and sometimes duplicative and confusing ways—is lacking. This study aims to shed light on the contents of those statewide subscription databases and online reference materials.

Method
This qualitative content analysis responds to the overarching research question: What subscription databases and online reference tools should be considered in collection-management decisions at the local school library level, beyond content already provided to schools through statewide purchasing? Specifically, this study examines and portrays data from thirty-three states to help librarians 1) comprehend the status of statewide subscription databases; 2) evaluate the range of grade levels and subject areas covered; and 3) compare state subscriptions to recommended lists of databases.

Qualitative content analysis is explained in “Content Analysis: A Flexible Methodology” by Marilyn Domas White and Emily E. Marsh. Consistent with their depiction, this study makes inferences from a cohesive set of texts within a context. In this case, the texts are the webpages that list each state’s statewide subscription library databases, and the context is the relationship to a local school library’s process for reference-collection management. The text and context are “logically independent” (2006, 27), requiring an analytical construct or inference to connect them—in this case, the curricular use of digital content for supporting K–12 students’ research and learning of complex text (Hill 2011). Thus, the analysis of statewide databases is useful for collection management, which is driven by the local school curriculum. Understanding the subject and grade-level contents of databases that are widely used nationwide and of recommended databases is important for making collection-management decisions to support the curriculum.

White and Marsh (2006) offered selected examples of content analysis in library and information science research, which included prior analyses of webpages for purposes of classifying the contents. Lucy Holman Rector (2007) and Leila June Rod-Welch (2012) have also employed content analysis to analyze Web contents.

In early 2011, in response to a request she had from a U.S. Senator’s staffer, a member of the AASL Forum asked which other states were providing access to online databases. Forum members responded, followed by AASL’s compiling the list of thirty-six states’ links in the Informal Survey on the Availability of Statewide Databases (Habley 2011). A total of thirty-eight states reported the presence of statewide database purchasing. (In addition to the thirty-six initial replies, school librarians from two more states reported links to me during an Exploratorium table session at the 2011 AASL fall conference.) Responses from five of the states were unusable due to a broken link or the inability to even view the list of database titles.
without authenticating with a login and password. It is also notable that no reply was received from eight states, and respondents from four states replied that they had no statewide databases. (Three states had recently lost them due to budget cuts, and a California respondent said an attempt to institute a program had been unsuccessful.) Thus, thirty-three usable states’ webpage links to statewide subscription databases were available for this research; the number of databases counted per state ranged from one to thirty-four (see Appendix A).

Data collection and analysis were completed between October 2011 and February 2012, with all states’ links visited a minimum of two times. Initial coding began with a table of popular database vendors and several well-known popular databases. As states’ database lists were viewed, more databases were added to the initial list. Tallies of databases by state were maintained in an Excel spreadsheet.

Lists of recommended databases were gathered from the following online databases: Children’s Core Collection, Middle and Junior High School Core, and the Senior High Core Collection (H.W. Wilson 2007, 2009, 2010); the Nonbook Materials Core Collection (H.W. Wilson 2011). Other lists consulted were School Library Journal’s lists of top databases (Brisco 2008, 2009, 2010) and a Library Journal “best databases” feature (Guz et al. 2011). These database awards notations and product reviews were integrated into the data analysis.

Finally, to supplement reviews or for products on the list that were not included in a recommended or award list, product descriptions were gathered from vendor websites.

Thus, this study triangulates data from state database lists, core recommended lists, and library periodicals’ awards lists, and from library vendor websites.

Limitations
This research has several limitations. First, this discussion includes only those databases purchased statewide and does not attempt to include purchases at the local level. A second limitation is that not all fifty states’ statewide subscriptions were included; only those who responded to the AASL Forum by providing a link were located and analyzed for this study. A third limitation is that the recommended core lists of databases were undergoing some revision during the time of this study. Over the past few years, H.W. Wilson, publisher of the Children’s Core Collection, Middle and Junior High School Core, and the Senior High Core Collection, has been gradually phasing out inclusion of recommended databases in these long-standing professional collection-management tools. H.W. Wilson has created a new database Nonbook Materials Core Collection to include recommendations of non-book materials for all levels of libraries. Thus, during this study all four core lists were cross-checked for recommended electronic resources. In July 2011 H.W. Wilson merged with EBSCO Publishing.

Results
This qualitative content analysis asked: What subscription databases and online reference tools should be considered in collection-management decisions at the local school library level, beyond content already provided to schools through statewide purchasing? Three sections below outline the results of data analysis, which included three stages: 1) “Status of Statewide Subscription Databases” showed a composite of state subscriptions databases; 2) “Grade Levels
1: Status of Statewide Subscription Databases
I condensed data representing hundreds of subscriptions across thirty-three states into a list of seventy-nine databases useful for schools. Appendix A is the complete data set of the seventy-nine databases categorized for this study.

Coding began with a table containing a list of popular databases; notes were made to indicate which states made each database available to students within the state.

An early decision was made to exclude from the counts databases that were primarily indexes to periodicals. The rationale was that all thirty-three states analyzed provided access to periodicals indexing from one or more of three well-known periodicals vendors: twenty-one EBSCO, seventeen Gale, nine ProQuest. Twelve states’ lists included two or more indexes to periodicals. Moreover, the purpose of this study was to analyze states’ access to subject-specific online reference contents, not to compare the quality or details of the many periodicals-indexing tools provided by each vendor. If a database included both periodicals and reference content, the database was kept in the count only if the vendor’s description indicated greater prominence to the online reference content (example: Gale’s General Reference Center Gold), or if the focus was on historical or ethnic news (example: ProQuest’s Ethnic Newswatch).

This research also excluded those electronic subscriptions that were primarily for professional use (examples: Books in Print and Book Review Index).

Public-domain online resources such as state government or historical archives were also excluded from the counts because the research purpose centered upon collection management, and free content does not require a purchasing decision.

The initial list of popular databases expanded in three ways and contracted in one way during the research. First, the list expanded as more states’ links were visited and new databases were encountered. Second, the list expanded as I refined the definitions of the online reference tools using descriptions from reviews and publishers’ websites. For example, Health and Wellness Resource Center was initially considered primarily a periodical database; however, an investigation of its description revealed it to be an online reference source with full-text contents from the Gale Encyclopedia of Medicine, the U. X. L. medical encyclopedia Sick!, and many additional reference titles. Third, the list expanded as I encountered database contents broken into sub-databases. For example, the database Literature Resources from Gale includes contents from other Gale databases that are also available separately, such as Contemporary Authors and Literary Criticism Online. These separately available databases were listed separately in the coding because a state may have had one or more of them. Finally, the list contracted as I discovered databases such as World Data Analyst and Annals of American History that were listed separately by some states but were available within every subscription to Britannica Online School Edition. Additionally, all subscriptions to Grolier Online included three versions of the encyclopedia, and Lands and Peoples, America the Beautiful, Amazing Animals, and New Book of Popular Science. In these cases, the list was compacted, and those integrated resources were placed under the umbrella of broader titles and were removed from the coding.
Table 1 shows the ten databases found in ten or more states, in order of prevalence. Additionally, thirty-five databases (44 percent) were found in five or more states, twenty-three (29 percent) were in two to four states, and twenty-one (26 percent) were in only one state (see Appendix A).

<table>
<thead>
<tr>
<th>Database Title</th>
<th>Award (grades)*</th>
<th>Total States</th>
<th>Percent States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gale Virtual Reference Library [MC (6-12)]</td>
<td></td>
<td>15</td>
<td>46</td>
</tr>
<tr>
<td>EBSCO-Funk &amp; Wagnalls New Encyclopedia (all)</td>
<td></td>
<td>14</td>
<td>42</td>
</tr>
<tr>
<td>MedlinePlus [MC, SC (7-12)]</td>
<td></td>
<td>14</td>
<td>42</td>
</tr>
<tr>
<td>EBSCO-Book Collection: Nonfiction [NBC (4-12)]</td>
<td></td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>EBSCO-GreenFILE (sec)</td>
<td></td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>EBSCO-NoveList [MC, SC, NBC (9-12)]</td>
<td></td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>ProQuest-HeritageQuest (sec)</td>
<td></td>
<td>11</td>
<td>33</td>
</tr>
<tr>
<td>Britannica Online School Edition [NBC, SLJ'09 (K-12)]</td>
<td></td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>EBSCO-Auto Repair Reference Center [LJ'11 (sec)]</td>
<td></td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Gale-Health &amp; Wellness Resource Ctr. [NBC (9-12)]</td>
<td></td>
<td>10</td>
<td>30</td>
</tr>
</tbody>
</table>

*Grade ranges, e.g., (3-12), are from the core collections; publisher indications are represented as (all) or (sec). CC=Children’s Core; MC=Middle School and Junior High Core; SC=Senior High Core; NBC=Nonbook Materials Core; SLJ=School Library Journal award; LJ=Library Journal award.

States were generally independent and had a wide variety in their selections. No states had identical selections. The highest percent of states having the same database was less than half (46 percent). Among the most popular, Gale Virtual Reference Library offers a database format for searching reference e-book contents. Libraries may vary widely in depth and breadth of e-books; no attempt was made to assess the number of e-book titles for each state. Also prevalent, Funk and Wagnalls was often included with states’ EBSCO periodicals indexing.

Notably, most statewide database subscriptions were provided through a state library consortium. Only four states (Delaware, Iowa, North Carolina, and Oregon) had consortiums composed of educational organizations. Reflective of the overall public structure, MedlinePlus, GreenFILE, and Health and Wellness Resource Center meet the need for authoritative information about health and the environment. Other popular topics for public libraries include genealogical research (HeritageQuest) and automotive repair and vehicle ownership information (see Table 1).

Fiction and nonfiction interests both made appearances in the list of ten most popular reference databases. Book Collection Nonfiction is a searchable database of nonfiction book contents for
grades 4 through 12 in core subject areas; this database includes popular series from a variety of publishers. NoveList, and Books and Authors are readers’ advisory tools for fiction readers.

Britannica Online School Edition was the most popular of the three comprehensive encyclopedias purchased by 30 percent of states. Like World Book and Grolier Online, Britannica includes multiple levels of encyclopedias within the product. Preschool through primary grades use The Learning Zone, and versions are available for elementary, middle, and high school/academic students. Britannica Online School Edition also includes Merriam-Webster Unabridged Dictionary, Annals of America, an atlas, and other reference tools.

2: Grade Levels and Subject Coverage
This phase of the research categorized databases in ways applicable to school curricula by grade-level and subject-area coverage. Of the seventy-nine databases analyzed, twenty-two (28 percent) included elementary-level content, usually in combination with secondary content; two sources (BookFlix and NoveList K–8) were specifically for the elementary level.

Coverage of subject areas was determined using reviews and/or publisher descriptions. Subject determinations were somewhat ambiguous when a database included content for multiple subjects. Based upon the number of items in any one category and the intended curricular use, decisions were made about which subject codes to split into subcategories. For example, databases covering virtually all subject areas were designated simply “all.” This coding category was subdivided several times to group those resources that were encyclopedias, biography, images, streaming video, general-subject reference, and issues or perspectives tools.

Table 2. Databases with Content for Elementary Level and Up

<table>
<thead>
<tr>
<th>Subject</th>
<th>Database Title [Award (grades)*]</th>
<th>Total States</th>
<th>Unique States</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>Annenberg Media (all)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all</td>
<td>LEARN360 (all)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all</td>
<td>Soundzabound (all)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>all</td>
<td>World Almanac Online [SC (6-12)]</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>all-books</td>
<td>EBSCO-Book Collection: Nonfiction [NBC (4-12)]</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>all-encyclopedia</td>
<td>EBSCO-Funk &amp; Wagnalls New Encyclopedia (all)</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>all-encyclopedia</td>
<td>Britannica Online School Edition [NBC, SLJ’09 (K-12)]</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>all-encyclopedia</td>
<td>Grolier Online [CC, MC, SC (3-12)]</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>all-encyclopedia</td>
<td>World Book Online [CC, MC, SC (all)]</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>all-gen reference</td>
<td>Gale-Junior Reference Collection [CC, MC, NBC (K-8)]</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>all-images</td>
<td>AP Images (Associated Press) (all)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 shows databases that include content for the elementary-age level and indicates subject areas of coverage. More important than the number of databases having elementary content is the number of states that provide elementary content statewide. The unique states column in table 2 shows how many different states had one or more of the sources grouped in the merged category. For example, just over half of the states (seventeen) had comprehensive subject coverage for the elementary level. Most of these (sixteen) had one of the three encyclopedia packages, while only four states had the Junior Reference Collection that includes contents such as countries, science, authors, and biographical and multicultural information. Three states were well covered, overlapping junior reference content with the encyclopedias. The Book Collection Nonfiction also provided elementary content in twelve states, eight of which did not have other general-reference resources or online encyclopedias. SIRS Discoverer (nine states) and CultureGrams (five states) also supplemented reference content; however, in all but one case, SIRS Discoverer and CultureGrams supplemented content in states already having other elementary-level reference tools. Unfortunately, six of the thirty-three states analyzed (18 percent) had little or no content for elementary students.

In addition to sources for all grade levels included in Table 2, secondary-level databases for general reference and social studies topics are in Table 3. For a statewide subscription service, perhaps one of the most important goals is to provide subject coverage for a wide variety of general-reference areas. The most prevalent general-reference digital tools adopted in twenty states (61 percent) included Gale Virtual Reference Library, Discovering Collection, General Reference Center Gold, Student Resources in Context, and Oxford Reference Online-Premium. Databases for pro/con issues research were found in seventeen states (52 percent). History sources (thirteen states) and biographical research sources (eleven states) were less common.
Two states had ten databases in this secondary-level category, and seven had five or more. On the lower end of the spectrum, however, eight states had none of the general-reference databases appropriate for secondary students. Moreover, three of those states also had no specific databases from the categories of issues, social studies, or biography. Nine states had specific databases; and nine states had two. For example, one of the states had only Biography Reference Bank; one had only History Reference Center, and another had only Points of View.

Table 3. Databases with Secondary-Level Content in Reference and Social Studies

<table>
<thead>
<tr>
<th>Subject</th>
<th>Database Title [Award (grades)*]</th>
<th>Total States</th>
<th>Unique States</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>Infobase-Ferguson's Career Guidance Ctr.[NBC (9-12)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all</td>
<td>Oxford English Dictionary [NBC (9-12)]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>all</td>
<td>Reference USA (sec)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>all-biography</td>
<td>EBSCO-Biography Reference Bank [MC, SC (7-12)]</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>all-biography</td>
<td>Gale-Biography in Context [MC, NBC (8-12)]</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>all-biography</td>
<td>ProQuest-African American Biographical Database (sec)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all-gen reference</td>
<td>Gale Virtual Reference Library [MC (6-12)]</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>all-gen reference</td>
<td>Gale-Discovering Collection [MC (6-12)]</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>all-gen reference</td>
<td>Gale-General Reference Center Gold (sec)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>all-gen reference</td>
<td>Gale-Student Resources in Context (sec)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all-gen reference</td>
<td>Oxford Reference Online-Premium Collection. [SC (11-12)]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>CQ Researcher (Congressional Quarterly)[LJ’11 (sec)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>EBSCO-Points of View [NBC (11-12)]</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>Gale-Global Issues in Context [NBC, SLJ'09 (7-12)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>Gale-Opposing Viewpoints in Context [MC, SC (sec)]</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>Infobase-Issues and Controversies (sec)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>Infobase-The Reference <a href="mailto:Suite@facts.com">Suite@facts.com</a> [MC (6-12)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>ProQuest-SIRS Issues Researcher [NBC (7-12)]</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>all-issues</td>
<td>ProQuest-SIRS Knowledge</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Table 4 shows databases with secondary-level content in arts, language arts, science, and health areas. The most prevalent databases were NoveList and GreenFILE (twelve states each) and Health and Wellness Resource Center, and Auto Repair Reference Center (ten states each). On the opposite end of the spectrum, the arts were the least represented in the database holdings.

### Table 4. Databases with Secondary-Level Content in Arts and Sciences

<table>
<thead>
<tr>
<th>Subject</th>
<th>Database Title [Award (grades)*]</th>
<th>Total States</th>
<th>Unique States</th>
</tr>
</thead>
<tbody>
<tr>
<td>arts</td>
<td>Art Collection [LJ’11 (sec)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>arts</td>
<td>Oxford Art Online [LJ’11 (sec)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>arts</td>
<td>ProQuest-SIRS Renaissance (sec)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td>EBSCO-NoveList [MC, SC, NBC (9-12)]</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td>Gale-Books &amp; Authors [NBC, SLJ’09 (9-12)]</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td>EBSCO-Literary Reference Center [LJ’11 (sec)]</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td>Gale-Contemporary Authors [SC (11-12)]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td>Gale-Literary Criticism Online [SC (11-12)]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>language</td>
<td>Gale-Literature Resource Center</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

*Grade ranges, e.g., (3-12), are from the core collections; publisher indications are represented as (all) or (sec). CC=Children’s Core; MC=Middle School and Junior High Core; SC=Senior High Core; NBC=Nonbook Materials Core; SLJ=School Library Journal award; LJ =Library Journal award.
<table>
<thead>
<tr>
<th>Arts-Lit</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Arts-Lit</td>
<td>9</td>
</tr>
<tr>
<td>Gale-Literature Resources from Gale (sec)</td>
<td>5</td>
</tr>
<tr>
<td>Gale-LitFinder for Schools [MC (6-12)]</td>
<td>5</td>
</tr>
<tr>
<td>Gale-Scribner's Writers Online (sec)</td>
<td>2</td>
</tr>
<tr>
<td>Gale-Twayne's Author Series (sec)</td>
<td>2</td>
</tr>
<tr>
<td>Literature Online from Chadwyck Healy (sec)</td>
<td>1</td>
</tr>
<tr>
<td>ProQuest-Learning Literature (sec)</td>
<td>1</td>
</tr>
<tr>
<td>EBSCO Animals [NBC (6-9)]</td>
<td>7</td>
</tr>
<tr>
<td>Gale-Grzimeks [MC, SC (6-12)]</td>
<td>2</td>
</tr>
<tr>
<td>EBSCO-Science Reference Ctr. [MC, SC, NBC (7-12)]</td>
<td>6</td>
</tr>
<tr>
<td>Gale-Science In Context [SC (9-12)]</td>
<td>5</td>
</tr>
<tr>
<td>Infobase-Science Online [MC, SC, NBC (6-12)]</td>
<td>2</td>
</tr>
<tr>
<td>Infobase-Today's Science [MC (6-12)]</td>
<td>2</td>
</tr>
<tr>
<td>EBSCO-GreenFILE (sec)</td>
<td>12</td>
</tr>
<tr>
<td>Gale-GREENR [NBC (10-12)]</td>
<td>1</td>
</tr>
<tr>
<td>Gale-Health &amp; Wellness Resource Ctr. [NBC (9-12)]</td>
<td>10</td>
</tr>
<tr>
<td>MedlinePlus [MC, SC (7-12)]</td>
<td>14</td>
</tr>
<tr>
<td>PubMed (sec)</td>
<td>3</td>
</tr>
<tr>
<td>Teen Health &amp; Wellness [NBC, SLJ'08 (9-12)]</td>
<td>1</td>
</tr>
<tr>
<td>EBSCO-Auto Repair Reference Center [LJ'11 (sec)]</td>
<td>10</td>
</tr>
<tr>
<td>Hoover's Company Profiles (sec)</td>
<td>1</td>
</tr>
</tbody>
</table>

*Grade ranges, e.g., (3-12), are from the core collections; publisher indications are represented as (all) or (sec). CC=Children’s Core; MC=Middle School and Junior High Core; SC=Senior High Core; NBC=Nonbook Materials Core; SLJ=School Library Journal award; LJ=Library Journal award.

The unique states tally shows how many of the similar topical databases were held in different states. Health and wellness sources were most prevalent among online sources provided by twenty states (61 percent). Second most prevalent were online sources for literary essays and criticism, provided by eighteen states (55 percent). Readers’ advisory sources trailed slightly: seventeen states (52 percent). General science databases were found in only fourteen unique states (42 percent).
One state with the greatest content in the arts and sciences had fourteen different databases in these categories. Another state had slightly fewer with ten databases in these areas. Another twelve states had five or more of these databases. On the lower end of the spectrum, however, four states had no databases in the arts and sciences category, and six states had only one or two of these databases. For example, one state had both Health and Wellness Resource Center, and Teen Health and Wellness, but had no content in literary criticism or science content areas.

3: Comparison to Recommended and Awards Lists
This phase of the research aligned statewide databases with highly recommended and awards lists of databases for youth that include content on social issues, social studies, or biographical content. First, awards lists were aligned with statewide databases, noting both the percent of databases available statewide that have won awards, as well as the percent of awards databases represented in the state subscriptions. Additionally, I noted which recommended databases were not included in any of the statewide subscriptions.

Children’s Core Collection, Middle and Junior High School Core, and the Senior High Core (H.W. Wilson 2007, 2009, 2010) were searched simultaneously using the Recommendation Level limiter of “Core Collection,” which is the main level, more inclusive than the “Most Highly Recommended List.” The search in the Wilson Web format was limited simply by document type, “Electronic resources;” this search produced 168 records. Of those, fifty-one were recommended electronic database subscription sources for K–12 students; others that were professional tools, free websites, and primarily periodicals indexes were not used. The Nonbook Materials Core Collection (2011) was searched separately using the same technique; this search produced seventy records for student databases. School Library Journal’s top database lists (Brisco 2008, 2009, 2010) and a Library Journal “best databases” feature (Guz et al. 2011) were also consulted to align award-winning databases with the statewide subscription list.

The combined core collections had a total of ninety-seven unique recommended databases. School Library Journal (SLJ) added sixteen award-winning databases, after removal of databases that were duplicated in the core collections. Although Library Journal’s “best” databases were noted in Appendix A, not all were at the K–12 levels; the LJ-recommended databases not suitable for K–12 researchers were not included in the combined total of eighty-eight recommended/award-winning databases for students. This study showed that forty-six (58 percent) of the seventy-nine state subscription databases were databases also recognized in the core collections or SLJ awards. Recommended core collections databases that were not in any state subscriptions included fifty-one titles such as American Government, American Indian Experience, Daily Life in America (all from ABC-CLIO), Columbia Granger’s Poetry Database (EBSCO), Something about the Author (Gale), Bloom’s Literary Reference Online (Infobase), and PebbleGo (Capstone).

Summary and Conclusions
This qualitative content analysis presented a national representation of subscription databases and online reference sources available to school libraries through statewide purchases. The results may help school librarians comprehend the status of statewide purchases, evaluate grade-level and subject-area coverage, compare available databases with recommended databases on
awards lists, and note potential suggestions for their states to include in future contracts or for local purchase.

The national representation of subscription databases included hundreds of subscriptions throughout the thirty-three states analyzed ranging from one to thirty-four databases per state. Overall, seventy-nine unique databases were identified across the states; these databases were categorized by grade level and subject usage for the K–12 curricula. The states’ databases were aligned with a set of eighty-eight databases on recommended and awards lists. All states in this study had periodicals indexing through one or more of three dominant vendors, so this analysis focused instead on the online reference content provided through databases for generalized reference and resources in specific areas of curricula.

Perhaps one of the most important functions of a statewide subscription service is to provide subject coverage for a wide variety of general-reference areas. Most states (twenty-seven of the thirty-three or 81 percent of those analyzed) had a wide variety of online reference subject content to support secondary curricular areas. Twenty states (61 percent) included one or more general-reference online databases such as Discovering Collection or Oxford Reference Online: Premium Collection. However, those were not the only states to cover diverse subject topics with online reference. Seven of the states with no general reference online instead purchased a range of individual-subject online reference titles in health, literary criticism, science, history, biography, and/or art. Moreover, among those states that included a variety of subject-specific resources, not all content areas were treated equally: health (twenty states or 61 percent), literary criticism (eighteen states or 55 percent), comprehensive science (fourteen states or 42 percent), history (thirteen states or 39 percent), biography (eleven states or 33 percent), and arts (five states or 15 percent). More states may need to add sources in these lesser-represented areas of art, biographical reference, history, and science.

The disparity was evident, however, in six of the states with no general reference online. Obvious gaps were evident in these states’ online reference coverage. In one state, the only secondary reference tool available was the readers’ advisory resource NoveList. Another state’s only secondary-subject reference title was the genealogical-research resource HeritageQuest.

Beyond the need to have a variety of subject-specific online reference as discussed above, it is equally important for all states to have databases for students to use for assignments to research an issue or controversy. A variety of pro/con type of databases are available, and given the nature of students’ inquiry research and the commercialization of the Web that Fabos (2002, 2005) said prevented students from finding multiple perspectives on free sites, it is essential for school librarians to provide access to as many of the issues-related databases as possible. Yet, only seventeen states (52 percent) had one or more databases devoted primarily to issues and controversies.

Another area of need in every school library is readers’ advisory. However, only seventeen states (52 percent) had online reference for matching secondary readers with fiction books, and only seven had this support for elementary students.

At the elementary level, just over half of the states (seventeen) had comprehensive subject coverage, which at the elementary level included online encyclopedias. Most of these (sixteen) had one of the three encyclopedia packages, while only four states had the Junior Reference
Collection that included contents such as information about countries, science, and authors, and biographical and multicultural information. Nine states (27 percent) provided elementary-level resources on issues, and elementary nonfiction books were included in twelve states (36 percent). CultureGrams (five states) also supplemented reference content. In contrast to the states that made available the above sources, six of the thirty-three states analyzed (18 percent), unfortunately, had little or no content for elementary students.

Finally, these findings and conclusions have implications for school librarians considering collection-management decisions. Potential suggestions for their states to include in future contracts or for local purchase may be identified using Tables 2 through 4. These tables note database groupings in a variety of grade-level and content-subject areas. For example, a school librarian may be seeking databases for these diverse subject areas: science, social studies, pro/con issues, literary criticism, readers’ advisory, the arts, health, technical areas, general encyclopedias, nonfiction and reference e-books, biography, foreign language, images, video, sounds, and more. Using knowledge of a state’s existing subscriptions and the curriculum, school librarians must first consider sources needed to fill the gaps in the digital collection. In addition to using tables 2 through 4, school librarians may also want to consult those core lists and reviewers’ “bests” lists outlined in this paper for recommended sources that were not included in any statewide purchases. Examples include sources such as ABC-CLIO titles for American History and American Government, Capstone’s PebbleGo database, and Facts on File Bloom’s Literary Reference Online.

Questions for Further Research
Future studies could explore the following questions that arose through this research.

- Are statewide subscription databases meeting the needs of schools, especially in teaching the Common Core curriculum?
- In what ways might school librarians organize digital content through “building archives beyond those suggested as text exemplars in the national core using their own ideas and knowledge of the materials necessary to assure compliance”? (Hill 2011, 46)
- In what ways might “finding ways to catalog and integrate” digital materials into the current curriculum maps allow school librarians to gain support of teachers in collaboration around the CCSS? (Hill 2011, 46)
- How might a state’s page of statewide databases best be organized (alphabetical and/or categorical) to facilitate use by all library users?
- In what ways might online reference sources, such as topical overviews, continue to be used to prepare students for inquiry, and provide background for confusing topics?
- Do libraries’ encyclopedia databases have a new role in providing privacy of online search (especially for medical or sensitive issues) not possible in commercialized search engines?

Works Cited


———. 2009. Middle and Junior High Core Collection, 10th ed. Ipswich, MA: EBSCO Publishing.


Cite This Article

### APPENDIX A. Database Awards by State

<p>| AccuWeather (all)                                                             | 1     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| Annenberg Media (all)                                                         | 1     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| AP Images (Associated Press) (all)                                            | 2     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| Art Collection [LJ'11 (sec)]                                                 | 1     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| Atomic Learning [SLJ'08 (all)]                                               | 1     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| Britannica Online School Edition [NBC, SLJ'09 (K-12)]                       | 10    | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| BookFlix [SLJ'08 (PK-3)]                                                    | 2     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| CQ Researcher (Congressional Quarterly)[LJ'11(sec)]                         | 1     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| EBSCO Animals [NBC (6-9)]                                                   | 7     | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-Auto Repair Reference Center [LJ'11 (sec)]                           | 10    | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-Biography Reference Bank [MC, SC (7-12)]                             | 5     | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-Book Collection: Nonfiction [NBC (4-12)]                             | 12    | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-Funk &amp; Wagnalls New Encyclopedia (all)                                | 14    | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-GreenFILE (sec)                                                        | 12    | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-History Reference Center [NBC (4-12)]                                | 8     | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-Literary Reference Center [LJ'11 (sec)]                              | 6     | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-NoveList [MC, SC, NBC (9-12)]                                        | 12    | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-NoveList K-8 [CC, MC, NBC, SLJ'09 (K-8)]                             | 7     | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-Points of View [NBC (11-12)]                                         | 7     | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| EBSCO-Science Reference Ctr. [MC, SC, NBC(7-12)]                           | 6     | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Fiction Connection (Bowker) (all)                                          | 1     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X  |
| Gale-Biography in Context [MC, NBC (8-12)] | 6 | X | X | X | X |  |  |
| Gale-Books &amp; Authors [NBC, SLJ'09 (9-12)] | 7 | X | X | X | X | X | X |
| Gale-Contemporary Authors [SC (11-12)] | 3 | X |  |  | X |  |  |
| Gale-Discovering Collection [MC (6-12)] | 6 | X | X | X |  | X | X |
| Gale-General Reference Center Gold (sec) | 8 | X | X | X | X | X | X |
| Gale-Global Issues in Context [NBC, SLJ'09 (7-12)] | 1 | X |  |  |  |  |  |
| Gale-GREENR [NBC (10-12)] | 1 | X |  |  |  |  |  |
| Gale-Grzimeks [MC, SC (6-12)] | 2 | X |  |  |  |  |  |
| Gale-Health &amp; Wellness Resource Ctr. [NBC (9-12)] | 10 | X | X | X | X | X | X |
| Gale-Junior Reference Collection [CC, MC, NBC(K-8)] | 4 | X |  |  |  |  |  |
| Gale-Literary Criticism Online [SC (11-12)] | 3 | X |  |  |  |  |  |
| Gale-Literature Resource Center (sec) | 5 | X | X | X | X |  |  |
| Gale-Literature Resources from Gale (sec) | 4 | X |  |  |  |  |  |
| Gale-LitFinder for Schools [MC (6-12)] | 9 | X | X | X | X | X | X |
| Gale-Opposing Viewpoints in Context [MC, SC (sec)] | 5 | X | X | X | X |  |  |
| Gale-Science In Context [SC (9-12)] | 5 | X | X | X | X |  |  |
| Gale-Scribner's Writers Online (sec) | 5 | X |  |  |  |  |  |
| Gale-Student Resources in Context (sec) | 1 | X |  |  |  |  |  |
| Gale-Twayne's Author Series (sec) | 5 | X |  |  |  |  |  |
| Gale-U.S. History in Context (sec) | 5 | X | X | X |  |  |  |
| Gale Virtual Reference Library [MC (6-12)] | 15 | X | X | X | X | X | X |
| Gale-World History in Context (sec) | 5 | X | X | X | X | X |  |
| Grolier Online [CC, MC, SC (3-12)] | 5 | X | X | X | X | X | X |</p>
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### School Library Research

*School Library Research* (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to *School Library Media Quarterly Online* and *School Library Media Research*. The purpose of *School Library Research* is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the [SLR website](https://www.slrjournals.org) for more information.

### American Association of School Librarians

The mission of the American Association of School Librarians is to advocate excellence, facilitate change, and develop leaders in the school library field. Visit the [AASL website](https://www.ala.org/aasl) for more information.
School Libraries and the Development of Intellectual Agency: Evidence from New Jersey

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This paper was presented at the AASL Educators of School Librarians Research Forum, Minneapolis, MN, October, 2011

Principal Investigators were Dr. Ross J Todd, Dr. Carol Gordon, and Dr. Ya-Ling Lu

Abstract
This paper presents selected key findings of the first phase of a multiphase research study commissioned by the New Jersey Association of School Librarians (NJASL) in 2009 and undertaken by the Center for International Scholarship in School Libraries (CISSL) at Rutgers, The State University of New Jersey. The overall research agenda seeks: (a) to construct a picture of the status of New Jersey’s school libraries and the work of school librarians in the educational landscape of New Jersey, (b) to understand the contribution of quality school libraries to education in New Jersey, (c) to understand the contextual and professional dynamics that inhibit and enable school libraries to contribute significantly to educational agendas, and (d) to make recommendations to key stakeholders to develop a sustained and long-term program of capacity-building and evidence-based continuous improvement of school libraries in New Jersey.

While this is a state-specific study, findings have salience for the broader landscape of education and school librarianship. Phase 1 of this research program sought to provide a comprehensive picture of the status of public school libraries in New Jersey: their infrastructure, personnel, resource and information-technology provision, and the instructional and administrative work of the school librarians. This research phase was titled “One Common Goal: Student Learning.” A key finding, documented in this paper, centers around the role of school librarians in the development of the intellectual capacity of students. Such findings provide opportunity to reflect on strategies for continuous improvement of school libraries and their pedagogical role in information-age schools.
Background
School libraries have been an integral and sustained part of the educational landscape of New Jersey for many decades. Some of the earliest national research on the impact of school libraries on student learning was undertaken in New Jersey. Mary Gaver, a professor in the Graduate School of Library Services at Rutgers University, led a major research study *Effectiveness of Centralized School Library Services in Elementary Schools* (1963) involving 271 schools in 13 states, including New Jersey. She compared the test scores of students in three learning environments: schools with classroom libraries, schools with centralized libraries run by non-librarians, and schools with centralized libraries run by librarians. Students in schools with centralized libraries managed by qualified school librarians tended to score higher than students without centralized libraries or qualified school librarians. Gaver’s pioneering study blazed a trail for subsequent school library impact studies. She held the strong belief that:

With the school library literally the heart of the educational program, the students of the school have their best chance to become capable and enthusiastic readers, informed about the world around them, and alive to the limitless possibilities of tomorrow (Gaver 1958).

An extensive body of international research has grown from Gaver’s vision and research, and a substantial number of research studies have been undertaken since 1990 to understand the nature, dynamics, and impacts of school libraries, and the professional work of school librarians in the educational landscape (Scholastic 2008). In the main, these studies show that students’ achievement correlate with: 1) the size of the school library staff (Lance et al. 1999; Baumbach 2002; Lance, Rodney, and Hamilton-Pennell 2000, 2001, 2002; Smith 2001); 2) presence of full-time, certified school librarians (Lance et al. 1999; Callison 2004; Rodney, Lance, and Hamilton-Pennell 2000, 2002, 2003; Baxter and Smalley 2003; Todd & Kuhlthau. 2005a); 3) the frequency of library-centered instruction (Lance et al. 1999) and collaborative instruction between school librarians and teachers (Lance, Rodney, and Hamilton-Pennell 2000, 2001, 2005); 4) size or currency of library collections (Burgin and Bracy 2003; Lance, Rodney, and Hamilton-Pennell 2000; Smith 2001); 5) licensed databases through a school library network (Lance 2001); 6) flexible scheduling (Lance, Rodney, and Hamilton-Pennell 2003, 2005); and 7) school library spending (Lance, Rodney, and Hamilton-Pennell 2001; Baxter and Smalley 2003). These correlation studies use regression analysis to isolate the effect of variables such as varying socioeconomic status of students.

A study conducted by Ross J. Todd and Carol C. Kuhlthau (2005a, 2005b) in Ohio reported that 99.4 percent of students in grades 3 through 12 believe school libraries and their services help them become better learners. This study surveyed 13,123 students and 879 teachers. Their voices clearly tell us that an effective school library, led by a credentialed school librarian, plays a critical role in facilitating student learning and knowledge building. This study was replicated in Delaware with 5,733 students and 408 teachers (Todd 2005a) and in Australia (Hay 2005) with 6,728 students and 525 teachers. These studies convey a strong and consistent message: School libraries are powerful agents of learning, central to engaging students in information processes that enable the transformation of information into deep knowledge and understanding, and providing them with life skills to continue living, learning, and working in an information- and technology-intense world. Over time, these studies have posed even more challenging questions, particularly those centering on the dynamics of students’ learning through school libraries, and the need to identify more deeply the nature of the learning outcomes enabled through the school library.
In 2003–2005 a CISSL study examined specifically how students constructed knowledge of curriculum topics when they engaged in a collaboratively designed and implemented library-based research task. The study, *The Impact of School Libraries On Student Learning*, involved ten New Jersey public schools, ten school librarians, and seventeen classroom teachers, and 574 students in grades six through twelve (Todd 2006). The study found two distinctive patterns of knowledge development: additive and integrative. Additive knowledge development was characterized by the progressive addition of property and manner facts, and students primarily stockpiled facts, even though facts were sorted, organized, and grouped to some extent into thematic units by conclusion. Students’ knowledge development remained on a descriptive level throughout the unit of inquiry. The second pattern was integrative, and students moved beyond gathering facts, to building explanations, addressing discrepancies, organizing facts in more coherent ways, interpreting found information to establish personal viewpoints and conclusions, and reflecting on new knowledge. This study also found that changes in knowledge growth did not occur evenly in the schools. While overall no significant variations were found across age, grade, and gender groups, the depth of knowledge development was influenced by factors such as the nature of the research task, engagement and ownership, and nature of instructional interventions focusing on the development of skills to construct knowledge rather than finding information. Data also showed that students valued instructional interventions through the school library that focused on the development of research skills, especially information analysis and synthesis, skills in using specific online sources (online databases, Internet, online public-access catalogs), enhanced information-seeking beyond Google, dealing with information conflict, and assessing quality of information. These factors appear to contribute to the development of deep knowledge. The study highlights the central importance of instructional interventions that engage students with information and information technology and enable them to transform it into deep knowledge, and the role that school library programs can play in this process.

At the heart of collaborative instructional interventions is the development of intellectual quality. The lens of the Productive Pedagogy framework developed by Jennifer M. Gore, Tom Griffiths, and James G. Ladwig (2002) provides insights into what constitutes intellectual quality, and the nature of the instructional environment that underpins it. Productive pedagogy is concerned about what is being taught and the quality of learning produced. Based on a series of research studies in Queensland, Australia, in 2002, Gore, Griffiths, and Ladwig sought to develop a model of productive pedagogy that results in high-quality student learning and improved outcomes. As a framework for quality teaching and learning, the model is built around four fundamental principles: *intellectual quality*, *relevance*, *supportive environment*, and *recognition of difference*. Intellectual quality centers on the development of higher-order thinking, depth of knowledge, depth of understanding, ability to engage in substantive conversation, ability to recognize knowledge as problematic, and reading literacy grounded in language, grammar, and technical vocabulary. Relevance is about learning that is linked to students’ background knowledge, connected to real-life contexts, and in which students solve intellectual and real-world problems, and integrate knowledge from diverse fields to develop new understandings. A supportive learning environment is about providing a socially supportive and positive learning environment where students have a say in the pace, direction, and outcome of their lessons, where they are engaged and on-task, where performance criteria are made explicit, where diverse cultural backgrounds are brought into play, and where a sense of community, identity, and active citizenship are fostered. Recognition of difference refers to the dynamics of learning as an inclusive social and cultural process of community- and identity-building, in which diversity and
difference are recognized and integrated as part of the teaching and learning process (Todd 2005a). Are school libraries centers of productive pedagogy? What is the school library’s contribution to intellectual quality? The findings of the study reported in this paper provide some insights, and some significant opportunities to identify gaps and to work towards continuous improvement.

Conceptual Framework, Research Goals, and Methodology

The goal of this study was to provide a comprehensive picture of the status of school libraries in New Jersey, with particular emphasis on their instructional programs, as well as reading and related activities, collections, budgets, facilities, information technology, personnel, and the administrative work of the school librarian. This phase of the research sought to establish baseline data about the fundamental elements of school libraries in New Jersey to provide an evidence base for continuous improvement. The conceptual framework for the study was based on the Model of the School Library as a Dynamic Agent of Learning, developed by Todd and Kuhlthau (2005a, 2005b). This model posits that as a dynamic agent of learning and a center for intellectual quality, a school library’s intellectual and physical infrastructure and output centers on three essential interrelated and iterative components: informational (the information-resource and information-technology infrastructure, transformational (the instructional interventions, reading and related initiatives, and other student-engagement initiatives), and formational (learning impacts and student outcomes). Elements of this model are shown in Figure 1.

Figure 1. Todd and Kuhlthau’s Model of the School Library as a Dynamic Agent of Learning.

Based on this conceptual framework, data were collected through a seven-part online survey instrument.
Part 1: Contact information and school details. Data included demographic and descriptive information of participating schools.

Part 2: School library staff. Information included: levels of certification of school librarians, number and level of staff (both professional librarians and support staff), full- and part-time status of staff, and technology support provided by school librarians.

Part 3: Teaching activities in the school library and professional activities during the academic year. Data included: the number of cooperations, coordinations, and collaborations that occurred between school librarians and classroom teachers; the main foci of information-literacy instruction, including identification of instructional activities related to effective use of information technology; student learning outcome(s) enabled by the school library program; and priorities for change and continuous improvement of school library programs.

Part 4: Reading and related activities in the school library. Data included the nature of reading/writing/literacy initiatives during the previous school year.

Part 5: Administration of the school library. Data identified the range of administrative tasks (e.g., selection, ordering, processing library materials); supervision of paraprofessional, student, and volunteer aides; maintenance of equipment; non-library duties (e.g., building assignments); the library collections, including materials in print, digital, and other formats; additions to library collection in last school year; extent and frequency of weeding; extent of technology, including AV and computer hardware available to students in school library; availability of local and remote access to an automated catalog; access to the Internet; existence and functionality of a school library website; availability of subscription databases; availability of applications (e.g., Microsoft Office applications such as Word, PowerPoint, and Excel), production software (e.g., computer-assisted instruction), and educational software; audio-visual materials (e.g., video, DVD, and CD); and availability and use of interlibrary loan from local and regional libraries.

Part 6: School library access. Data identified type of library access available for students.

Part 7: School library budget. Data identified budget allocation, sources, and trends.

Of considerable benefit to the study was the provision of TitleWise data on collections documented in accounts administered by Follett Library Resources. TitleWise is a robust collection-analysis tool that provides a high level of both detail and accuracy on nature and status of collections in school libraries. According to Follett, about 80 percent of school libraries in New Jersey use this tool. Participants in the study were asked to give permission for CISSL to access their school’s TitleWise data through Follett. A copy of the survey instrument, executive summary, and detailed data report NJASL Phase 1 Report - One Common Goal: Student Learning is available at <www.cissl.rutgers.edu>. 
The survey instrument was designed to collect both quantitative and qualitative data, using both
categorical data and open-ended questions. The survey was not an anonymous survey.
Participants were asked to provide some identifying data so that researchers could reach out via
telephone callback to non-participating schools to maximize school librarian participation.
However, participants were guaranteed confidentiality. In planning this approach to data
collection, it was considered essential that a high level of participation be reached in order for the
data to be useful for planning, decision making, and continuous improvement by all stakeholders,
and to be viewed as a study with a strong level of external validity. Data collection took place
May through October 2009.

**Summary of Findings**
The purpose here is not to document the full scope of the findings; rather, this summary will
present selected findings (Parts 1 and 2), with emphasis on the collaborative instructional role of
school librarians (Part 3). Subsequent publications will focus on reading and literacy
development, and collection development. The presentation of this data in summary form
provides a useful comparative benchmarking tool for strategic planning and continuous
improvement.

**Sample Characteristics**
Valid responses were received from 765 schools, which represent 30 percent of the total of both
public and private schools in New Jersey. This response rate raises the question of the
representativeness of the sample. The sample for this survey was a voluntary sample, and it is
recognized that such a sample size is not necessarily a guarantee of its ability to accurately
represent a target population. It is acknowledged that non-respondents tend to differ from
respondents, so their absence in the final sample makes it difficult to generalize the resul
to the overall target population.

We believe that we have achieved a representative sample because the sample source includes
the whole population of schools in New Jersey; the data collection method actively sought to
reach the whole population without the imposition of selection bias. We minimized non-response
bias though an active process of telephone, e-mail, and personal call-back, as permitted under the
university’s ethics agreement. Based on the survey data and a standard confidence level of 95
percent, the margin of error is calculated to be 2.7 percent. In other words, if the survey is
repeated 100 times we would expect the answer to any question to vary no more than 2.7 percent
in 95 out of 100 times. Statistically, this means that the study sample does not differ from the
true population by more than 2.7 percent a certain number of times. This suggests that the sample
has a strong level of representativeness of the population.

Data were collected from all counties of New Jersey. Elementary schools were 53 percent of the
sample of participating schools; 18.5 percent of the participating schools were middle schools;
and 24.5 percent were high schools. The total number of students enrolled at the participating
schools was approximately 560,740 students. The average enrollment of participating schools
was 733 students. The average enrollment of elementary schools was 490; the middle school
average was 695, and the high school average was 1,278. Public schools were 96.9 percent of
schools participating. A very small number of private schools participated in the survey.
Consistent with distribution of participating school by type, there is a higher representation of
elementary grades in the study, compared to middle and high schools.
Personnel
In the study 95.2 percent of the participants were professional school librarians; 27.2 percent of participants have 1–3 years’ experience; 39.3 percent have 4–10 years’ experience; 20 percent have 11–20 years’ experience; and 13.5 percent have more than 20 years’ experience. The most common job title is “school library media specialist” (43.5 percent of sample). The second-most common title (24.9 percent of the sample) is “educational media specialist,” and 12.2 percent of the sample has the official AASL title of “school librarian.”

Of the participating sample, state-certified school librarians were heavily represented. Of the sample, 84.5 percent are New Jersey state-certified school librarians, either at the master’s level of certification (58.9 percent) or associate certification level (having completed 18 credits in library and information science). A higher percentage of associate school librarians were in elementary schools (31 percent) compared to middle schools (23.4 percent) and high schools (20.9 percent). Of the participating sample 91 percent had full-time employment, with no significant differences according to school type.

Research clearly and unequivocally establishes that the presence of a certified school librarian in a school library results in students’ better performance on state achievement measures. Professional staffing is a fundamental starting point for school libraries to play a key role in students’ learning effectively though complex and diverse information resources. Professional staff members enable students to develop the necessary intellectual scaffolds to use information meaningfully to build knowledge and understanding of their content areas. This baseline finding parallels the richness of the school librarians’ contributions to the intellectual life of the school, as presented later in the data report.

On average 52.5 percent of school libraries in the sample had some level of support staff working in the school library, and this support was more likely to be in high schools. This support gap is particularly noticeable in relation to the elementary schools and middle schools, with 54.5 percent and 43.3 percent respectively having no support staff. An analysis of variance (ANOVA) test to determine the relationship between school type and the pattern of support staff found that there is a significant difference in the pattern of support staff by school type (by three types), $F(2, 653) = 39.74, p < .001$. The results indicated that the pattern of support staff differed depending on the level of school. In particular, high schools included more full-time-equivalent staff than elementary and middle schools. No significant difference was identified between elementary and middle schools in the pattern of support staff. The statistical analysis also showed that a significant correlation exists between patterns of support staff and school size $r(654) = .324, p < .001$. These results indicated that the higher the enrollment schools had the more full-time-equivalent support staff schools employed.

Technical Support
The data indicate that school librarians have technical expertise (not merely functional expertise) not only with the school library’s technology infrastructure, but that this expertise extends to the whole school technology infrastructure. Of the participants, 70.9 percent indicated some level of responsibility for technical hardware support. No statistically significant difference in responsibility for technology support by school type was found. In other words, librarians in all types of schools provide this technical support. Responsibility for technical support does not differ by school type (elementary, middle, or high school). Of the participants, 42 percent
reported providing one or more hours per week in technical support. In the study, 50 percent of the participants provided some level of technical support outside of the school library each week. School librarians in middle schools spent significantly more time supporting technology outside of the school library than elementary schools, yet comparisons between elementary and high, and between middle and high did not present any significant differences.

Teaching and Professional Activities

Cooperations, Coordinations, and Collaborations
The data indicate that school librarians in New Jersey engage actively with New Jersey Core Curriculum Content Standards through a substantial number of cooperations, coordinations, and collaborations. In this study, the following definitions were used:

- **Cooperation**: The teacher and the school librarian may communicate informally about a short-term project, but work independently.
- **Coordination**: The teacher and the school librarian may meet to discuss a lesson/unit of study. However, the individual goal setting, learning-experience design, teaching, and evaluation are done independently.
- **Instructional Collaboration**: The teacher and school librarian jointly set goals, design learning experiences, teach, and evaluate a comprehensive unit of study.

Based on data from 412 elementary schools, 141 middle schools, and 187 high schools, the sample reported that in total 19,320 cooperations, 11,179 coordinations, and 3,916 collaborations were undertaken during the 2008–2009 school year. On average, school librarians contributed 27 cooperations, 15 coordinations, and 5 instructional collaborations with classroom teachers during the school year. On average, elementary school librarians contributed 14 cooperations, 6 coordinations, and 3 instructional collaborations during the school year. Middle school librarians contributed an average of 35 cooperations, 20 coordinations, and 8 instructional collaborations during the school year. High school librarians contributed an average of 45 cooperations, 32 coordinations, and 9 instructional collaborations during the school year. In all schools, reported instructional collaborations typically took place in language arts literacy, social studies, and science.

Participation in School and Community Forums
Many school librarians in New Jersey reported actively participating in various school and community forums. Some variation was identified according to the type of activity and school type (elementary, middle, and high). In the study sample 48.5 percent of school librarians took the opportunity to interact with classroom teachers at grade-level meetings when these were held in schools; 51.5 percent of school librarians took the opportunity to interact with classroom teachers at team-level meetings when these were held in schools; 58 percent of participants in the study took the opportunity to interact with classroom teachers at department-level meetings where available in a school. The results indicate that the higher the school level, the more opportunities school librarians took to make presentations at department-level meetings. In the study sample 66.4 percent of participants took the opportunity to interact with school colleagues at faculty-level meetings. The results indicate that the higher the school level, the more
opportunities school librarians took to make presentations at faculty meetings. In the study sample 45.7 percent of participants reported taking the opportunity to interact with school colleagues at Parent / Community Organization meetings.

The data show active communication with school principals and curriculum supervisors; 96.1 percent of school librarians met with their school principal during the school year. High school librarians met more frequently than do librarians in middle or elementary schools; 51.7 percent of the school librarians reported meeting more than five times a year. A strong pattern of communication with curriculum supervisors was observed; 74.4 percent of school librarians reported meeting with curriculum supervisors during the school year. High school librarians met more frequently than did librarians in middle or elementary schools; 24.3 percent of the school librarians in the sample met more than 5 times a year with curriculum supervisors.

**Professional Development**

In the study sample 63 percent of participants reported being involved in the provision of professional development in relation to information literacy in their schools. Elementary school librarians provided formal/informal professional development on information literacy fewer times than in middle and/or high schools. No significant difference between middle and high schools was identified in terms of the frequency of provision. Of the participants, 72.8 percent reported being involved in the provision of professional development in relation to information technology in their schools. This involvement took place more frequently in high schools than in elementary and middle schools.

The data also show a robust contribution by a number of school librarians to the work of various committees in schools and districts, outside the immediate arena of the school library, indicating an active participation in the decision-making processes of the school. Typically these committees included district-wide curriculum committees, reading/literacy committees, and instructional-technology committees.

School librarians also showed a high level of belonging to professional associations, both within the library community as well as the broader educational community. Of the 765 participants, 98.9 percent reported membership or affiliation with at least one professional association. This affiliation was predominantly, but not solely, with the New Jersey Association of School Librarians (NJASL); 83 percent of the participants were members of more than one professional association, including regional library and school library associations, and educational associations. In addition to NJASL, predominant associations were reported with: American Library Association (ALA), American Association of School Librarians (AASL), New Jersey Library Association (NJLA), National Education Association (NEA), and New Jersey Education Association, Association for Supervision and Curriculum Development (ASCD), International Society for Technology in Education (ISTE), Association for Educational Communications and Technology (AECT), and the International Reading Association.

School librarians in New Jersey reported engaging in a diverse range of professional-development activities. The participants reported 2,261 instances of professional-development activities, representing an average of three discrete professional-development activities by each of the 756 participants who engaged in professional
development (98.8 percent of sample). The predominant professional-development activities were:

- Participation in annual state and national conferences in the school library, library, and broader educational arena, for example African American Authors Convention
- Attendance at targeted workshops and seminars, including: Guided Inquiry, Problem-Based Learning, Differentiated Instruction, Digital Learning, Character Education, and Identifying and Teaching Reluctant Learners
- Specialized technology training on topics that included using interactive whiteboards effectively, creating wikis and blogs, using social networking tools, using Movie Maker, and creating e-portfolios
- Reading and literacy development, including sessions on young adults and literacy, developing summer reading, boys and books, and literature circles

Service to the School Community
Responses revealed that school librarians also give considerable service to their schools in a multitude of ways. Five key areas of contribution were identified. These were:

- Information service roles, including school-wide publishing and media responsibilities, publicity, school website and community information links
- School-wide reading and literacy initiatives, involving clubs, reading challenges and competitions, reading-incentive schemes, and specialized reading celebrations
- General school services using the expertise of school librarians, such as serving on school committees and grant writing
- Student leadership, including participation in and coordination or leadership of school events aimed at developing student responsibility, leadership, and civic participation
- A range of extracurricular activities focusing on student responsibility and civic participation

Information-Literacy Instruction
The development of information-literacy competencies is strongly integrated into New Jersey’s Core Curriculum Content Standards. The data show that school librarians make an extensive contribution to information-literacy instruction in their schools. Figure 2 shows the range of competencies developed, and percentage of school librarians contributing to their development.

Analysis by school type shows that all school types had the following skills on their top-ten skills lists for students’ information literacy:

- Knowing about the school library
- Accessing information efficiently and effectively
- Knowing how to use the different sources and formats of information
- Strategizing for finding, evaluating, and selecting appropriate sources to answer questions
- Knowing about different sources and formats of information
● Using information technology responsibly
● Using information ethically (citation, bibliography, avoidance of plagiarism)

Figure 2. Participation in Information-Literacy Instruction
Figure 3 shows the ten lowest-ranked information-literary initiatives in all school types.
These dimensions of information literacy focus on knowledge construction, and are generally considered to be in the domain of classroom teachers. Accordingly, the extent of participation in these instructional activities is encouraging, and a rich opportunity for continuous improvement.

Comparative analysis across school types shows that some significant—and appropriate—variation exists in the range of information-literacy competencies, especially between high and middle schools, compared to elementary schools. Upper school levels reported more attention to critical evaluation of diverse information sources, the identification of main and supporting ideas (the hierarchical and associative structuring of information), the responsible and ethical use of information, and the development of critical-thinking capacities. Overall, an information-resource orientation is evident, but also some knowledge-outcomes focus to foster development of information literacy. The focus appears to be on essential skills of accessing and locating information, and evaluating its authority and appropriateness for task. The data suggest considerable scope for focus on the knowledge-construction dimensions of information literacy.

**Instruction in Information Technology**

School librarians in New Jersey appear to take a strong instructional role in providing students with the intellectual and technical scaffolds to engage with information technology in efficient and productive ways. **Figure 4** shows the range and extent of reported instruction in information technology to students.

Data show that teaching search strategies, both in relation to the World Wide Web and specialized databases, library catalogs, and directories was reportedly given the most widespread emphasis. There is evidence of the early adoption and integration of a range of Web 2.0 technologies, tools, and techniques to support curriculum-content standards.
Data also suggest that the latter represents a strong area for ongoing development and involvement. Analysis by school type shows that this adoption of Web 2.0 technologies, tools, and techniques is taking place more strongly in the high schools and middle schools, rather than in the elementary schools. School librarians do show considerable capacity to lead this important journey in their schools. Cognizant of the staffing gaps raised earlier in this research, this finding presents further evidence that elementary school children may be missing significant opportunities to learn information and critical skills related to the use of information technology, not just for accessing, locating, and evaluating information, but also for learning to use information-technology tools and software packages to create their learning products, particularly those requiring use of Web 2.0 tools.

**Figure 4. Instruction in relation to information technology.**

A substantial number of school librarians in New Jersey reported actively providing teaching faculty with a range of information-technology-related professional-development activities. These provide a picture of the breadth and depth of school librarians’ involvement and leadership in faculty professional development. The percentage of school librarians reported to be involved in this professional development is shown below:

- Electronic searching in subscription databases (68.0 percent)
- Searching strategies for the World Wide Web (42.3 percent)
- Using software applications for learning (40.8 percent)
- Using the Internet and other electronic sources ethically (38.2 percent)
• Evaluating the quality of websites (33.2 percent)
• Using e-books (22.3 percent)
• Using Web 2.0 tools such as wikis, blogs, podcasts, or Twitter (19.2 percent)

Clearly, school librarians’ engaging in this professional role have wide-ranging technical capacities, and a pedagogical understanding of their integration into learning. In particular, the analysis shows the capacity of school librarians to focus on and demonstrate their instructional role and pedagogical knowledge through use of information technology, demonstrate the complexity of the information landscape and the importance of appropriate use of information technology, play a school-leadership role in enhancing teacher effectiveness, and play a role in driving improvement in teaching for student achievement. School librarians’ involvement in professional development of colleagues shows a commitment to whole-school development in term of effective use of information technology. Comparative analysis shows that the highest levels of involvement were reported in high schools, with lowest levels of participation mostly by elementary school librarians.

In addition to the categories mentioned above, open-ended responses generated five categories of professional development. These focus on professional development in relation to:

• Technical mastery of information-technology hardware
• Technical mastery of a range of information-technology software
• Technical mastery and use of library-specific software and technology tools
• Pedagogical integration of hardware and software into classroom and library-based instruction, and on-going instructional support
• Use of information-technology tools to develop ethical use of information and information technology by students

This professional development typically takes place through formally scheduled workshops as part of the school’s professional-development program, or more informal one-on-one instruction.

School Library Impact on Student Learning
Do New Jersey’s school libraries impact student learning? The study gathered qualitative data on the school libraries’ contribution to student learning. Through an open-ended question in the survey, the research team sought to uncover learning outcomes enabled by the school library program and the explicit interventions of the school librarians. Underpinning this question is the concept of evidence-based practice, which revolves around the key question: What differences do our school library and its learning initiatives make to student learning? That is, what are the differences, the tangible learning benefits, defined and expressed in ways that lead a school community to say, “We need more of this!”? Evidence-based practice is about ensuring that day-to-day efforts put some focus on gathering meaningful and systematic evidence on how the school library and its instructional and service initiatives contribute to learning outcomes.

In this study 721 participants provided substantive commentary on impacts on student learning, although not all participants providing commentary were able to identify library-related learning outcomes. The reported outcomes were analyzed using a qualitative approach of constant comparison to establish key concepts, categories, and
relationships. The categories of outcomes identified in this question are organized around a competencies dimension, defined as: skills, abilities, and habits of mind that underpin discovery, inquiry, and creativity—working with information to build deep knowledge and understanding, and to describe key learning outcomes. Six outcomes groupings were identified:

1. **General – Mastery of Curriculum Standards.** These outcomes refer to general statements of outcomes as they relate to New Jersey’s core content curriculum standards and test score achievement.

2. **Mastery of Resource-Based Competencies.** These outcomes refer to competencies related to seeking, accessing, and evaluating resources in a variety of formats, including people and cultural artifacts as sources, and libraries. These competencies include using technology tools to seek, access, and evaluate these sources.

3. **Mastery of Research Processes and Learning-Management Competencies:** These outcomes refer to competencies that enable students to prepare for, plan, and successfully undertake a curriculum-based research unit, including creating research plans and frameworks.

4. **Development of Thinking-Based Competencies and Knowledge-Based Outcomes:** These outcomes are abilities and dispositions that focus on substantive engagement with data and information, the processes of higher-order thinking and critical analysis that lead to the creation of representations/products that demonstrate deep knowledge and deep understanding; this category also includes outcomes related to the creation of knowledge.

5. **Development of Affective, Personal, and Interpersonal Competencies:** These outcomes refer to competencies and dispositions related to the social and personal aspects of learning about self as a learner, and about the social and cultural participation of inquiry.

6. **Outcomes Related to Reading to Learn and Reading for Enjoyment:** These outcomes refer to competencies, dispositions, and attitudes related to the transformation, communication, and dissemination of text in its multiple forms and modes, and to the development of meaning and understanding

These outcomes are developed in detail in Table 1, and supported with illustrative examples.

**Table 1. Reported Outcomes, their Dimensions, and Selected Examples**
<table>
<thead>
<tr>
<th>COMPETENCY</th>
<th>DIMENSIONS</th>
<th>PARTICIPANT STATEMENTS – SELECTED EXAMPLES</th>
</tr>
</thead>
</table>
| GENERAL MASTERY OF CURRICULUM STANDARDS | Mastery of curriculum standards 362 direct references to meeting curriculum standards; the vast majority of these references provided no elaborative detail. | General statements related to mastery of standards  
“meeting curriculum standards”  
“We meet curriculum standards for library literacy and (reading) literacy”  
“Meet curriculum standards in the areas of media, technology skills, student motivation for research and planning” |
| | Test score achievement 79 direct references to contribution to school’s results in relation to standardized test scores. | General statements related to test scores  
“Superior test scores”  
“Improved test scores”  
“test score achievement”  
“higher test scores”  
“boosting test scores”  
“test score improvement”  
“test scores in our district have improved”  
“Our test scores in the building are excellent”  
“Positive standardized test scores”  
“Assessment of OPAC skills indicated that 25% of 6th graders scored a C or better on a September pre-test; March post-test resulted in 65% of 6th graders scoring C or better” |
| RESOURCE-BASED COMPETENCIES | Library as place (12 references)  
- Respect for library as learning space  
- Understand library layout and structure | General statements related to library as place  
“Successfully navigating the library, changing attitudes of students about library and program”  
“Knowledge of organization of the library and retrieving books and information from a variety of sources”  
“Pre-K–2nd - we work mostly on treating materials with respect - the concept of borrowing – that it means returning” |
| | Mastery of Information skills / information literacy development in general (121 general references) | Statements related to information literacy  
“Mastery of information literacy”  
“They exhibit mastery in technology skills and information literacy”  
“Our students do very well at the high school with respect to information literacy according to the..."
simple statements of general outcomes.

**Specific information literacy capabilities, including mastery of technology competencies were identified.** These included:

- Selection of particular types of resources to suit research needs
- Use of information retrieval systems, such as subscription databases and web-based information repositories
- Use of OPACS and library catalogs
- Development of search strategies to retrieve information
- Evaluating information for quality, particularly websites

feedback we receive”
“‘They exhibit mastery in technology skills and information literacy.’”
“improving information literacy skills for students”

**Statements of specific competencies**
“students able to use OPAC and subscription databases to locate information to their personal needs”
“Learning about the right ‘tool’ for the given quest”
“Mastery of software applications in the library”
“Developing familiarity with a classification system”
“They are mastering the use of the online databases and reliable sources”
“Ability to do searches for bogus websites and evaluation of them”
“Mastery of Website evaluation strategies”
“Understanding need for website evaluation”
“Knowing how to broaden or narrow a search to find the information available out there”
“Mastery of searching the library catalog”
“understanding of the purpose of reference materials”
“Students know how to use the online catalog to search for materials and can then locate the materials independently”
“Mastery of research skills including keyword selection and search strategies”
“Selection of appropriate websites”
“Students evaluate information for validity using critical-thinking skills”
“Attribution of information found”

<table>
<thead>
<tr>
<th>RESEARCH PROCESSES AND LEARNING-MANAGEMENT COMPETENCIES</th>
<th>Research processes (359 references to students’ mastery of research process)</th>
<th>Statements related to research process and inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inquiry processes (98 references)</td>
<td>“Know a sequence of strategies for doing good research”</td>
<td></td>
</tr>
<tr>
<td>Independent learning (34 references)</td>
<td>“Develop their research skills- what to use when knowing when print reference is efficient, when databases are better, and when to use the free internet”</td>
<td></td>
</tr>
<tr>
<td>Project management (12 references)</td>
<td>“Able to follow a general research plan from start to finish of the research task”</td>
<td></td>
</tr>
<tr>
<td>This includes task</td>
<td>“Successfully completed a research-based guided-inquiry project on the presidents of the US”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Able to work through an inquiry-learning process”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Able to focus on their research tasks”</td>
<td></td>
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</tbody>
</table>
organization and management; developing and following plans; and setting up and applying structures, strategies, and files to maintain and manage their overall research tasks.

**Statements related to independent learning**

“Many of my student outcomes relate to independence - e.g. locating, choosing, and using information independently”

“Some students have become more independent in their use of the library”

“Successful completion of school assignments, and independent life-long learning”

“Ability to find materials independently”

“Work independently or collaboratively with peers to conduct research or give written responses”

“They become confident, independent users of information”

**Statements related to project management**

“The students appear to manage the research tasks in a timely manner”

“Students seem to be able to plan their projects”

“Students show ability to manage all the articles and papers that they find”

“Some students have organized folders for their research projects”

“4th-grade students created an electronic portfolio to meet the state tech benchmark standards”

<table>
<thead>
<tr>
<th>THINKING-BASED COMPETENCIES, KNOWLEDGE-BASED OUTCOMES</th>
<th>In essence: the processes of thinking, analysis, and synthesis that create knowledge, and the products the represent the knowledge of students.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intellectual engagement with information</strong></td>
<td>14 references were made relating to thinking-based outcomes.</td>
</tr>
<tr>
<td><strong>Construction and presentation of knowledge</strong></td>
<td>15 references were made to creating knowledge.</td>
</tr>
</tbody>
</table>

**Statements related to the intellectual engagement with information**

“Think through all the information and work out what is needed”

“Students have developed some higher-order thinking skills, reading strategies, making connections to texts, world, and self”

“Students show ability to master critical-thinking skills applicable to each grade level”

“Meeting curriculum standards, test score achievement through critical thinking”

“Understanding cross-references in searching for data and critical analysis of information”

“thinking, comprehension, and communication skills have been developed”

“Students show intellectual curiosity”

“Students evaluate information for validity using critical-thinking skills”

**Statements related to demonstrating knowledge and producing representations of knowledge**

“Able to demonstrate and use skills to write
<table>
<thead>
<tr>
<th>AFFECTIVE, PERSONAL AND INTERPERSONAL COMPETENCIES</th>
<th></th>
<th>Statements related to motivation and interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantive number of references were made to the development of a range of attitudes and values, including:</td>
<td></td>
<td>“Developing awareness of ethical issues in information and communication”</td>
</tr>
<tr>
<td><strong>Display interest</strong></td>
<td></td>
<td>“Positive changes in interest and motivation, not just for using the library but school work in general”</td>
</tr>
<tr>
<td>(158 references)</td>
<td></td>
<td>“They have found new interests to increase motivation in other areas”</td>
</tr>
<tr>
<td><strong>Increased motivation</strong></td>
<td></td>
<td>“Motivation to read widely and seek out information”</td>
</tr>
<tr>
<td>(78 references)</td>
<td></td>
<td>“Students have better attitudes and increased motivation toward the library and doing research”</td>
</tr>
<tr>
<td><strong>Teamwork and interpersonal relationships</strong></td>
<td></td>
<td>“Students are more motivated to use the library because they know they are in a friendly environment where they know they will not be judged based upon their queries”</td>
</tr>
<tr>
<td>(12 references)</td>
<td></td>
<td>“Students are motivated to use the computers for research and reporting alike”</td>
</tr>
<tr>
<td>Work effectively in teams; Positive relations to each other and library staff</td>
<td></td>
<td>“Children are motivated in the library, and leave with the effective use of information technology. They become positive researchers”</td>
</tr>
<tr>
<td><strong>Ethical information use behaviors</strong></td>
<td></td>
<td>“My students are very motivated and enjoy coming to the media center each week”</td>
</tr>
<tr>
<td>(40 references)</td>
<td></td>
<td>“Motivation to use the library and its facilities; motivated to conduct research”</td>
</tr>
<tr>
<td>This shows outcomes related to students demonstrating use of accepted protocols to document ideas, with some limited reference to using technology in research papers, create projects, etc.”</td>
<td></td>
<td>“Motivated and interested in unexplored areas”</td>
</tr>
<tr>
<td>“Blending different types of resources for a project”</td>
<td></td>
<td>“Students have come to discover that the school library is the gateway to academic achievement through their exposure to the use of information technologies in the library, such as electronic databases, AVs, etc. These had gone a long way to motivate them to learning”</td>
</tr>
<tr>
<td>“Demonstrate research organization, integration of new knowledge, properly crediting sources, etc.”</td>
<td></td>
<td>“See increasing students’ attention to detail, increasing ability to organize information and ideas”</td>
</tr>
<tr>
<td>“Increasing ability to make connections among ideas and information”</td>
<td></td>
<td>“Increasing ability to make connections among ideas and information”</td>
</tr>
<tr>
<td>“mastering the fusion of others’ and own ideas”</td>
<td></td>
<td>“Mastery of information for fulfilling personal needs (how-to, career, etc.)”</td>
</tr>
<tr>
<td>“Mastery of information for fulfilling personal needs (how-to, career, etc.)”</td>
<td></td>
<td>“End product for learning activity- i.e. PowerPoint presentation, Excel spreadsheet, Publisher booklet, Word document, etc.”</td>
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</tr>
</tbody>
</table>
appropriate and safe ways.

Ethical behaviors in relation to citation practices, plagiarism, and copyright were identified

“Students in some cases have achieved a calmer and more efficient attitude to their specific skills. They have found new interests to increase motivation in other areas”

“Motivation goes up, goals are easier to reach, curriculum is mastered, technology becomes more helpful, and information is gained, resulting in success at tasks and gain of knowledge”

“The students’ attitudes towards research and literacy have improved this year. What they viewed as frustrating and insurmountable is now viewed as a ‘do-able’ project”

**Statements related to social and person agency**

“Through the school library students respect different ideas and differences with people and themselves more”

“Group research projects have taught some students how to work better together and in teams”

**Statements related to ethical behavior**

“They get it – plagiarism is not ok”

“students show increasing use of appropriate citation processes”

“The students are initiated at the library to Turnitin so there is now much less active plagiarism”

“Students show evidence of understanding ethical use of information, plagiarism issues, and correct citation format”

“Students appear to respect intellectual property”

### READING TO LEARN AND TO ENJOY

The participants made 198 references to outcomes related to reading. Elementary and middle school librarians were mostly represented. The majority of these referred to:

- **Increased interest in reading**
- **Increased circulation of reading materials**

**Statements related to reading to learn and reading for enjoyment**

“Changes in attitudes and interests towards books”

“familiarity with award-winning authors/illustrators; knowledge of various genres”

“Students are more interested in taking out books for pleasure reading”

“Our circulation has each student checking out at least one book per week”

“Large increases in borrowing of fiction after our reading promotion”

“Students develop both an understanding and an appreciation for different types of fiction and non-fiction This is motivational in that it broadens attitudes and interests”

“Increased motivation for informational and pleasure reading”
| Development of wider reading interests | “Students are eager to select books for instructional and recreational needs”  
| Becoming discriminating readers | “Advancing reading and comprehension levels”  
| | “Enhancing reading enjoyment, comprehension, and fluency” |

The qualitative responses of participants collectively show the contribution of school libraries to the development of the whole child—developing capabilities that go beyond the traditional scope of information skills. These outcomes do portray the school library program as an agency for intellectual development, and for social and the cultural growth of students as they grow up in a complex and diverse information world. According to the evidence of the school librarians represented here, the school librarian works to meet core content standards, to develop a wide range of information-handling competencies, and to provide students with the intellectual and technical scaffolds they need to learn and to be ethical and productive users and consumers of information in a digitized world.

Several important observations emerge out of this analysis. Firstly, while it is encouraging that school librarians can articulate improvements in terms of reading, information literacy, use of information technology, and improved attitudes towards the library, very few could articulate specific learning outcomes in relation to the students’ development of deep knowledge and deep understanding of content areas. At best, outcomes were expressed as “meet curriculum standards” without more detailed elaboration. While these general comments may be an artifact of the question posed, school librarians appear to have difficulty articulating the outcomes of library initiatives in terms of specific curriculum standards/goals, and providing specific evidence-based claims of specific gains in knowledge and skills. It is a question of precision and specificity.

Secondly, a substantial number of school librarians had difficulty focusing on student outcomes; rather, they articulated in detail what they did, identifying instructional inputs and processes, rather than clarifying outcomes from the perspective of the student. There seems to be an assumption that through articulating what is done, outcomes are implied, even if they are not identified. Some illustrative examples of a focus on inputs are presented here: “I formally teach grades K–4 and have had the opportunity to collaborate on curriculum projects with the classroom teachers in those grades.” “I make sure lessons cover the standards and stress the importance of what type of learner each student is and how best they can succeed in mastering skills across the curriculum. Research is taught in small increments and expanded.” “Throughout the year students are introduced to a wide variety of books, mainly fiction. As a result, every child has read several books by the end of the school year from the media center. All children utilize technology such as Microsoft Office programs, and most are quite proficient by the end of the year, especially in Word and PowerPoint. They also learn how to use research databases such as Culture Grams and NetTrekker, and some Web 2.0 applications. All students use the computers for research, and are taught how to cite sources.”

Thirdly, there was not strong data to suggest that systematic approaches to gathering evidence of outcomes were used. Unstructured, informal observation was identified by a number of
participants as the basis for making claims of outcomes: “Meeting curriculum standards; these I believe are the results of my program, but I do not have the opportunity to evaluate their work, so I can only estimate from my interactions with them as they research in the Library Media Center with me.” Two participants identified some strategies for collecting evidence as a basis for making claims of outcomes: “I give pre- and post-tests in some of my collaborations to track learning outcomes related to standards,” and “I look at test score data and see if the classes we have done reading strategies [with] show up in the scores.” Five participants indicated that it was impossible to gather evidence due to a range of factors in the schools: “I formally teach grades K–4 and have not had the opportunity to collaborate on projects with the classroom teachers in those grades. I see the children 40 minutes/week. This is a 100 percent increase over last year, when my predecessor saw grades 2–4 only 20 times per year. Under these conditions, it is not possible to identify specific learning outcomes resulting from library instruction.” “I am too busy running the library without assistants and so it is not possible to determine the specific outcomes.”

Where to Now?
The above analysis sheds some light on the nature and outcomes of school librarians’ instructional role. Such data provide insights into what school librarians do well, and where opportunities for continuous improvement may be found. So what? It is acknowledged that many challenges confront school library programs and their role in learning in the diverse and increasingly digital landscape of the twenty-first century. What comes out strongly in the data is that the school library is a learning center—a common place across the school for fostering curriculum standards and knowledge outcomes, and for the development of important pedagogies that enable students to engage with the information landscape in all its richness. Considerable work is being done relating to conceptualizing school libraries as “learning commons” (Loertscher, Koechlin, and Zwaan 2008) where the central focus is on:

- Intervention and socialization for learning
- Strategies for functioning effectively in the complex informational and technological world beyond school
- Knowledge-centered outcomes and intellectual engagement

School librarians need to capitalize on their contribution to the development of intellectual quality, their contribution to the pedagogy of a school, and the library as a rich learning environment for students. Advocacy is about positioning the school library as a pedagogical center where instructional teams engage in innovative design and instruction to access and use information and Web tools to empower learning through creativity, discovery, inquiry, cooperation, and collaboration. The school library is a learning environment fueled by the development of expertise of learning with and through information and IT tools to create, produce, and share knowledge.

A key challenge also centers on engaging information-technology expertise—evidenced in this study—to position the future school library as a 24–7 learning environment: one that supports the knowledge-building process out of school and operates as a central portal for knowledge development.
The results of the study provide opportunities for school librarians to use the findings as a guide to benchmarking in their own schools, and to negotiate and establish continuous school-improvement plans that focus on meeting targeted standards of professional and paraprofessional support for school libraries. Each school community should review these findings and tailor a school-library-improvement plan that is responsive to the context of the particular school. The plan should establish annual improvement goals, such as increases in budget allocations, building collections to recommended levels of resources, increasing paraprofessional support, transforming fixed library schedules to more flexible schedules, initiating collaborations between school librarians and teachers in targeted curriculum areas, and developing information-technology competencies for teaching faculty and students.

It is clear the school librarians in New Jersey engage actively in the development and instruction of an extensive range of information and technical literacies. This instruction primarily centers on knowing about the school library, knowing about different sources and formats, with focus also given to understanding the different strategies in doing effective research, learning how to use resources, evaluating information for quality, and learning to use information ethically. It is also pleasing to see that despite issues with staffing in the elementary schools, school librarians, where available, are contributing substantially to this instruction.

Overall, there is an information and resource orientation. The focus appears to be on essential skills of accessing and locating information, and evaluating its appropriateness for task and authority. Unquestionably, these are important competencies. With increasing emphasis in many state and national curriculums on intellectual quality and the development of deep knowledge as key curriculum outcomes, it is suggested that the “use” dimension of information literacy be strengthened in instructional teams. This use dimension includes the abilities and dispositions that explicitly focus on knowledge building; critical thinking; problem solving; and creation, construction, and sharing the products of knowledge—products that demonstrate deep knowledge and understanding. Focusing on the use dimension is an extension of the instructional role: moving from instruction centering on “finding information” to “doing something with the found information,” an activity that constitutes individual and collective knowledge building, and is clearly embodied in AASL’s Standards for the 21st-Century Learner (2007). The increasing emphasis on digital literacy and digital citizenship further underscore the opportunities for literacy-related instructional interventions linked to collaborative knowledge-creation and sharing.

One of the key challenges emerging out of this study is the need for school librarians to be able to state with greater precision the learning outcomes and impacts of school library initiatives. It is encouraging that school librarians can articulate improvements in terms of reading, information literacy, use of information technology, and improved attitudes towards the school library. However, only a small number of respondents could articulate specific learning outcomes in relation to the students’ development of deep knowledge and deep understanding of content areas. At best, outcomes were expressed generally as “meet curriculum standards” in subject areas. This is a case of the elusive outcomes believed to be present, but they are not documented, evaluated, and communicated.

The arena of evidence-based practice in school libraries encompasses three dimensions:

- Evidence-for-practice, where professional practice has the extensive body of
empirical research as its foundation
- Evidence-in-practice, where school librarians actively engage with processes and strategies (formative and summative) to chart the learning progress of students
- Evidence-of-practice, where outcomes are identified, disseminated, and become part of the cycle of continuous improvement (Todd 2009)

Quality pedagogy is accountable pedagogy, one underpinned by evidence. In the current economic climate and time of substantive education cutbacks, the challenge of documenting learning outcomes and impacts is more urgent now than ever before. It is critical that school librarians continue to develop their skills at identifying, documenting, and publicizing students’ learning outcomes enabled by the school library, particularly emphasizing curriculum outcomes and knowledge outcomes, rather than library-based outcomes.

The study showed that more than half of the school librarians who responded do not speak at parent and community organizations. This finding suggests a missed opportunity to share with significant audiences the role of the school library program in achievement and literacy development. It may be argued that these school librarians are not actively invited to participate or that, by their nature, parent and community organization meetings do not lend themselves to librarians’ participation. On the other hand, given multiple demands on budgets across any school, the current climate of educational accountability, and the vital importance of significant audiences knowing the central role of the school library (an essential element in sustained commitment), it is important that school librarians take a proactive stance. This finding may also signal an opportunity for professional associations to provide some development in terms of how and what to communicate to interested audiences, and to learn how to engage in evidence-based advocacy. The importance of school librarians being proactive in their participation in various school and community forums is stressed here. This pro-action may take several forms such as presentation of reports that highlight the school library’s contribution to learning, summaries of learning outcomes of collaboratively taught curriculum units, requests to be on the agenda to raise important school library issues and initiatives, and presentations of summaries of significant research findings in relation to information literacy and reading engagement.

The findings show a substantial number of school librarians reported involvement in cooperations, coordinations, and collaborations with classroom teachers. An extensive body of educational research concludes that quality teachers and quality teaching have the most significant effect on student achievement. It is my view that instructional collaborations should be the key feature of the role of the school librarian. The Guided Inquiry based framework, underpinned by the Information Search Process developed by Carol C. Kuhlthau (2004), and explicated by Carol C. Kuhlthau, Leslie K. Maniotes, and Ann K. Caspari (2007) is recommended as the research-based and research-validated approach to productive pedagogy, and, indeed, is timely in the context of educational initiatives that are explicitly targeting creative pedagogies centering on inquiry.

The findings also underscore the importance of all school libraries’ establishing of a strong Web presence, both within the school and as part of a broader learning-centered advocacy program. Such websites should, in the long term, provide access to electronic resources and databases both onsite and remotely. These websites should highlight the collaborative instructional partnerships, identify learning outcomes enabled in the school through the school library, and provide access...
to research guides, learning techniques and knowledge-building strategies and tools, with
guidance and online support for their development.

This Web presence is also vital as an instructional environment for the development of digital
literacies and fostering digital citizenship. The findings indicate that school librarians are
bringing to the school community a unique set of capabilities related to accessing and using
information technology, not just for finding and evaluating resources, but for using technology
tools to create innovative representations of knowledge. It is particularly encouraging to see the
eyearly adoption and integration of a range of Web 2.0 technologies, tools, and techniques to
support curriculum content standards. School librarians show considerable capacity to lead this
important journey in their schools, and must continue to develop inquiry-centered (rather than
tool-centered) pedagogies engaging the diversity of Web 2.0 capabilities for content creation,
representation, and assessment.

This study iterates what has gone before: The school library is a vital and necessary part of 21st-
century schools. The findings of this study show that school library programs and the work of
school librarians contribute in rich and diverse ways to the intellectual life of a school, and to the
development of students who can learn and function in a rich, complex, and increasingly digital
information environments. School libraries that are staffed by certified school librarians provide
common information grounds for supporting learning across the school through engagement with
information, with particular emphasis on developing students’ abilities to interact with
information and to use it to learn well. This contribution is underpinned by an information and
technology infrastructure, and enabled through strong instructional, service, and administrative
roles of school librarians. It is the instructional role of school librarians that stands out in these
findings. As school libraries are re-imagined and re-engineered, it is my belief that the
instructional role of an information-learning specialist will substantially define the future of the
school library, and indeed, the future school library—one where the school library program is
portrayed as an agency for intellectual development and for the social and cultural growth of
students as they grow up in a complex and diverse information world.

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Cite This Article


School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

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Assessing Information Literacy: A Case Study of Primary 5 Students in Hong Kong

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Abstract
This paper reports an exploratory investigation of the information-literacy levels of primary 5 students in Hong Kong. Factors such as gender and reading ability were also examined. Primary 5 students from four local schools completed a fourteen-item information-literacy assessment (ILA), which was adopted and modified from questions on the sixth-grade version of the Tool for Real-time Assessment of Information Literacy Skills (TRAILS). The ILA covered five TRAILS categories and three American Association of School Librarians (AASL) and Association for Educational Communications and Technology (AECT) IL standards to measure different aspects of information literacy. Reading ability was measured by questions from a local public test of reading comprehension. On average, the participants (n = 199) achieved a mean score of 9.12 (SD = 2.56), and most assessment items showed room for improvement. Female students (n = 97; 48.7 percent) scored higher on the ILA than their male counterparts (n = 102; 51.3 percent), suggesting female students’ higher level of information literacy. Results also revealed a positive and significant relationship between students’ information literacy and reading ability. These findings offer a preliminary understanding of the information literacy of children in Hong Kong.

Introduction
With rapidly growing technologies, access to information sources has become more economical and convenient. With the continuous advancement in technologies these days, individuals are continuously fed with new information. Honora Nerz and Lisa Bullard have pointed out that “finding information is no longer the challenge; rather, it is finding the best information from the best source available” (2006). In recent years the more-valued employees are those who are able to turn the best information into useful knowledge that can enhance business performance in a knowledge-based economy. This circumstance suggests that proficiency in information literacy (IL) is essential for individuals to remain competitive in the labor force. To prepare for their future work, students need to learn how to extract and use the “best” information through learning experiences such as school projects. IL has been defined as “the ability to find and use information” (AASL and AECT 1998, 1), and is believed to be indispensable not only to working individuals but also to students.

In a knowledge-based economy such as that of Hong Kong, a general training in IL is crucial, as it can contribute towards ensuring a secure and productive labor force in the future. IL has been identified as a component of the 21st-century skills that have been advocated by progressive
educators (Darling-Hammond 2010; Dede 2010; Kay 2010; Trilling and Fadel 2009) and that have been touted to be the ones students need to succeed in learning, career, and life in this century. National governments and educational authorities around the world have recognized the importance of IL, as demonstrated by its introduction as a component of educational systems. For instance, it has become customary for university libraries to design their own IL tests to evaluate their students’ IL proficiency (Mueller 2010). Beginning June 4, 2012, even the Graduate Management Admission Test (GMAT), an admission requirement for most graduate business programs, will include a new section to measure candidates’ ability to evaluate information from multiple sources (Graduate Management Admission Council 2010). More and more postsecondary schools and educational authorities around the world are introducing IL education and setting IL standards for students at younger ages (Moore 2002).

The government of Hong Kong has also recognized the growing importance of IL. A framework for IL education at primary and secondary levels has been drawn up and circulated as the Information literacy Framework for Hong Kong Students: Building the Capacity of Learning to Learn in the Information Age (HKSAR Ed. and Manpwr. Bur. 2005). Although this document provides a thorough analysis of information literacy and gives relatively clear guidelines on the implementation of IL education, the assessment of students’ IL is not been included. In the absence of a standard means of measuring students’ IL level, it remains unclear whether the younger generation is attaining sufficient IL proficiency for effective searching, comprehension, evaluation, and citation of information sources. Teachers and schools need such information to design syllabi and address the gaps in students’ IL skills. Moreover, clear and rigorous standards enhance understanding and comparability of students’ IL levels across different countries. To initiate the evaluation of the IL proficiency of Hong Kong students and to develop the Information Literacy Assessment (ILA) tool used in this study, researchers adopted and modified the Tool for Real-time Assessment of Information Literacy Skills (TRAILS), a project of Kent State University Library. The ILA tool was used to evaluate the IL levels of Primary 5 (P5) students from a Hong Kong primary school. Concurrent tests of reading ability were also conducted, and it was hypothesized that reading ability would be associated with IL proficiency.

**Literature Review**

**What Is Information Literacy?**

The term “information literacy” was first proposed in the 1970s by Paul Zurkowski of the Information Industry Association and applied to the skill set of individuals who are “trained in the application of information resources to their work” (cited in Mokhtar and Majid 2006, 48). The importance of IL was later recognized by the Association of College and Research Libraries (ACRL), a division of the American Library Association. In 1989 the final report of the ACRL’s Presidential Committee on Information Literacy clearly stated that an information-literate person “must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (ACRL 1989). Numerous definitions with different emphases have been proposed over the past decades (Webber and Johnston 2000), but most of these have followed the core ideas of the ACRL.

Several terms can be included under the broad umbrella of IL; these terms include “library literacy,” “media literacy,” and “computer literacy” (Bawden 2001). “Library literacy” can refer either to the traditional sense of involving libraries in literacy education or to students’ ability to use libraries. “Media literacy” concerns “critical thinking in assessing information gained from
the mass media: television, radio, newspapers and magazines, and (increasingly) the Internet” (Bawden 2001, 225). “Computer literacy” generally refers to competence in using commonly used software programs (Bawden 2008). These concepts often intertwine with IL, but can be viewed as integral components of IL.

The Education and Manpower Bureau, now called the Education Bureau (EDB) of the Hong Kong Special Administrative Region of the People’s Republic of China (HKSAR) has set forth the value of IL education in the territory through the *Information Literacy Framework for Hong Kong: Building the Capacity of Learning to Learn in the Information Age* (2005). To develop this framework, models of IL in different regions were analyzed. Models examined included those developed by Association of College and Research Libraries (ACRL), by American Association of School Librarians (AASL) with Association for Educational Communications and Technology (AECT), and by the Australian and New Zealand Institute for Information Literacy (ANZIL). As shown in figure 1, the standards of different frameworks were grouped into four categories of learning: cognitive, meta-cognitive, affective, and socio-cultural dimensions. These four categories were considered relevant in determining an assessment tool for this study.

Figure 1. A coding scheme for analysing the selected models of information literacy [reproduced from *Information Literacy Framework for Hong Kong Students: Building the Capacity of Learning to Learn in the Information Age* (HKSAR Education and Manpower Bureau 2005)]

![Coding Scheme](image)

The cognitive dimension encompasses five out of nine IL standards set by AASL/AECT. Core skills involved in completing an information-search task include the skills of effectively selecting, understanding, and applying information, and are important elements of the cognitive dimension. In addition, the ability to learn independently is also emphasized. The meta-cognitive dimension involves “knowing about knowing.” In addition to having the necessary skills and knowledge in processing information, information-literate people should be aware of such knowledge and reflect on it. They should also understand what kinds of attitudes and actions can contribute towards effective IL skills. For instance, AASL/AECT IL Standard 5 suggests that an information-literate student should actively search for the necessary techniques and criteria to appreciate information in different formats. The affective dimension is also important as a learner’s perceptions towards an inquiry process influence motivation. No one knows about an individual’s interest more than himself or herself; therefore, AASL/AECT IL Standard 4 emphasizes the responsibility of a person to search for information that suits his or her interest,
and, thus, helps maintain the habit of information seeking. Finally, the socio-cultural dimension concerns learners’ understanding about their responsibilities in the process of inquiry and enhancement of an information-literate society. For instance, an information-literate individual should respect intellectual-property rights and use information technology ethically and legally.

A number of other frameworks capture other aspects of IL beyond the scope that has been adopted by the HKSAR government. For instance, Carol C. Kuhlthau’s information-search process describes a person’s experience in information seeking using a stage model (1991). The Big6 model is another popular IL framework for K–12 education around the world. Big6 refers to a six-step approach for tackling information problems: task definition, information-seeking strategies, location and access, use of information, synthesis, and evaluation (Eisenberg 2008).

Information-Literacy Education and Standards Worldwide
Jeremy J. Shapiro and Shelley K. Hughes (1996) used the Age of Enlightenment, in which freedom, democracy, and reason were promoted as the core values of a society, as an analogy for the twenty-first century. Given the greater freedom in accessing information, people who can effectively locate and critically evaluate useful information can enhance their general well-being and contribute to a better democratic society. IL has also been suggested as a necessary skill to face the challenges brought about by the emergence of the knowledge-based economy (KBE) dominated by “production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as equally rapid obsolescence” (Powell and Snellman 2004, 199). With growing globalization and reduction of trade barriers, it is expected that less and less manual work will be offered to the human workforce in developed countries. Therefore, a labor force equipped with sound knowledge and high levels of IL that enable workers to use knowledge will be of paramount importance.

Shifts in education paradigms have been observed worldwide. In the traditional rote-learning paradigm, students have not been encouraged to think on their own. In this conventional “teacher-centered” approach, students tend to be passive recipients of knowledge (Jonassen, Peck, and Wilson 1999). Gradually, such an approach is being replaced by modes of constructive, student-centered learning, such as inquiry-based learning and project-based learning. In these approaches, students actively search for information, and construct knowledge and concepts through teachers’ guidance and interactions with peers (Chu 2009; Chu, Chow, and Tse 2011). Students need to be proficient in IL to become effective information seekers and knowledge constructors. Children are indeed active information seekers, especially through the Internet. For instance, in Hong Kong 90 percent of children aged ten to thirteen years have been found to be Internet users. Among these users, 80 percent reported that they used the Internet to search for information (Andersen et al. 2007). Although children are persistent searchers (Bilal 2000), they do not automatically have high levels of Web literacy. For example, children have been found to be unable to save their successful search queries for future use (Hirsh 1999).

Given the growing awareness of the importance of IL education, recent research has been conducted in many other countries, representing a global IL perspective and awareness (Johnson, Sproles, and Detmering 2010). Among the studies in this area, many have focused on looking at the establishment of IL standards at various education levels, including primary and secondary education. Back in 1999, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Federation of Library Associations and Institutions (IFLA) developed the School Library Manifesto, a framework document that laid the foundations for
defining the role of school libraries in IL education. It suggested that “when librarians and teachers work together, students achieve higher levels of literacy, reading, learning, problem-solving and information and communication technology skills.”

In the USA the AASL/AECT information-literacy standards were incorporated into the education systems of many states at different grade levels. Oregon, for example, adopted the AASL/AECT IL standards for developing the state’s curriculum and setting IL goals. Other states, such as Virginia, undertook a comprehensive review of IL and formulated their own guidelines and standards. In Montana, with the use of *Information Power* (AASL and AECT 1998) and the Big6 information problem-solving process as primary guiding documents, content and performance standards for school library programs were established in 2000 (Bartow 2009).

Other countries have also incorporated IL into their education systems to varying degrees. In Denmark IL is emphasized strongly as a student-learning outcome. In the Sultanate of Oman the development of an information-skills curriculum for grades one through six was included as part of the five-year plan for the new education policy (Moore 2002).

**The Case of Hong Kong**

Hong Kong has been described as a territory that has been moving rapidly towards a knowledge-based economy (Enright 2000). The publication *Hong Kong as a Knowledge-Based Economy: A Statistical Perspective* prepared by the HKSAR Census and Statistics Department pointed out that “a KBE is characterized by the need for continuous learning of both codified information and the competencies to use information” (2009, 4). In light of this reality, in 2004 the HKSAR government determined to “draw up an Information Literacy framework for primary and secondary students…so that teachers and students have a clearer picture on the learning targets of using IT in education” (HKSAR Ed. and Mnpwr Bur. 2004, 28). IL in primary education was segregated into two stages: Primary 1 (P1) to Primary 3 (P3) for Stage I, and Primary 4 (P4) to Primary 6 (P6) for Stage II. Guidelines were detailed in terms of learning targets, knowledge, skills, and attitude for each stage. A survey among school librarians, teachers, curriculum coordinators, and principals later revealed that 95 percent of the 2,608 respondents confirmed the need for IL education in Hong Kong (Kong 2008). The IL framework introduced in 2004 provided general guidelines on the kinds of skills that students need to acquire at different stages of IL development. The framework suggested that schools should implement the framework according to their unique situations.

In addition to understanding the IL-education framework developed by the EDB, teachers must also know students’ strengths and weaknesses so instructors can adapt their teaching according to students’ needs. However, no standardized territory-wide assessment for IL exists, thus limiting the ability of educators to determine the IL abilities of their students.

Several attempts have been made to examine the IL levels of Hong Kong students. For example, using questionnaires, search diaries, and interviews, Jan van Aalst et al. (2007) explored the habits and abilities of secondary school students in Hong Kong. Most students reported feelings of uncertainty and confusion at the beginning of an inquiry project, and many remained frustrated after the search process. Secondary school students rated online webpages as the most important source of information. The diaries of some students expressed feelings of being overwhelmed by information overload.
With a view to promoting IL in primary and secondary education, the EDB commissioned the Centre for Information Technology in Education (CITE) of the University of Hong Kong to develop tools for evaluating students’ information-literacy levels (CITE 2009). The following eight IL-competence dimensions were identified in the project: define, access, manage, integrate, create, communicate, evaluate, and ethical use. Based on these dimensions, the project team developed a set of generic IL rubrics, which can be used by students as a self- or peer-evaluation checklist. In addition, a Key Stage rubric, which describes the expected IL performance of students at each key stage, was also suggested for curriculum intervention. These rubrics have proven to be useful at student- or individual-school levels. Both students and teachers reported that the rubrics were helpful in facilitating students’ IL development and assessing their skills. Moreover, data collected from the assessment developed in the project revealed significant improvements in students’ IL competence after the intervention project. However, given the self-evaluation nature of the rubrics, they could not be applied at the aggregate level as a tool for assessing students’ IL levels.

Another study conducted by Kon-ying Ning and David M. Kennedy (2008) found that primary school students in Hong Kong generally have very limited exposure to IL education. Under the existing syllabus, IL is taught only in Computer and General Studies at Primary Four (P4) and Five (P5) levels. An IL test, although not precisely modeled after any of the internationally recognized tests, was adopted to test students’ knowledge concerning the Big6 skills. The study results showed that, on average, only 20.8 percent and 23.6 percent of P4 and P5 students respectively showed promising knowledge of the Big6 components. No differences were found between test performance at the two levels, and most students were generally weak in defining a search task. Through class observations, students’ application of IL skills was also assessed. It appeared that most students’ IL skills were poor, although P5 students seemed to have better practical skills than the younger P4 students. However, scores in the Big6 tests were not associated with IL skills application; this finding implied that knowledge in IL does not necessarily translate into successful skills application. Nevertheless, students tended to have positive attitudes towards Big6 skills, which they learned through computer lessons.

Factors Affecting Information Literacy

Because students must be able to interpret the meaning of a text, reading ability is believed to be one of the important factors that contribute to high IL levels (Sayed 1998). Similarly, Maria Pinto, Anne-Vinciane Doucet and Andres Fernández-Ramos (2008) suggested that abstracting is a core skill in IL. Successful abstracting requires skills in five areas: reading and comprehension, analysis and interpretation, synthesis, organization and representation, and writing up. IL and abstracting skills are mutually dependent; abstracting skills and IL have bidirectional enhancing effects on each other. While such an argument seems logical, no empirical evidence has been established to support it. Nevertheless, the importance of reading ability for IL competence has been emphasized and is thus examined in this study.

Gender has also been believed to influence information-technology skills and usage of computer resources. For instance, an earlier study (Meredyth et al. 2000) examined the information-technology skills of Australian students, and girls were found less capable than boys in computer skills, both basic (e.g., deleting files, creating new documents, etc.) and advanced (e.g., using spreadsheets, sending e-mail messages, etc.). In particular, girls performed worse in information search using the Web. Self-exploration at home was found to be an important way of acquiring advanced information-technology skills, yet girls tended to depend more on school for learning
information technology. Alternative explanations have also been suggested such as: girls are less capable in spatial performance (Contreras and Colom 2001), tend to be more anxious about using computers (Siann et al. 1990), or are affected by stereotypes depicting information technology as a masculine area (Meredyth et al. 2000; Nielsen et al. 1998).

While it could be likely that there are gender differences in terms of IL competence, only a few studies have examined such differences. Moreover, the gender differences in technology are likely to have changed over recent decades due to rapid technological advancement and increasing emphasis on gender equality. This study examined whether gender has an effect on the IL competence of children in the context of modern society.

**Purpose**

Given the lack of a standardized assessment for measuring Hong Kong primary school students’ levels of IL, this study adapted and modified the Tool for Real-time Assessment of Information Literacy Skills to evaluate the IL of a group of primary school students. The findings of this study provide preliminary information that could serve as baseline information about the IL competence of the participating students. The relationship of reading ability to IL skills was also examined, and potential gender difference was explored. The research objectives of this study are thus summarized as follows:

1. To measure the IL levels of P5 students from primary schools in Hong Kong, using an information-literacy assessment (ILA) adopted and modified from TRAILS.

2. To investigate the relationship of IL to reading ability and gender.

**Method**

**Participants**

This study is part of a wider project, which has recruited four primary schools in Hong Kong whose academic standing is ranked as average. The participants of this study consisted of 199 Primary 5 (grade 5) students from these four schools; participants’ parents returned signed informed-consent forms. While all P5 students from each school were invited to participate, the actual number of participants varied per school (see table 1) because participation was voluntary and dependent on parental consent. To protect their identities, in this paper the four participating schools are represented by letters A through D.

<table>
<thead>
<tr>
<th>School</th>
<th>Total Number of Students</th>
<th>Number of Participants</th>
<th>Participation Rate</th>
<th>Number of Females</th>
<th>Number of Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>131</td>
<td>46</td>
<td>35.11%</td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td>B</td>
<td>67</td>
<td>58</td>
<td>86.56%</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>C</td>
<td>74</td>
<td>42</td>
<td>56.76%</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>149</td>
<td>53</td>
<td>35.57%</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>421</td>
<td>199</td>
<td>47.27%</td>
<td>97</td>
<td>102</td>
</tr>
</tbody>
</table>

Table 1. Sample information.
Instruments

Information-Literacy Assessment

The ILA instrument for this study was modified from the Tool for Real-Time Assessment of Information Literacy Skills (TRAILS). As one of the projects of the Institute for Library and IL Education (ILILE), TRAILS was developed by Kent State University faculty with the assistance of school librarians. The goal was to assess the levels of information literacy of third-, sixth-, ninth-, and twelfth-graders (Kent State University Libraries 2010). The ILA was designed as “a class assessment tool that was standards-based; provided both class and individual outcomes; assured privacy; and was Web-based, easy-to-use, and available at no cost” (Schloman and Gedeon 2007, 45). Since its availability for public use in 2006, TRAILS has gradually been adopted within the United States. The advantage of using TRAILS is that results of the tested students can be compared to the national average in the United States. However, no study has adopted TRAILS as an assessment for non-U.S. participants. The current study would be the first to adapt and use TRAILS for a non-American population.

The IL framework set by the HKSAR government has incorporated the AASL/AECT IL standards by classifying them into four categories. The “eight IL competence dimensions” developed by CITE (2009) also correspond to these standards, except the ones (i.e. Standards 4 and 5) that fall under the affective dimension of the EDB IL framework. These three IL frameworks (HKSAR, AASL/AECT, and CITE) resemble each other to a great extent, with only minor differences regarding the degree of emphasis on students’ perceptions of the inquiry process.

The ILA tool used in this study assesses the information-literacy level of students in five TRAILS categories, which correspond to the major IL standards set by AASL and AECT. The questions in TRAILS assess students’ information literacy in the cognitive, meta-cognitive, and socio-cultural dimensions of the EDB IL framework, covering seven out of eight IL dimensions suggested by CITE. TRAILS encompasses most of the standards and dimensions of the three frameworks deemed relevant in this study, leaving out only the evaluation of students’ level of enjoyment in finding and using information, which is beyond the scope of this study. The consistency of TRAILS components with the Hong Kong IL framework made it potentially applicable to primary school students in the territory. The TRAILS 6th General Assessment 1 consists of twenty-five questions, fourteen of which were extracted based on the expert opinion of two school librarians from the participating schools. The reasons for excluding the other questions were 1) the wording was too complicated, and 2) the context was considered remote to Hong Kong students. The relationship between the TRAILS categories and the three frameworks is summarized in table 2.
Table 2. TRAILS Categories and AASL/AECT Information Power standard corresponding to the questions in the ILA.

<table>
<thead>
<tr>
<th>Question number on ILA</th>
<th>AASL/AECT Information Power</th>
<th>TRAILS Categories</th>
<th>EDB IL Framework</th>
<th>CITE 2009</th>
</tr>
</thead>
</table>
|                        | Standard 1, Indicator 3  
|                        | Formulate questions based on information needs                                              | Category 1  
|                        | Develop Topic                                                                             | Cognitive 1  
|                        | Determine the extent of and locate the information needed                                  | Define     |
| 1, 2                   |                                                                                             |                                    |                  |
|                        | Standard 1, Indicator 4  
|                        | Identify a variety of potential sources of information                                      | Category 2  
|                        | Identify potential sources                                                                 | Cognitive 1  
|                        | Determine the extent of and locate the information needed                                  | Access     |
| 8, 11                  |                                                                                             |                                    |                  |
|                        | Standard 1  
|                        | Access information efficiently and effectively                                            | Category 3  
|                        | Develop, use, and revise search strategies                                                 | Meta-cognitive 2  
|                        | Plan and monitor the process of inquiry                                                    | Evaluate   |
| 13                     |                                                                                             |                                    |                  |
|                        | Standard 1, Indicator 5  
|                        | Develop and use successful strategies for locating information                             | Category 4  
|                        | Evaluate sources and information                                                          | Meta-cognitive 3  
|                        | Reflect upon and regulate the process of inquiry                                           | Evaluate   |
| 4, 5                   |                                                                                             |                                    |                  |
|                        | Standard 2, Indicator 1  
|                        | Determines accuracy, relevance, and comprehensiveness                                       | Category 4  
|                        | Evaluate sources and information                                                          | Cognitive 3  
|                        | Analyze the collected information and construct new concepts or understanding             | Integrate   |
| 12                     |                                                                                             |                                    |                  |
|                        | Standard 2, Indicator 2  
|                        | Distinguish among fact, point of view, and opinion                                          | Category 5  
|                        | Select information appropriate to problem or question at hand                              | Cognitive 2  
|                        | Apply information to problem solving and decision making                                   | Create     |
| 9, 10                  |                                                                                             |                                    |                  |
|                        | Standard 2  
|                        | Evaluate information critically and competently                                            | Category 5  
|                        | Recognize how to use information responsibly, ethically, and legally                       | Cognitive 4  
|                        | Critically evaluate information and integrate new concepts with prior knowledge           | Evaluate    |
| 14                     |                                                                                             |                                    |                  |
|                        | Standard 8, Indicator 2  
|                        | Respect intellectual property rights                                                       | Category 5  
|                        | Recognize how to use information responsibly, ethically, and legally                       | Socio-cultural 2  
|                        | Understand and respect the ethical, legal, political, and cultural contexts in which information is being used | Ethical Use |
| 3, 6                   |                                                                                             |                                    |                  |

The selected questions were translated into Chinese by the research team behind the project to ensure that all P5 students could understand the items properly. Although most students in Hong Kong start to learn English in kindergarten, Chinese is their native language. Most questions were directly translated without any further elaboration, but some included the original English terms to avoid possible misinterpretation in the Chinese translations. To facilitate students’ understanding further, a few questions were modified according to the local context. For example, American figures were replaced by Chinese ones who receive comparable degrees of
social recognition. Three amendments of this kind were made. Benjamin Franklin was replaced by Dr. Sun Yat-Sen, the cofounder of the Republic of China. Christopher Paul Curtis, an American author of children’s literature, was replaced by Jin Yong, a popular Chinese fiction author in the “martial arts and chivalry” genre. To make one of the questions more specific, the popular Harry Potter series by J. K. Rowling was mentioned instead of “a book on a subject in any type of library.” To ensure that the terminology used in the tool was suitable for P5 students, the language of the questions was further modified and edited based on discussions with teacher representatives from the participating schools. The back-translated version of the IL assessment tool is attached as Appendix A.

To collect students’ answers, the ILA tool was uploaded to SurveyMonkey, an online survey tool. The assessment was administered by each school’s IT teacher, and students answered the questions through a Web browser during regular class hours. All questions were close-ended, and students had to choose a correct answer from two to four options. Each correct answer was worth 1 point, and the maximum possible ILA score was 14.

Test of Chinese Reading Comprehension
Two passages from the 2008 Territory-Wide System Assessment (TSA) – P6 Chinese reading paper were used to form the Test of Chinese Reading Comprehension (CRC), a measure of students’ reading-comprehension ability. The TSA was one of the two parts of the Basic Competency Assessment developed by the Hong Kong Examinations and Assessment Authority (HKEAA) in 2001. The main goal of the TSA is to measure P3, P6, and Secondary 3 (S3) students’ proficiency in key learning areas: Chinese language, English language, and mathematics. Since 2006 all students in P3, P6, and S3 have had to take part in the TSA. The Chinese reading paper tests various comprehension skills, many of which are also IL fundamentals. With reference to the official marking scheme of the 2008 TSA, the questions were designed to assess students’ abilities in 1) understanding vocabulary, 2) understanding the meaning of and connections between paragraphs from narrative and expository passages, 3) understanding the implied meaning of events described in the passage, 4) understanding the conclusion deduced by the author, and 5) understanding the examples in the passage. The CRC is available at <qefblp.pbworks.com>.

The CRC was administered by the Chinese language teachers during regular class hours, and students were given thirty minutes to complete the test. Each of the two Chinese passages in the test consisted of 700 to 800 characters. The narrative passage expressed the author’s feelings towards his primary school. The expository passage described and explained some observed phenomena related to a type of plant. Students had to answer fifteen multiple choice questions and five open-ended questions in total. Except for one multiple-choice question with three correct answers, all other questions had a single correct answer. Adopting the official marking scheme of the TSA exam, each correct answer was treated as equally important and worth 1 point, such that the total possible score on the test was 22.

Instrument Reliability
Kuder-Richardson Formula 20 was used to assess the reliability of the ILA tool and CRC test. Results showed that the reliability was 0.61 for the ILA tool, which is considered acceptable (Nunnally and Bernstein 1994). For the CRC test, all open-ended questions were graded by two independent markers according to the students’ use of language to address the problem accurately, and express ideas in a clear and concise way. Discrepancies were resolved by mutual
agreement or judgment from an independent third marker. All markers for the open-ended questions were research assistants pursuing undergraduate or graduate studies.

Results

Overall ILA Performance

Table 3 summarizes the descriptive statistics of the participants’ ILA scores. Out of the fourteen questions, the mean correct number of questions was 9.12 (SD = 2.56). No significant difference in the level of information literacy among the four schools was observed [F(3, 195) = 2.481, p = .062], so the subsequent analyses were performed on the entire sample.

Table 3. Descriptive statistics of ILA scores for the participating schools.

<table>
<thead>
<tr>
<th>School</th>
<th>n</th>
<th>Mean (SD)</th>
<th>Median</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>46</td>
<td>9.54 (2.49)</td>
<td>10</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>58</td>
<td>8.48 (2.69)</td>
<td>9</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>42</td>
<td>8.88 (2.59)</td>
<td>9</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>53</td>
<td>9.62 (2.32)</td>
<td>10</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td>9.12 (2.56)</td>
<td>9</td>
<td>14</td>
<td>3</td>
</tr>
</tbody>
</table>

Performance on Specific AASL/AECT IL Standards

The ILA questions were categorized according to the associated AASL/AECT IL standards for analysis. In the ILA tool, seven questions related to AASL/AECT IL Standard 1, while five questions related to Standard 2. Figures 2 and 3 illustrate the distribution of scores for the questions on these two AASL/AECT IL standards. Both score distributions were negatively skewed. The mean score on Standard 1 was 4.63 (SD = 1.52). Only 13 percent (26 out of 199) of students were able to answer all the questions related to Standard 1 correctly. For Standard 2 the mean score was 3.29 (SD = 1.25), and about 20 percent (41 out of 199) of students answered all questions related to Standard 2 correctly. These results do not appear impressive. Although it was possible that the questions on the ILA might have been misinterpreted, it is more likely that the results are indicators that students’ levels of information literacy were inadequate.

Figure 2. Distribution of total scores for questions related to AASL/AECT ILS Standard 1.
Performance on Specific ILA Questions
Since no benchmark has been established for the TRAILS, one way to determine students’ performances on the ILA was by comparing the expected percentage of correctness for mere guessing, or the “baseline,” with the observed percentage of correctness on each question. The formulas for calculating the expected number and percentage of correctness in the case of mere guessing are as follows:

These expected figures based solely on guessing would be referred to as the baseline in the analyses. For instance, the probability of choosing the right answer would be 25 percent if all students randomly picked an answer from four options. The greater the positive deviation between the observed percentage and the expected “guesswork” percentage, the better in terms of students’ overall performance.

Table 4 shows the comparisons between the observed number of students answering correctly and the expected number of students answering correctly if they were only guessing. For each question, the observed number of students answering correctly was sufficiently greater than the expected number of students who would have answered correctly by only guessing. The comparison results of all questions, except question 3, were statistically significant, implying that the observed number of correct answers were not the result of mere guessing for these questions. The performances on some of questions will be further discussed in a later section.
### Table 4. Comparison between the observed and expected numbers of students for each ILA question.

<table>
<thead>
<tr>
<th>Question number</th>
<th>Observed number (%) of students answering correctly</th>
<th>Expected number (%) of students answering correctly in case of mere guessing – the “baseline”</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>135 (67.8%)</td>
<td>49.75 (25%)</td>
<td>194.78***</td>
</tr>
<tr>
<td>2</td>
<td>146 (73.4%)</td>
<td>99.50 (50%)</td>
<td>43.46***</td>
</tr>
<tr>
<td>3</td>
<td>57 (28.6%)</td>
<td>49.75 (25%)</td>
<td>1.41</td>
</tr>
<tr>
<td>4</td>
<td>152 (76.4%)</td>
<td>49.75 (25%)</td>
<td>280.20***</td>
</tr>
<tr>
<td>5</td>
<td>135 (67.8%)</td>
<td>66.33 (33.3%)</td>
<td>106.64***</td>
</tr>
<tr>
<td>6</td>
<td>166 (83.4%)</td>
<td>66.33 (33.3%)</td>
<td>224.65***</td>
</tr>
<tr>
<td>7</td>
<td>101 (50.4%)</td>
<td>49.75 (25%)</td>
<td>70.39***</td>
</tr>
<tr>
<td>8</td>
<td>158 (79.7%)</td>
<td>49.75 (25%)</td>
<td>314.05***</td>
</tr>
<tr>
<td>9</td>
<td>187 (94.0%)</td>
<td>99.5 (50%)</td>
<td>153.89***</td>
</tr>
<tr>
<td>10</td>
<td>139 (69.8%)</td>
<td>99.5 (50%)</td>
<td>31.36***</td>
</tr>
<tr>
<td>11</td>
<td>110 (55.3%)</td>
<td>66.33 (33.3%)</td>
<td>43.13***</td>
</tr>
<tr>
<td>12</td>
<td>103 (51.8%)</td>
<td>49.75 (25%)</td>
<td>76.00***</td>
</tr>
<tr>
<td>13</td>
<td>85 (42.7%)</td>
<td>49.75 (25%)</td>
<td>33.30***</td>
</tr>
<tr>
<td>14</td>
<td>125 (62.8%)</td>
<td>49.75 (25%)</td>
<td>151.76***</td>
</tr>
</tbody>
</table>

*** $p < .001$

### Information Literacy, Gender, and Reading Ability

Table 5 shows the results of independent sample t-tests for comparing male and female students’ performance on the ILA. Female students had a significantly higher level of information literacy than male students [t(197) = 3.77, $p < .001$]. The mean scores were 8.47 (SD = 2.56) and 9.79 (SD = 2.39) for male and female students respectively. Female students performed better than male counterparts on questions relating to both AASL/AECT IL Standards 1 and 2: access information efficiently and effectively [t(197) = 2.859, $p = .005$], and evaluate information critically and competently [t(197) = 3.221, $p = .001$].

### Table 5. Gender comparison on the ILA tool.

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>ILA – All questions</td>
<td>8.47 (2.56)</td>
<td>9.79 (2.85)</td>
<td>3.77</td>
</tr>
<tr>
<td>ILA – AASL/AECT IL standard 1 only</td>
<td>4.33 (1.56)</td>
<td>4.94 (1.42)</td>
<td>2.86</td>
</tr>
<tr>
<td></td>
<td>3.02 (1.22)</td>
<td>3.58 (1.22)</td>
<td>3.22</td>
</tr>
</tbody>
</table>

Table 6 shows the correlations between the ILA tool and CRC test. All correlations were statistically significant. In general, students’ CRC score was positively related to the results of the ILA. Compared with AASL/AECT IL Standard 1, Standard 2 is more closely related to Territory-Wide System Assessment (TSA) performances. The total of the whole TSA score is the best parameter, even better than the score of Standard 1, to predict a student’s performance on Standard 2. It is likely that effective comprehension contributes to the ability to evaluate information critically and competently. Ethical standards, on the other hand, do not seem to have much to do with a student’s reading ability.
Table 6. Correlations between students’ CRC scores and ILA scores.

<table>
<thead>
<tr>
<th></th>
<th>CRC – Total</th>
<th>CRC – Narrative only</th>
<th>CRC - Expository only</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILA – All questions</td>
<td>.42**</td>
<td>.42**</td>
<td>.27**</td>
</tr>
<tr>
<td>ILA – AASL/AECT IL standard 1 only</td>
<td>.28**</td>
<td>.30**</td>
<td>.16*</td>
</tr>
<tr>
<td>ILA – AASL/AECT IL standard 2 only</td>
<td>.42**</td>
<td>.37**</td>
<td>.33**</td>
</tr>
</tbody>
</table>

Note: *p < .05; ** p < .01

The ILA total scores were also subjected to a 2 x 2 analysis of variance with two genders (male, female) and two groups by reading ability (BA, AA). Students who scored below the sample average on both narrative and expository passages of the CRC belonged to the BA (“below average”) group. Students who scored above the sample average on both narrative and expository passages of the CRC belonged to the AA (“above average”) group. The BA and AA groups contained 68 and 54 students, respectively.

The main effect of reading group yielded an F ratio of F(1, 118) = 32.59, p < .001, indicating that the ILA total score was significantly greater for the AA group (M = 10.22, SD = 0.26) than for the BA group (M = 7.87, SD = 0.31). The main effect of gender yielded an F ratio of F(1, 118) = 10.15, p = .002, indicating that the ILA total score was significantly higher for female students (M = 9.79, SD = 2.85) than for male students (M = 8.47, SD = 2.56). The interaction effect was insignificant: F(1, 118) = .07, p = .80.

**Discussion and Implications**

**Limited Understanding of IL Demonstrated**

The current study revealed the IL levels of a sample of P5 students in Hong Kong. Students showed some understanding of information literacy, such that their performances on the ILA were better than in the case of taking wild guesses. Their performances regarding AASL/AECT IL Standards 1 (accesses information efficiently and effectively) and 2 (evaluates information critically and competently) were similar. Students in general could correctly answer only about half of the questions associated with each standard, and only a very few students could answer all questions correctly.

**Need for Curricular Focus on IL**

Comparative descriptions of the students’ level of information literacy like “low” or “high” seem unfair to them, but it appears that they still have much room for improvement. However, the current education system in Hong Kong has no standard curriculum dedicated to IL. Although the theoretical framework and importance for IL education has been explained in the handbook published in 2005 by the Education Bureau of the Hong Kong Special Administrative Region of the People’s Republic of China, the actual implementation of IL in the existing curriculum at primary levels remains unclear. If IL is not included as part of the regular curriculum, seeing significant improvements in the level of IL of Hong Kong students in general is unlikely (Ning and Kennedy 2008). Therefore, there is an urgent need for Hong Kong to develop an organized and systematic curriculum for IL education.
Previous efforts have been made to find an effective IL education program. It has been shown that through inquiry-based learning projects, in which three kinds of teachers (General Studies, Language, and Information Technology) and the school librarian are in charge of teaching specific areas, the perceived and actual levels of information literacy among Hong Kong primary students could improve significantly (Chu 2009; Chu et al. 2012; Crow 2007; Narvaez and Rest 1995).

Other than Hong Kong, many countries have taken various initiatives to incorporate IL education into their systems. For instance, all school librarians in Denmark are teacher-librarians who are required to teach in classrooms in addition to managing libraries (Moore 2002).

Positive Correlation between IL Knowledge and Reading Skill
Positive correlations between the ILA and CRC results were observed in this study, implying an association between students’ IL and reading-comprehension ability. Although no causal relationship can be claimed, the significant correlation implies that the two variables may have a reinforcing effect on each other. Better language ability can help students extract and process information more effectively, and higher IL levels allow students to access better sources.

Female students showed better performance than their male counterparts in both the ILA and the narrative passage of the CRC. The fact that girls outperformed boys in reading narratives is not surprising as this finding has been observed in previous research. According to the IEA Reading Literacy study carried out in 32 countries, girls performed substantially better than boys in both narrative and expository domains, although the difference for the latter domain is much smaller (IEA 2011). A recent study that covered forty-three countries, including Hong Kong, showed that girls outscored boys in reading abilities, and the difference was partially explained by reading enjoyment (Wagemaker et al. 1996). This finding highlights the importance of the affective component of the IL framework.

Sherry R. Crow (2007) emphasized the importance of intrinsic motivation in inquiry. Even without any reward or punishment, learners with intrinsic motivation will spontaneously search for knowledge and reflect on their abilities. The motivation in inquiry, just like the motivation in reading, is probably a crucial impulse for improvement. Omitting such an element could be problematic in evaluating IL. Further modification of the ILA tool might be needed to incorporate fully the affective component of the Hong Kong IL framework.

Issues Relating to Specific Questions
A few issues related to specific questions are worth discussing. The first is an issue of question style; students tended to perform poorly in interpreting negative questions that required them to pick an option opposite to the statement. For instance, question 3 (see Appendix A) asked students to choose one option out of four that is not the purpose of citing sources. Most of the students were unable to point out that “Citing tells readers where to purchase the complete work that you used” is not a reason for citing sources. Another reasonable explanation for the poor result on question 3 is that students lacked an understanding of citation, as they might not have been properly taught about citing references as part of the curriculum. Students also performed badly in another negative question (question 13) that asked the students “which source would not provide information on the library’s checkout procedures.”
The second issue relates to difficulty distinguishing fact from opinion. Although questions 9 and 10 are similar in nature, students performed worse in question 10. Almost all students could tell that “smoking is bad for health” is a fact, yet 30 percent of students also believed “smoking should be banned” is a fact. This result implies that the current education system does not provide sufficient training for students on differentiating between an opinion and a fact.

Another related issue is the extent to which moral understanding is linked to the ethical use of information. Understanding about moral values is of course the basis of any social behavior, yet many factors are involved in determining whether an understanding can lead to corresponding action. Frameworks like the Four-Component Model of Morality try to explain important stages of a moral action (Rest, Bebeau, and Volker 1986; Rest et al. 1999; Moores and Chang 2006). First, a person must have the moral sensitivity to tell how different actions will affect the welfare of others. Then, moral judgment is needed to tell which action is the most justified. The judgment can never be realized unless one has the moral motivation to do so. However, even if one is motivated to behave morally, moral characteristics like self-efficacy (to what extent one believes he/she can achieve the desired outcome) will be the final determinant of whether one actually behaves morally.

Based on the Four-Component Model, Trevor T. Moores and Jerry C.-J. Chang (2006) tried to study Hong Kong residents’ ethical decision making in relation to software piracy. These researchers came to the conclusion that recognition does not lead to judgment, and gender plays no role in ethical decision-making. Therefore, even if students have high levels of information literacy in the ethical domain, they may not make corresponding decisions. Elements supporting students’ judgment, motivation, and characters should also be included in the teaching of information literacy.

Limitations to Consider
Although the results reported serve as important precursors for future research, limitations of the study should be considered in interpreting the results. First, the participating schools were selected based on convenience sampling. Nevertheless, the participating schools’ characteristics, such as curriculum and teacher-to-student ratio, were similar to those of any local primary schools of average academic standing. With further revision of the ILA tool, future studies should aim to administer the instrument to a larger sample population, thereby improving the validity and utility of the instrument for evaluating IL knowledge of primary school students in Hong Kong.

Second, both the ILA tool and the CRC test were modified from questions of TRAILS and TSA, both of which were designed for Primary 6 students. It is hard to judge whether the poor performance in certain questions was due to the difficulty in comprehension, or whether students had not yet been exposed to knowledge about the topic.

Third, the ILA did not fully cover all the AASL/AECT IL standards. In future studies, additional questions, for example on assessing the understanding of intellectual-property rights, could be included to improve the scope of the assessment tool.

Usefulness of Study
Despite its limitations, however, the current study is the first to measure the IL of Hong Kong primary school students using a standardized testing procedure. It is also the first to investigate
the relationships of IL to gender and reading ability among Hong Kong students. This study suggests that the ILA tool could potentially be used to generate territory-wide baseline information about the IL levels of primary school students in Hong Kong, and future research should develop this tool further.

Summary and Conclusion
The study used a fourteen-item ILA tool to investigate the current levels of a sample of P5 students in Hong Kong. Though IL has been emphasized in the Hong Kong school curriculum in recent years, the results of the study show that the participating students have not achieved high IL levels, suggesting the need for improvement. The study also showed that female students generally scored higher on the ILA than their male counterparts, implying their higher level of IL. The female students also had higher scores in the CRC when compared to the male students, showing higher levels of reading ability. A significant positive association was also found between IL and reading ability.

The findings of this study provide insights towards the IL development of primary school students in Hong Kong. As IL has been deemed essential in 21st-century society and has been found to reinforce students’ development in other skills, the incorporation of IL into formal curricula needs to be valued and carefully considered.

Finally, it is noted that a systematic and well-informed IL curriculum together with a comprehensive assessment tool are needed to facilitate and monitor students’ development.

Appendix A
The back-translation of the ILA tool (The Chinese version of ILA can be found at <qefpblp.pbworks.com>).

Question 1 (TRAILS, Sixth Grade General Assessment 1, Q1)
Your teacher asks you to choose one religion and create a hand-out on that religion to introduce it. Which of the following subtopics below would you not include in the hand-out?

A. World population
B. Countries where the religion is found
C. Customs and holidays
D. Religious symbols

Question 2 (TRAILS, Sixth Grade General Assessment 1, Q2)
When you are assigned a research project, the topic of the project is often too broad. You will have to narrow the topic. In each pair of the topics below, select the topic that is narrower.

A. Outer space
B. Planets

Question 3 (TRAILS, Sixth Grade General Assessment 1, Q22)
Which of the following is not a reason why you should cite your sources?

A. Citing gives credit to the author or the first person of the idea.
B. Citing shows that you have researched the idea.
C. Citing allows another person to identify the complete work that you used.
D. Citing tells readers where to purchase the complete work that you used.
**Question 4** (TRAILS, Sixth Grade General Assessment 1, Q6)
The assignment for health class is to find facts on childhood obesity. You want to save time. Before typing “childhood obesity” into the Google search engine, which website should you check first?
A. “Healthy Adults”—www.healthyliving.org—health information for adults
B. “Lose Weight Now”—www.dietnow.com—several diet plans are explained
C. “Kid’s Health”—www.kid’shealth.org—children’s health topics are discussed
D. “Food For Life”—www.foodgoodforyou—healthy food choices

**Question 5** (TRAILS, Sixth Grade General Assessment 1, Q9)
If you want to find books by Cha Leung Yung, what kind of catalogue search should you try?
A. Title search
B. Author search
C. Subject search

**Question 6** (TRAILS, Sixth Grade General Assessment 1, Q12)
Your friend tells you about a website where you can download the latest songs that you hear on the radio for free. If you use this website for this purpose, which of the following will you violate?
A. Right of privacy
B. Copyright
C. Freedom of information

**Question 7** (TRAILS, Sixth General Assessment 1, Q10)
You are asked to create an informational pamphlet on animals. Your topic is giraffes. Select from below the website with the most credible information about giraffes.
A. www.ourgiraffes.org -- A site created by scientists studying mammals
B. www.sunnyschool.p6.hk/chan -- A site about zoo animals created by Mr. Chan’s sixth grade students
C. www.visitanddiegozoo.org -- A site created by supporters of the San Diego Zoo
D. www.safaripictures.com -- A site created by a tourist visited Africa

**Question 8** (TRAILS, Sixth General Assessment 1, Q14)
If you want to find Joanne Kathleen Rowling’s “Harry Potter”, which library resource would you use?
A. library catalogue or online catalogue
B. video collection
C. reference tool
D. periodical database

**Question 9** (TRAILS, Sixth General Assessment 1, Q16)
Read over the following sentence and select whether the sentence is Fact or Opinion.
“Smoking is bad for health.”
A. Fact
B. Opinion
Question 10 (TRAILS, Sixth General Assessment 1 Q16)
Read over the sentence and select whether the sentence is Fact or Opinion.
“Smoking should be banned.”
A. Fact
B. Opinion

Question 11 (TRAILS, Sixth General Assessment 1, Q18)
On a recent hike you saw an unfamiliar bird. You want to hear what sound this bird produces. Which library source would allow you to identify the bird and also hear the bird’s sound?
A. a bird identification DVD
B. a printed field guide on bird
C. a general encyclopaedia

Question 12 (TRAILS, Sixth General Assessment 1, Q15)
You have used a search engine to locate Web sites on the negative effects of drugs on teenagers. Below are some Websites that your search retrieved. Read over the site description and choose the one that would best meet your information need.
A. www.addictionscare.com – a 24-hour hotline regarding drug addiction in your community
B. www.teendrugabuse.org – describe how illegal drugs affect teens’ brains
C. www.teenscenezeen.org – explain how to say “no” to drugs at a party
D. www.teendrugabusers.us – provide assistance to parents with troubled teens

Question 13 (TRAILS, Sixth General Assessment 1, Q23)
You are unsure about how to check out materials from the school library. Which source would not provide information on the library’s checkout procedures?
A. Read the school newspaper
B. Read a pamphlet describing the library’s rules and procedures
C. Ask the librarian
D. Read the information signs at the checkout desk

Question 14 (TRAILS, Sixth General Assessment 1, Q24)
Your teacher wants you to write a report about Dr. Sun Yat Sen. Read the paragraph below and select the information that would help you answer this question: What did Dr. Sun Yat Sen accomplish during his presidency?
Dr. Sun Yat Sen was an important figure in modern Chinese history. He was the first provisional president of the Republic of China. Sun played an instrumental role in inspiring the overthrow of the Qing Dynasty and established the Republic of China, which makes him as a world-renowned revolutionist. In 1925, Sun passed away because of liver cancer.
A. Sun passed away because of the liver cancer.
B. Sun was the first provisional president of the Republic of China.
C. Sun played an instrumental role in inspiring the overthrow of the Qing Dynasty and established the Republic of China.
D. Sun is a world-renowned revolutionist.
Works Cited


### Cite This Article

[<http://www.ala.org/aasl/slr/volume15/chu>](http://www.ala.org/aasl/slr/volume15/chu)

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The Effect of Professional Development on Teacher and Librarian Collaboration: Preliminary Findings Using a Revised Instrument, TLC-III

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Abstract
This study describes preliminary results of a study with elementary school teachers and librarians. Professional-development intervention workshops were conducted to improve teacher and school librarian collaboration to integrate library and subject content. A revised 24-item teacher and school librarian collaboration instrument (TLC-III) was used as a pre- and post-workshop measure to evaluate teachers’ and librarians’ perceptions of their collaborative endeavors. The instrument was used with intervention and control teachers and school librarians to assess their perceptions about how frequently they collaborated and how important their collaboration was to student learning. Participants included librarians from six elementary schools, and third-grade and fourth-grade teachers attending intervention workshops, and a control group who did not attend the workshops. Findings indicate that professional-development workshops can significantly change teachers’ perceptions about collaborating with school librarians. Of particular interest are changed perceptions in the intervention group regarding high-end collaborative endeavors involving integrated jointly planned and taught lessons.

Key terms: teacher and school librarian collaboration, survey for teachers and school librarians, TLC-III, levels of collaboration, teachers’ perceptions of teacher and school librarian collaboration, teachers’ perceptions of importance of collaboration to student learning
Introduction
For over thirty years, school library and information science professionals have attempted to become integral players in the education of students by participating more fully in the teaching and learning process. To address growing concerns in the twenty-first century that students must become more information-literate and proficient information seekers and users, school librarians have recommended greater communication and collaboration with teachers. School library professionals consider collaboration with teachers to be an essential responsibility of 21st-century librarians (AASL and AECT 1998; AASL 2007, 2009); and teacher and librarian collaboration (TLC) is considered a critical means of improving teaching and learning. National studies indicate that school libraries are an important factor in improved student academic achievement (Lance 1994; Lance, Rodney, Hamilton-Pennell 2000, 2002; Lance and Russell 2004; Rodney, Lance, and Hamilton-Pennell 2002), and although findings from studies have not specifically focused on teacher and school librarian collaboration, the connection between school librarians and improved student achievement is apparent. For decades, multiple models (Chisholm and Ely 1979; Cleaver and Taylor 1983, 1989; Eisenberg and Berkowitz 1990) and guidelines (Loertscher 1988; Callison and Preddy 2006) have described methods and procedures to guide school librarians in their work as collaborators with teachers (Turner and Naumer 1983; Turner and Riedling 2003). However, there is a paucity of information about the extent to which prescribed models and procedures are implemented by teachers and school librarians, and how teachers and school librarians learn to collaborate on instructional activities recommended by school library professional guidelines (e.g., teaching essential learning skills, jointly creating classroom projects).

Considerable evidence from library and information science professionals about school librarians collaborating with teachers exists (Callison 1997; Callison and Preddy, 2006; Donham 1999, 2008; Harada 2002; Haycock 2003), and research exists on various aspects of collaboration, including student motivation (Small, Synder, and Parker 2009), the role of principals (Farmer 2007; Oberg 2006; Shannon 2009), pitfalls of collaboration (Branch 2006), improved instruction (Chu et al. 2011), and teachers’ perceptions of TLC (Montiel-Overall and Jones 2011), but there is a paucity of empirical data on how teachers and school librarians learn to collaborate and on how to assess this collaboration. This information is critical to advance school librarians’ agenda to collaborate with teachers to improve teaching and learning (AASL 2007, 2009).

This paper reports on the first phase of a two-year study involving professional-development intervention workshops for teachers and school librarians at six elementary schools. The intervention workshops included instructional modules related to TLC and teaching inquiry-based science to Spanish-speaking and Latino students. The TLC module was designed to teach teachers and school librarians about collaborating to link information-literacy standards and science standards. Using a revised instrument to evaluate TLC, data were collected to determine how often teachers and school librarians collaborated, and how important they perceived their collaboration to be to student learning. This study adds to an understanding of teacher and school librarian collaborative practices and makes a significant contribution to the literature on teacher and school librarian collaboration for several reasons. First, it provides valuable information about the role of professional development to improve teachers’ and school librarians’

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1 Other terms used are school librarian, school library media specialist, instructional specialist, technology specialist, and teacher-librarian. “School librarian” will be used throughout this paper to avoid confusion.
understanding of high-level collaboration. Second, it provides further validation of an instrument to assess types of collaborative activities in which teachers and school librarians engage. Results from this study provide additional evidence that library professionals as well as teachers benefit from instruction on what it means to collaborate to improve students’ ability to access and use library resources within the context of classroom lessons.

**Research Questions**

Four main research questions are addressed in this study:

- To what extent do professional-development intervention workshops change teachers’ and school librarians’ perceptions of how frequently they engage in collaborative activities?
- To what extent do professional-development intervention workshops change teachers’ and school librarians’ perceptions of the importance to student learning of their collaborative activities?
- To what extent does professional development help align teachers’ and school librarians’ perceptions about the frequency of their collaborative activities?
- To what extent does professional development help align teachers’ and school librarians’ perceptions about the importance of their collaborative activities to student learning?

**Literature Review**

**Professional Development**

While collaboration between teachers and school librarians has been promoted for decades among school librarians, teachers are not well-informed about TLC. Teachers appear to agree that collaboration is important to improve student achievement (Met Life 2012). As with all initiatives involving educational strategies that are new to teachers, improved understanding among those expected to implement strategies requires well-planned professional learning workshops and adequate time for implementation to ensuring success (Ferguson 2006). For example, Kwang Suk Yoon et al. (2007) found that intensive professional development was more successful than short-term workshops. Long-term sessions of fourteen hours or more were found to show more positive effects on student achievement than short-term professional development. Professional development has also been shown to be more successful when local facilitators are involved in the training rather than outside consultants (Guskey 2003; Wayne et al. 200 (Yoon et al. 2007). Workshops that focus on the specific needs of teachers and involve authentic classroom environments have also been found to be more successful in developing teaching strategies (Glazer, Hannafin, and Song 2005). And professional development has been found to be more successful when training sessions are based on a strong theoretical framework (Brown, Dotson, and Yontz 2011). Finally, professional development is an important vehicle to identify gaps in knowledge that can be addressed in future professional-development workshops.

**Methods**

A two-year study of collaboration between teachers and school librarians was initiated in 2008 to examine the effect of this collaboration on students’ academic achievement. The mixed-methods study, funded by the Institute of Museum and Library Services, was designed to examine
multiple aspects of teacher and school librarian collaboration, and student achievement. This preliminary report focuses on quantitative results from the first year of the two-year study in which six elementary school third-grade and fourth-grade teachers and their school librarians collaborated on science instruction, and participated in professional-development intervention workshops, which included a module focused on preparing teachers and school librarians to collaborate on instruction. The content of the TLC module included discussions about information literacy standards in Information Power: Building Partnerships for Learning (AASL and AECT 1998) and AASL’s Standards for the 21st-Century Learner (2007); discussions on the purpose of TLC and research on TLC; an examination of the TLC Model (Montiel-Overall 2005) and types of activities included in each of the four facets of the model; demonstrations by expert school librarians of planning sessions with a teacher to integrate science content and library instruction (e.g., finding reliable science resources on the Web for a science report); and preparation of science lessons that linked standards (e.g., information-literacy standards, science standards, structured English-immersion standards). Each participating teacher and school librarian received a copy of Information Power, Standards for the 21st-Century Learner, and science-content standards for third and fourth grades. Research articles and other professional literature were used to guide instruction and discussions at the workshops. (A complete discussion of the study is under review).  

To assess collaboration between teachers and school librarians, an evaluative tool designed to measure teachers’ and school librarians’ perceptions of the extent to which they collaborated with each other, and their perceptions about the importance of their collaboration to student learning was used as a pre- and post-intervention assessment. The instrument, revised from an earlier version to include a broader range of collaborative activities, was distributed to participants at the beginning of the school year prior to initiating professional-development intervention workshops and at the end of the school year. The intervention workshops focused on developing high-end collaboration among participating third-grade and fourth-grade teachers and their school librarian. High-end collaboration was defined as collaborative endeavors that integrated library instruction and subject content. An example of high-end TLC would be a jointly planned unit in science in which the school librarian carried out instruction including (but not limited to) activities such as the following: inventory contents of a science kit on a topic appropriate for these grades (e.g., water cycle), discuss the topic and elicit student questions, create a K-W-L (know-want-learn) for the unit, identify vocabulary words that students don’t know and show them where to find definitions, make a word wall to be referred to throughout the unit, and provide informational texts for students to examine and use for research. The school librarian would report results of instruction to the teacher. 

**Professional-Development Intervention Workshops**  
Prior to initiating the two-year study, the principal investigator formed a research team of experts identified by school-district administrators, school principals, teachers, and school librarians. The expertise of individuals selected was in science, technology, language and culture, and school librarianship (e.g., one of the school librarians was the recipient of a national award for her expertise as an educator). The experts helped plan and teach various modules for the

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professional-development intervention workshops, which focused on TLC and inquiry-based science instruction. The experts also served as peer mentors for study participants.

The intervention workshops included theoretical framework for collaboration between teachers and school librarians (Montiel-Overall 2005). Participants were asked to strive for high-end collaboration suggested in the model. Discussions about articles on collaboration between teachers and school librarians and on inquiry-based science were distributed to participants prior to meeting. The workshops included role-playing by peer mentors who modeled teachers’ and school librarians’ planning sessions, and participants presented examples of collaboratively planned instruction in which they were engaged throughout the year.

Professional-development intervention workshops were held monthly after school at a centrally located school library. Each workshop was approximately four hours long. Intervention workshops began in late August 2008, and ended in early May of 2010. The focus of this report is on the first year of the study and on results of the TLC module.

Participants
A total of thirty individuals from six schools in two public school districts in a large urban area of southwestern United States participated in the study. The intervention group consisted of twelve teachers and six school librarians. A school librarian, a third-grade teacher, and a fourth-grade teacher formed a cohort at each school. The six participating cohorts attended the monthly intervention workshops during the school year, focusing on collaborative instruction in science. At each school, a third-grade and fourth-grade teacher served as a control (n = 12) for teachers who participated in the intervention workshops. Of the thirty participants, four were male teachers (three Anglo and one African American), and twenty-six were females (sixteen Anglo, eight Latinas, and two Asian Americans). All six librarians were female; five were Latina. Two school librarians had a Master’s degree in library and information science. Four librarians had earned a state endorsement to be a school librarian. Two school librarians indicated they had some experience collaborating with teachers. Although some attempt was made to match the control teachers with intervention teachers, considerable variability in years of experience, age, and ethnicity existed between the groups. At the two smaller schools, only one class was available as the control for each grade level.

Instrumentation
The revised survey on teacher and school librarian collaboration (hereafter “TLC-III”) consisted of four scales of six items each. Each scale represented a facet described in the TLC Model (Facets A, B, C, D). The facets represent levels, which range from low to high on a continuum of collaborative activities described briefly below.

- **Facet A: Coordination**—This facet is at the low end of the continuum and involves activities in which teachers and school librarians work together to schedule or arrange time for students to participate in library activities or events (e.g. book fairs).
- **Facet B: Cooperation**—This facet reflects traditional collaborative endeavors in which teachers request school librarians’ assistance in finding resources for instruction.
- **Facet C: Integrated Instruction**—This facet involves high-level collaboration between teachers and school librarians in which jointly planned and implemented instruction occurs.
Facet D: Integrated Curriculum—This facet is at the high end of the continuum and reflects school librarians’ involvement with teachers in curriculum planning and in assessment of students.

In TLC-II, the earlier version of the survey, each item on the survey was rated twice: first, on a 4-point Likert-type scale on how frequently the activity occurred (1 = Never, 2 = Rarely, 3 = Frequently, 4 = Always) and second, on its importance to student learning (1 = Not at All Important, 2 = Somewhat Important, 3 = Important, 4 = Always Important) (Montiel-Overall and Jones 2011). The scale demonstrated good reliability and validity. The internal consistency was estimated by calculating alpha reliability coefficients. The reliability of the instrument for the Frequency and Importance to Student Learning rating scales was relatively high (0.92 and 0.93, respectively). Exploratory factor analysis (EFA) procedures were carried out to identify the underlying structure of items in the survey. A four-factor solution that aligned with the TLC Model (Facet A, Facet B, Facet C, and Facet D) was obtained. The internal consistency for the four factors, which emerged from an EFA, also had relatively high alpha reliability coefficients ranging from 0.81 to 0.93. Thus, items that grouped together were perceived as similar types of endeavors defining the same construct (Montiel-Overall 2008; Montiel-Overall and Jones 2011).

In TLC-III, the revised instrument used in this study, items were reworded for clarification and the pool of items was expanded from sixteen to twenty-four to improve validity and reliability. The additional eight items described a broader range of collaborative activities within each facet of the TLC Model. The initial analysis of the items in TLC-III, the revised version of the instrument, also exhibited high reliability coefficients on the Frequency and Importance to Student Learning ratings and the four facet subscales (Cronbach's alpha ranged from .84–.94 on the Frequency ratings and .81–.95 on the Importance to Student Learning ratings).

The self-administered TLC-III asked teachers and school librarians to rate twenty-four items on a survey by marking an analogue scale for a Frequency scale and an Importance to Student Learning scale to indicate how frequently they engaged in specific collaborative activities with the school librarian, as described in four facets of the TLC Model, and how important to student learning the activity was perceived to be. The value used for the analysis varied from 0 to 1, which was the proportion of the left of the scale to the marking divided by the total length of the scale. The survey is in Appendix B.

**Findings**

**Analysis of Full Scale (TLC-III)**
Participants’ responses on the 24-item TLC-III instrument were summed to create a composite score. The composite score was computed by averaging across the twenty-four items. The composite score means and standard deviations by group for pre- and post-test measures for the Frequency and Importance to Student Learning ratings are presented in table 1.
Table 1. Composite score means (and standard deviations) for Frequency and Importance to Student Learning scales by group (n = 30, 6 per group).

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency Ratings Means (SD)</th>
<th>Importance to Student Learning Ratings Means (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>third-grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>intervention</td>
<td>0.49 (0.28)</td>
<td>0.77 (0.18)</td>
</tr>
<tr>
<td>third-grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>0.32 (0.14)</td>
<td>0.28 (0.14)</td>
</tr>
<tr>
<td>fourth-grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>intervention</td>
<td>0.24 (0.08)</td>
<td>0.60 (0.22)</td>
</tr>
<tr>
<td>fourth-grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>control</td>
<td>0.30 (0.22)</td>
<td>0.37 (0.19)</td>
</tr>
<tr>
<td>school librarians</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard deviations are in parentheses.

Composite scores for both intervention groups and for the school librarians rose from pre- to post-test for both the Frequency and Importance to Student Learning ratings, while scores in the control groups declined slightly. To test the significance of the change, a mixed-design ANOVA (analysis of variance) with one between-subjects factor (Group) and one within-subjects factor (Time of Assessment) was obtained for the Frequency and Importance to Student Learning rating variables. Analysis of variance results are presented in table 2.

Table 2. Mixed-design ANOVA F-test for Frequency and Importance to Student Learning ratings.

<table>
<thead>
<tr>
<th></th>
<th>Frequency Ratings</th>
<th>Importance Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>group</td>
<td>3.27***</td>
<td>3.99***</td>
</tr>
<tr>
<td>time</td>
<td>19.06***</td>
<td>1.45</td>
</tr>
<tr>
<td>time x group</td>
<td>7.98***</td>
<td>3.26*</td>
</tr>
</tbody>
</table>

* p < .05; *** p < .001
A significant main effect of group, $F (4, 25) = 3.27$, and a main effect of time, $F (1, 25) = 19.06$, were evident on the Frequency ratings. A statistically significant time-by-group interaction, $F (1, 25) = 7.98$, was also present. On Importance to Student Learning a statistically significant main effect of group was present, $F (4, 25) = 3.99$. A statistically significant time-by-group interaction was also present, $F (1, 25) = 3.26$. To identify the source of the effects, post-hoc mean comparisons using a Bonferroni approach that adjusts for Type I error in repeated tests were computed. The significance level for each test was set at .01 ($\alpha/#$ of tests = .05/5). The results of the multiple mean tests are presented in table 3.

### Table 3. Pre- and post-test mean comparisons for Frequency and Importance to Student Learning.

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency Ratings</th>
<th>Importance to Student Learning Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>third-grade</td>
<td>0.49</td>
<td>0.77</td>
</tr>
<tr>
<td>intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>third-grade</td>
<td>0.32</td>
<td>0.28</td>
</tr>
<tr>
<td>control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fourth-grade</td>
<td>0.24</td>
<td>0.60</td>
</tr>
<tr>
<td>intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fourth-grade</td>
<td>0.30</td>
<td>0.37</td>
</tr>
<tr>
<td>control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>school librarians</td>
<td>0.45</td>
<td>0.56</td>
</tr>
</tbody>
</table>

* $p < .05$, *** $p < .001$

On the Frequency ratings, the change from pre- to post-intervention was significant for both the third-grade and fourth-grade intervention groups. The change was not statistically significant for any of the other groups. However, school librarians did show a small but non-significant gain. On Importance to Student Learning, on the other hand, a significant change over time was evident in the third-grade intervention group, but not in the fourth-grade intervention group ($p = .037$), because of the Bonferroni adjustment (alpha was set at .01). A statistically significant change was not evident for the school librarians, nor for the third-grade and fourth-grade control groups.

In addition, the pre- and post-test Frequency rating means for each group are presented in figure 1. The pre- and post-test Importance to Student Learning rating means for each group are presented in figure 2.
Figure 1. Mean ratings for Frequency rating for school librarians, and intervention and control teachers (pre- and post-test).
Figure 2. Mean ratings for Importance to Student Learning rating for school librarians, and intervention and control teachers (pre- and post-test).

Analysis of Facets (TLC-III Subscales)

Frequency Ratings
A composite score for each facet (i.e., A: Coordination, B: Cooperation, C: Integrated Instruction, D: Integrated Curriculum) was computed by averaging the ratings for the six items in the facet. The mean Frequency ratings and standard deviations for the five groups for each of the four facets are presented in table 4. As evident in table 4, scores for teachers and school librarians who attended the intervention workshops rose from pre- to post-test for each facet, while scores for the control group of teachers declined slightly.
Table 4. Mean Frequency ratings for each facet by group.

<table>
<thead>
<tr>
<th></th>
<th>Time</th>
<th>Coordination (Facet A)</th>
<th>Cooperation (Facet B)</th>
<th>Integrated Instruction (Facet C)</th>
<th>Integrated Curriculum (Facet D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>third-grade</td>
<td>Pre</td>
<td>0.52 (.25)</td>
<td>0.61 (.32)</td>
<td>0.45 (.32)</td>
<td>0.39 (.34)</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>0.73 (.19)</td>
<td>0.88 (.10)</td>
<td>0.91 (.09)</td>
<td>0.57 (.42)</td>
</tr>
<tr>
<td>third-grade</td>
<td>Pre</td>
<td>0.36 (.21)</td>
<td>0.47 (.20)</td>
<td>0.27 (.20)</td>
<td>0.20 (.07)</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>0.35 (.21)</td>
<td>0.41 (.22)</td>
<td>0.23 (.16)</td>
<td>0.14 (.07)</td>
</tr>
<tr>
<td>fourth-grade</td>
<td>Pre</td>
<td>0.29 (.08)</td>
<td>0.36 (.21)</td>
<td>0.15 (.11)</td>
<td>0.17 (.04)</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>0.51 (.12)</td>
<td>0.66 (.28)</td>
<td>0.70 (.29)</td>
<td>0.54 (.33)</td>
</tr>
<tr>
<td>fourth-grade</td>
<td>Pre</td>
<td>0.44 (.22)</td>
<td>0.44 (.21)</td>
<td>0.32 (.21)</td>
<td>0.28 (.15)</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>0.38 (.25)</td>
<td>0.36 (.24)</td>
<td>0.25 (.23)</td>
<td>0.23 (.20)</td>
</tr>
<tr>
<td>school librarians</td>
<td>Pre</td>
<td>0.49 (.18)</td>
<td>0.48 (.21)</td>
<td>0.39 (.24)</td>
<td>0.40 (.28)</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>0.58 (.24)</td>
<td>0.59 (.25)</td>
<td>0.56 (.29)</td>
<td>0.53 (.29)</td>
</tr>
</tbody>
</table>

Note: Standard deviations are in parentheses.

To test for a statistically significant change over time, a mixed design ANOVA with one between-subjects factor (Group) and one within-subjects factor (Time of Assessment) on the Frequency ratings was computed for each facet of the model. Analysis of variance results are presented in table 5.

Table 5. Mixed-design ANOVA F-test for Frequency ratings by facet.

<table>
<thead>
<tr>
<th></th>
<th>Coordination (Facet A)</th>
<th>Cooperation (Facet B)</th>
<th>Integrated Instruction (Facet C)</th>
<th>Integrated Curriculum (Facet D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>group</td>
<td>2.25</td>
<td>2.37</td>
<td>4.61**</td>
<td>2.38</td>
</tr>
<tr>
<td>time</td>
<td>9.48**</td>
<td>11.03**</td>
<td>24.63***</td>
<td>5.18*</td>
</tr>
<tr>
<td>time x group</td>
<td>3.68*</td>
<td>5.80**</td>
<td>8.63***</td>
<td>2.48</td>
</tr>
</tbody>
</table>

* p < .05; ** p < .01; *** p < .001

A significant main effect of group was evident on only one of the four facets, Facet C (Integrated Instruction), F (4, 25) = 4.61. A significant main effect of time was evident on all four facets. Significant interaction effect of time and group was evident on all facets except Facet D (Integrated Curriculum), which was marginally significant (p = .070) (see table 5). To identify the source of the effects, post-hoc mean comparisons using a Bonferroni approach that adjusts
The results of the multiple mean tests are presented in table 6.

Table 6. Pre- and post-test mean comparisons for Frequency ratings by facet.

<table>
<thead>
<tr>
<th>Facet</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Mean Difference (Post-Pre)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coordination (Facet A)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>third-grade intervention</td>
<td>0.52</td>
<td>0.73</td>
<td><strong>.214</strong></td>
</tr>
<tr>
<td>third-grade control</td>
<td>0.36</td>
<td>0.35</td>
<td>-.009</td>
</tr>
<tr>
<td>fourth-grade intervention</td>
<td>0.29</td>
<td>0.51</td>
<td><strong>.219</strong></td>
</tr>
<tr>
<td>fourth-grade control</td>
<td>0.44</td>
<td>0.38</td>
<td>-.060</td>
</tr>
<tr>
<td>school librarians</td>
<td>0.49</td>
<td>0.58</td>
<td><strong>.091</strong></td>
</tr>
<tr>
<td><strong>Cooperation (Facet B)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>third-grade intervention</td>
<td>0.61</td>
<td>0.88</td>
<td>***.271</td>
</tr>
<tr>
<td>third-grade control</td>
<td>0.47</td>
<td>0.41</td>
<td>-.053</td>
</tr>
<tr>
<td>fourth-grade intervention</td>
<td>0.36</td>
<td>0.66</td>
<td>***.300</td>
</tr>
<tr>
<td>fourth-grade control</td>
<td>0.44</td>
<td>0.36</td>
<td>-.078</td>
</tr>
<tr>
<td>school librarians</td>
<td>0.48</td>
<td>0.59</td>
<td><strong>.103</strong></td>
</tr>
<tr>
<td><strong>Integrated Instruction (Facet C)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>third-grade intervention</td>
<td>0.45</td>
<td>0.91</td>
<td>***.453</td>
</tr>
<tr>
<td>third-grade control</td>
<td>0.27</td>
<td>0.23</td>
<td>-.037</td>
</tr>
<tr>
<td>fourth-grade intervention</td>
<td>0.15</td>
<td>0.70</td>
<td>***.559</td>
</tr>
<tr>
<td>fourth-grade control</td>
<td>0.32</td>
<td>0.28</td>
<td>-.073</td>
</tr>
<tr>
<td>school librarians</td>
<td>0.39</td>
<td>0.56</td>
<td><strong>.170</strong></td>
</tr>
<tr>
<td><strong>Integrated Curriculum (Facet D)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>third-grade intervention</td>
<td>0.39</td>
<td>0.57</td>
<td>.18</td>
</tr>
<tr>
<td>third-grade control</td>
<td>0.20</td>
<td>0.14</td>
<td>-.05</td>
</tr>
<tr>
<td>fourth-grade intervention</td>
<td>0.17</td>
<td>0.54</td>
<td><strong>.37</strong></td>
</tr>
<tr>
<td>fourth-grade control</td>
<td>0.28</td>
<td>0.23</td>
<td>-.05</td>
</tr>
<tr>
<td>school librarians</td>
<td>0.40</td>
<td>0.53</td>
<td>.13</td>
</tr>
</tbody>
</table>

** p < .01; *** p < .001

For the first three facets, a significant difference between the pre- and post-test means in both third-grade and fourth-grade intervention groups (workshop participants) was evident. As noted previously, both control groups declined slightly, but the difference was not significant in either case. School librarians increased slightly on all three facets, but not enough to be significant. The omnibus F test for Facet D (Integrated Curriculum) was marginally significant, and the
subsequent contrasts show that only the fourth-grade intervention group improved significantly. Thus, classroom teachers who participated in the workshops stated that they carried out collaborative activities within the first three facets significantly more often after the workshops than before.

**Importance to Student Learning Ratings**

Analysis for Importance to Student Learning paralleled the analysis for the Frequency ratings. A summary of ratings for teachers and school librarians who participated in the workshops (intervention) and control groups of teachers on the four facets are shown in table 7 below.

**Table 7. Mean Importance to Student Learning ratings for each facet by group.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Coordination (Facet A)</th>
<th>Cooperation (Facet B)</th>
<th>Integrated Instruction (Facet C)</th>
<th>Integrated Curriculum (Facet D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>third-grade intervention Pre</td>
<td>0.71 (.14)</td>
<td>0.77 (.16)</td>
<td>0.77 (.20)</td>
<td>0.81 (.18)</td>
</tr>
<tr>
<td>third-grade intervention Post</td>
<td>0.81 (.09)</td>
<td>0.87 (.11)</td>
<td>0.91 (.07)</td>
<td>0.91 (.12)</td>
</tr>
<tr>
<td>third-grade control Pre</td>
<td>0.64 (.17)</td>
<td>0.76 (.12)</td>
<td>0.69 (.20)</td>
<td>0.71 (.21)</td>
</tr>
<tr>
<td>third-grade control Post</td>
<td>0.59 (.15)</td>
<td>0.76 (.11)</td>
<td>0.72 (.15)</td>
<td>0.64 (.21)</td>
</tr>
<tr>
<td>fourth-grade intervention Pre</td>
<td>0.53 (.11)</td>
<td>0.68 (.07)</td>
<td>0.62 (.17)</td>
<td>0.64 (.20)</td>
</tr>
<tr>
<td>fourth-grade intervention Post</td>
<td>0.58 (.20)</td>
<td>0.73 (.14)</td>
<td>0.78 (.12)</td>
<td>0.80 (.16)</td>
</tr>
<tr>
<td>fourth-grade control Pre</td>
<td>0.58 (.24)</td>
<td>0.63 (.22)</td>
<td>0.55 (.28)</td>
<td>0.53 (.28)</td>
</tr>
<tr>
<td>fourth-grade control Post</td>
<td>0.54 (.20)</td>
<td>0.55 (.33)</td>
<td>0.43 (.31)</td>
<td>0.37 (.30)</td>
</tr>
<tr>
<td>school librarians Pre</td>
<td>0.71 (.15)</td>
<td>0.73 (.12)</td>
<td>0.80 (.14)</td>
<td>0.87 (.09)</td>
</tr>
<tr>
<td>school librarians Post</td>
<td>0.69 (.24)</td>
<td>0.80 (.13)</td>
<td>0.87 (.14)</td>
<td>0.85 (.16)</td>
</tr>
</tbody>
</table>

Note: Standard deviations are in parentheses.

Scores for teachers who attended intervention workshops increased from pre- to post-test, while scores for the third-grade and fourth-grade controls declined or showed smaller positive change. Scores for school librarians declined in the case of Facets A (Coordination) and Facet D (Integrated Curriculum), but increased in Facet B (Cooperation) and Facet C (Integrated Instruction).

A mixed-design ANOVA with one between-subjects factor (Group) and one within-subjects factor (Time of Assessment) on the Importance to Student Learning ratings was computed for each facet. Table 8 summarizes the results of the analyses.
Table 8. Mixed design ANOVA F-test for Importance to Student Learning ratings by facet.

<table>
<thead>
<tr>
<th>Coordination (Facet A)</th>
<th>Cooperation (Facet B)</th>
<th>Integrated Instruction (Facet C)</th>
<th>Integrated Curriculum (Facet D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>group</td>
<td>2.48</td>
<td>1.96</td>
<td>3.99*</td>
</tr>
<tr>
<td>time</td>
<td>0.13</td>
<td>1.06</td>
<td>4.00</td>
</tr>
<tr>
<td>time x group</td>
<td>0.53</td>
<td>1.36</td>
<td>3.04*</td>
</tr>
</tbody>
</table>

* p < .05; ** p < .01;

Unlike results for the Frequency ratings, scores for Importance to Student Learning generally showed less effect. The time x group interaction in Facet D (integrated curriculum) was statistically significant, F (4, 25) = 4.35, whereas it was not significant for the frequency analysis. The time x group interaction in Facet C (integrated instruction) was also significant, F (4, 25) = 3.04, although the probability level was at .05 in the analysis for Importance to Student Learning compared to the Frequency ratings (p < .001).

To identify the source of the time by group interaction, contrasts for each group on the pre- and post-intervention tests were computed and are presented in table 9. None of the contrasts were statistically significant at the Bonferroni-adjusted alpha level of .01. However, the contrasts for the third-grade (p = .03) and fourth-grade (p = .02) intervention groups were close to significance for Facet C (Integrated Instruction). Both groups showed an increase over time. On Facet D (Integrated Curriculum), those for the fourth-grade intervention and control groups were also very close to significance, with the intervention group increasing in their perception of the importance of collaboration (p = .016) and the control group decreasing in their ratings of importance (p = .016). In general, it appears that while the intervention and control groups changed with respect to their perceptions as expected, the changes were smaller and not significant. One possible cause of the lack of significant change is that the scores for Importance were closer to the top of the scale (scale maximum = 1.00), leaving was less room for improvement, regardless of the effectiveness of training.

Table 9. Pre- and post-test mean comparisons for Importance to Student Learning ratings.

<table>
<thead>
<tr>
<th>Coordination (Facet A)</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Mean Difference (Post-Pre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>third-grade intervention</td>
<td>0.71</td>
<td>0.81</td>
<td>0.10</td>
</tr>
<tr>
<td>third-grade control</td>
<td>0.64</td>
<td>0.59</td>
<td>-0.05</td>
</tr>
<tr>
<td>fourth-grade intervention</td>
<td>0.53</td>
<td>0.58</td>
<td>0.05</td>
</tr>
<tr>
<td>fourth-grade control</td>
<td>0.58</td>
<td>0.54</td>
<td>-0.04</td>
</tr>
<tr>
<td>school librarians</td>
<td>0.71</td>
<td>0.69</td>
<td>-0.02</td>
</tr>
</tbody>
</table>
Cooperation (Facet B)

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>third-grade</td>
<td>0.77</td>
<td>0.87</td>
<td>0.10</td>
</tr>
<tr>
<td>fourth-grade</td>
<td>0.68</td>
<td>0.73</td>
<td>0.05</td>
</tr>
<tr>
<td>school librarians</td>
<td>0.73</td>
<td>0.80</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Integrated Instruction (Facet C)

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>third-grade</td>
<td>.765</td>
<td>.912</td>
<td>.147*</td>
</tr>
<tr>
<td>fourth-grade</td>
<td>.624</td>
<td>.784</td>
<td>.159*</td>
</tr>
<tr>
<td>school-librarians</td>
<td>.800</td>
<td>.866</td>
<td>.066</td>
</tr>
</tbody>
</table>

Integrated Curriculum (Facet D)

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>third-grade</td>
<td>.808</td>
<td>.908</td>
<td>.100</td>
</tr>
<tr>
<td>fourth-grade</td>
<td>.636</td>
<td>.795</td>
<td>.159*</td>
</tr>
<tr>
<td>school librarians</td>
<td>.872</td>
<td>.853</td>
<td>-.020</td>
</tr>
</tbody>
</table>

*close to statistical significance at alpha .01

Discussion

Findings from this preliminary report indicate that professional-development intervention workshops contributed to changes in teachers’ and school librarians’ collaborative behaviors related to how frequently they collaborate, and to teachers’ and librarians’ perceptions about the importance of collaboration to student academic success, although teachers’ and librarians’ perceptions differed slightly from each other on these two scales.

Frequency of Collaboration

For classroom teachers in the intervention group, there was a significant increase in activities defined by the first three facets of the TLC Model, which included low- and high-end collaborative activities. At the low end, activities included arranging time for students to use the library, and scheduling events. At the high end, activities included planning objectives together and jointly teaching lessons. This finding confirms earlier studies that indicate that high-end collaboration requires collaborators to engage in multiple facets of the TLC Model. For example, teachers and school librarian must arrange times so that they can meet to jointly plan lessons (Montiel-Overall 2008; Montiel-Overall and Jones 2011). School librarians showed a small increase also, although the increase was not significant, which could have been because of librarians’ initial higher ratings of these activities, their prior knowledge that these activities were recommended within the LIS profession, or that they were unable to do more given that they were responsible for relatively large faculties. The smaller sample of school librarians could also
have been a factor in the smaller gains. Although not statistically significant, the degree of collaboration among teachers in the control group declined over time.

On the fourth facet of the model (Facet D: Integrated Curriculum), teachers’ and school librarians’ ratings also changed over time. This facet identifies activities involving school librarians in curriculum planning and evaluation. Classroom teachers in the intervention group and school librarians slightly increased in these activities, and control teachers decreased in the amount of time they indicated they spent on the activities.

**Importance to Student Learning**

Findings indicate that professional development also contributed to changes in perceptions about the contribution to student success of collaboration between teachers and school librarians, but, as previously stated, changes were not significant and were smaller than they were for the Frequency rating scale.

Teachers who participated in the intervention workshops changed perceptions about collaboration between teachers and school librarians being important to student learning, as did the librarians. Changes in perception between the intervention teachers and control teachers were close to significant, which means that the change was unlikely to be due to chance. As with the Frequency scale, intervention teachers indicated a positive change in perception while teachers in the control group found collaboration less important over time.

Of particular interest are school librarians’ scores on the Importance to Student Learning scale. School librarians had lower scores from pre- to post-intervention on Facet A (Coordination). This would have been expected after the extensive peer mentoring by expert school librarians who stressed that teaching was more important than scheduling and organizing library events. Also, since most of the school librarians were relatively new to the profession they may have been engaged in more low-level activities prior to the workshops. Lower scores on Facet D (Integrated Curriculum) were unexpected, however. Perhaps school librarians had a more realistic perception about the likelihood of their being included in curriculum planning and student evaluation at the end of the year. School librarians’ higher scores on Facet B (Cooperation) reflect their increased involvement in working directly with teachers to find resources and materials for instruction. Minimally higher scores on Facet C (Integrated Instruction) were also unexpected given the amount of time spent on planning lessons that linked information-literacy standards and science standards. However, as previously noted, school librarians’ initial ratings may have been high, resulting in less of a gain. Also, the small number of school librarians participating in the study should be considered when interpreting results.

For all teachers and school librarians, changes in perceptions about the importance of collaborative efforts may not have been as great as they were for frequency because of a general understanding within both professions about collaboration being important in education. The recent MetLife (2012) report is an example of teachers’ understanding of the importance of collaboration. Recent research on teacher collaboration also indicates a growing awareness of the effect of collaboration on student academic achievement (e.g., Goddard, Goddard, and Tschannen-Moran 2007), and reflects the same types of arguments about the importance of collaboration suggested in LIS literature.
Limitations
A word should be said about the nature of this study and its findings. While quantitative studies are extremely important to academic work in general, human factors must be considered in research in the social sciences. In this study, for example, teachers that did not participate (control group) in the workshops at some of the schools were extremely anxious about the research being carried out. At the time of the study (and to date), teachers experienced considerable pressure to have students succeed on standardized tests, and this study was perceived by many control teachers as giving an advantage to certain teachers over others. Lower scores by control teachers illustrate this phenomenon and should be considered in applying classic research methods to education and other areas in which context is critically important in explaining results. Finally, the small number of participants (n = 30) limits the generalizability of the study.

Conclusion
Why is collaboration important? Adults learn more when they collaborate, work harder, support one another emotionally, and commit to cumulative efforts and effects.
—Robert J. Garmston (1997, 44–45)

Over a decade ago, Robert J. Garmston (1997) identified important reasons for educators to collaborate. His message regarding teacher collaboration is equally applicable to collaboration between teachers and school librarians. The key is to ensure that collaborators (e.g., teacher/teacher or teacher/librarian) know how to collaborate effectively and have a clear understanding about how to implement collaboratively planned instruction. Teachers must also recognize school librarians as potential collaborators in the education of students.

Initial findings from this study indicate that one way to encourage effective collaboration is to provide professional development on what it means for teachers and school librarians to collaborate, and to improve knowledge of and desire for collaborative partnerships between teachers and school librarians. Neither profession can expect teachers and school librarians to become collaborative partners without adequate preparation. Professional development is needed to clearly define TLC, explain what is involved in the process, and demonstrate how high-end collaboration is carried out. Changed perceptions by teachers in particular about the type of collaborative instructional and curricular planning activities in which they could engage with school librarians indicates that teachers are open to collaboration between teachers and school librarians, and are open to learning about TLC and its benefits including its importance to improving student learning.

Lastly, school library professionals should not overlook the fact that, despite years of teacher and librarian collaboration being promoted within the profession, some school librarians still have little experience collaborating with teachers or have not yet initiated or participated in any collaborative instruction with teachers. This situation should be a major cause for concern if the role of librarians as instructional partners is to be fully implemented, and efforts should be undertaken to ensure more uniformity in how TLC is carried out. Furthermore, school library professionals must recognize that they alone cannot implement collaborative endeavors without teachers. School librarians’ colleagues in education must know about and, more importantly, agree to work with librarians as instructional partners if TLC is to be successful.
Works Cited


Appendix A

Teacher and Librarian Collaboration Model
(TLC Model)

Appendix B

Survey Given as Pre- and Post-Test to Teachers and School Librarians in 2008-2009
1. Talking with the librarian to arrange time periods for students to use the library.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

2. Scheduling time for the librarian to work with students in the library.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

3. Setting up a time with the librarian when groups of students can go to the library for free reading.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

4. Making sure that class library times don’t conflict with times when other classes use the library.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

5. Scheduling events (e.g., book sales, book fairs, RIF) in the library for students with the librarian.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

6. Setting up convenient times to use the library for extracurricular activities (e.g., clubs).

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

7. Identifying with the librarian materials (e.g., books, websites, references) needed for teaching.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

8. Asking the librarian to provide a list of library resources you need to teach a lesson.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

9. Dividing responsibilities for a lesson (e.g., the teacher will teach a lesson using resources provided by the librarian).

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>
10. Talking with the librarian about new library resources available for instruction.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

11. Asking the librarian to provide references that can be used by students.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

12. Spending time with the librarian identifying library resources that are helpful in teaching.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

13. Meeting with the librarian to plan objectives for a lesson.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

14. Sharing ideas with the librarian for teaching a lesson together.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
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</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

15. Working with the librarian to discuss a lesson that will be jointly taught.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

16. Spending time with the librarian planning instructional activities in the library.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
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</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

17. Working with the librarian to incorporate library skills into classroom lessons.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
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<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>

18. Talking to the librarian about how well students understand what they are learning.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Importance to Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Not at all important</td>
</tr>
<tr>
<td></td>
<td>Very important</td>
</tr>
<tr>
<td>Most frequently</td>
<td>Very important</td>
</tr>
</tbody>
</table>
19. Planning lessons with the librarian.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Most frequently</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
<td>Not at all important</td>
</tr>
</tbody>
</table>

20. Developing objectives for instruction with the librarian.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Most frequently</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
<td>Not at all important</td>
</tr>
</tbody>
</table>

21. Teaching together with the librarian (e.g., implementing lessons that integrate the academic curriculum such as science and social studies with library instruction).

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Most frequently</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
<td>Not at all important</td>
</tr>
</tbody>
</table>

22. Participating in curriculum planning with the librarian to integrate library instruction into classroom curriculum.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Most frequently</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
<td>Not at all important</td>
</tr>
</tbody>
</table>

23. Assessing students’ progress with the librarian.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Most frequently</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
<td>Not at all important</td>
</tr>
</tbody>
</table>

24. Discussing with the librarian how well students understand what they are learning.

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>Most frequently</th>
<th>Importance to Student Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
<td>Not at all important</td>
</tr>
</tbody>
</table>

Thank you for taking this survey.

Patricia Montiel Overall, Ph.D.
Assistant Professor
The University of Arizona
School of Information Resources and Library Science

**Note:** This survey is under further development and should not be used without permission from the authors.
Cite This Article


School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

The mission of the American Association of School Librarians is to advocate excellence, facilitate change, and develop leaders in the school library field. Visit the AASL website for more information.
School Librarian Staffing Levels and Student Achievement as Represented in 2006–2009 Kansas Annual Yearly Progress Data

Mirah J. Dow, Associate Professor, Emporia State University, School of Library and Information Management

Jacqueline McMahon Lakin, Education Program Consultant-Information Management, Kansas State Department of Education

Stephen C. Court, Statistical Consultant

Funded in part by the Kansas State Department of Education

Abstract
To address the presence or absence of school librarians in Kansas public schools, a study using analysis of covariance (ANCOVA) was designed to investigate staffing levels for library media specialists (LMSs), the label used for school librarians in licensed-personnel data in Kansas, and student achievement at the school level. Five subject areas (reading, mathematics, science, history/government, and writing) were examined over a four-year period: 2006–2009. The study examined approximately 2.5 million individual assessment results from 1,389 schools. Researchers found that where schools maintained higher and more stable LMS staffing levels, the Annual Yearly Progress (AYP) data revealed higher proficiency rates. Proficiency differences between no-LMS and full-time LMS conditions were small to moderate but critical with respect to meeting AYP targets. Effect sizes were consistent across grade spans and subject areas, and also consistent with those found in other states’ impact studies. The researchers recommend future studies including addressing issues of causality with stratified random samples of students using propensity-score match techniques based on logistic regression and creating indices of contribution by weighting the ANCOVA-based proficiency differences.
Introduction

When state legislators reduce education finances, local school boards must trim their budgets, usually by reducing or even eliminating “non-classroom” programs and staff. School libraries and library media specialists (LMSs), the label used for “school librarians” in the licensed-personnel data in Kansas, are often seen as unnecessary frills that can be cut with little effect on student learning and achievement, and with little political pushback from parents and other stakeholders. Is this an accurate perception?

To respond to this critical question, an empirical study was designed and conducted to investigate the effects of Kansas LMS staffing levels on students’ proficiency rates (aggregated and assessed at the school level) on the Kansas state assessments over four years (2006–2009) in reading, math, science, history/government, and writing at the elementary, middle, and high school levels. The study tested the hypothesis that higher and more stable levels of LMS allocation at schools will yield greater levels of proficiency and greater positive change in proficiency when controlling for differences in prior performance, school characteristics, and student demographics.

Literature Review

Background on Accountability

During the past five decades, U.S. education has focused on eliminating the effects of poverty through equal access to education and through established high standards and accountability. Adequate Yearly Progress (AYP), which has become well-known to all U.S. educators, is a measurement defined by the No Child Left Behind Act of 2001 (NCLB 2002) that allows the U.S. Department of Education to determine how every public school and school district in the country is performing academically, based on results of states’ summative assessments. The standard method of determining AYP has been a “status model” in which school performance is mainly evaluated in terms of the proportion of students meeting or exceeding proficiency levels on state reading and mathematics assessments. The U.S. Department of Education initiated the Growth Model Pilot Project in AYP determinations under the Elementary and Secondary Education Act (ESEA 1965). Growth models measure how much students have gained from one year to the next using longitudinal records of individual students’ achievement in reading and mathematics within three or four years or by a specific grade level (usually grade eight or nine) as defined by the state’s particular growth model. For the purpose of determining AYP, students who are not proficient but are on track can be counted the same as proficient students. Kansas is one of many states to explore the use of a growth model for accountability.

Results from the 2010 Kansas Statewide Assessments (Kansas State Dept. of Ed. 2010) show a ten-year state-wide growth trend in reading and mathematics. Students performing in the top three performance levels on the reading assessment increased to 86.3 percent in 2010, up from 85.7 percent in 2009. On the mathematics assessment, students in the top three performance levels totaled 83.1 percent in 2010, up from 82.8 percent in 2009. Participation rates topped 99 percent in each subject area. This growth in Kansas has occurred in a state that has long promoted library education and employment of state-licensed school librarians. Further, Kansas educators, including school librarians, have for the past two decades used criterion-referenced assessments to indicate whether or not the test-taker performed well or poorly, to compare the test-taker’s current and previous performance, and to continually revise and improve instruction.
Criterion-referenced assessments used in Kansas to inform the instructional process with students include teacher-made classroom assessments, curriculum and test-coordinator-made district-level assessments, and standards-based assessments created by the Center for Educational Testing and Evaluation at the University of Kansas.

School Library Research
In recent years educational studies have clearly established the efficacy of state-licensed school librarians and well-funded school libraries. A series of statewide impact studies reveal tight links between students’ performance on assessments and school libraries with well-educated school librarians, well-funded collections, and active instructional programs in information literacy (Baughman 2000; Francis, Lance, and Lietzau 2010; Lance 2000; Lance and Hofschire 2011, 2012; Lance, Welborn, and Hamilton-Pennell 1993; Scholastic Research 2008). These findings should not be surprising, given school librarians’ advanced preparation for partnering with classroom teachers to provide instruction, monitor progress, and make adjustments to instruction where necessary.

With expertise in identifying, collecting, and organizing content and best sources of knowledge, including photographs, films, music, and presentations by experts in many languages, school librarians provide effective learning experiences while partnering with reading and other core-content-area teachers, and instructing students to use actual sources in real situations of information need (Loertscher and Woolls 2003; Zmuda 2006; Kuhlthau, Maniotes, and Caspari 2007; Long 2007; Moreillon 2007; Snyder and Roche 2008; Callison 2009; Moreillon, Hunt, and Ewing 2009; Everhart et al. 2010; Mardis et al. 2010). Using strategies that reflect constructivist learning theories, school librarians develop information-literacy skills in their students. Beginning with students’ natural curiosity and addressing each student’s interests and background experiences, ability levels, motivation, and learning styles, school librarians and their classroom colleagues teach students to relate ideas to previous knowledge and experience, look for patterns and underlying principles, check evidence and relate it to conclusions, and cautiously and critically examine authors’ logic and argument. Students learn to publish and share their knowledge using the Internet, computers, and other electronic communication devices.

School libraries’ essential role in students’ development of information-literacy skills has also been studied and documented in the research of Barbara A. Schultz-Jones and Cynthia E. Ledbetter (2009, 2010). Through a series of studies, these researchers found that “science classrooms and school libraries can be assessed along common dimensions” (2010, 15). This led to the assertion that “with a variety of opportunities and responsibilities for meeting the learning needs of students, school librarians can develop and nurture an optimal learning environment that makes a positive and measurable contribution to the educational process” (2010, 18).

School librarians’ ultimate goal is to partner with classroom teachers to prepare all students to share knowledge and to participate ethically and productively as members of a democratic society. School librarians’ collaboration with classroom teachers is articulated in the school librarians’ Standards for the 21st-Century Learner (AASL 2007), which align with the Common Core State Standards (2010) and communicate the Common Core vision of educational excellence (Dow 2010). The necessity of school librarians is articulated in outcomes-based language in the Crosswalk of the Common Core Standards and the Standards for the 21st-Century Learner (AASL 2011), which outlines “crosswalks” where specialized knowledge and
skills of school librarians and classroom teachers come together, making these educators important co-contributors to student learning and achievement in the areas of English language arts, reading standards in history, reading standards literacy in science/technology, and writing standards.

**Method**

We used analysis of covariance (ANCOVA) to examine staffing levels for library media specialists (LMSs), the label used for school librarians in licensed-personnel data in Kansas, and student achievement as recorded in Kansas AYP data at the school level. Five subject areas (reading, math, science, history/government, and writing) were examined over a four-year period: 2006–2009. Overall, the study examined more than 2.5 million individual assessment results from 1,389 schools. Table 1 displays the student counts by subject areas. Schools, not students, served as the unit of analysis in this study. That is, individual students’ results were aggregated to the building level.

**Table 1. Student count by subject area and year.**

<table>
<thead>
<tr>
<th>Gradespan</th>
<th>Subject</th>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>Reading</td>
<td>106454</td>
<td>109043</td>
<td>109461</td>
<td>111931</td>
<td>436889</td>
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</tr>
<tr>
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<td>Math</td>
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<td>109501</td>
<td>111851</td>
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<tr>
<td></td>
<td>Science</td>
<td>0</td>
<td>0</td>
<td>36465</td>
<td>37058</td>
<td>73523</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Writing</td>
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<td>35532</td>
<td>0</td>
<td>37017</td>
<td>72549</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>212929</td>
<td>253601</td>
<td>255427</td>
<td>297857</td>
<td>1019814</td>
<td></td>
</tr>
<tr>
<td>Middle School</td>
<td>Reading</td>
<td>110230</td>
<td>110741</td>
<td>108804</td>
<td>108298</td>
<td>438173</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math</td>
<td>110293</td>
<td>110695</td>
<td>108866</td>
<td>108143</td>
<td>437997</td>
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<tr>
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<td>0</td>
<td>33968</td>
<td>33968</td>
<td>71936</td>
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<tr>
<td></td>
<td>H/G</td>
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<td>0</td>
<td>71724</td>
<td>0</td>
<td>71724</td>
<td></td>
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<tr>
<td></td>
<td>Writing</td>
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<td>36167</td>
<td>0</td>
<td>36367</td>
<td>72534</td>
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<td>Total</td>
<td></td>
<td>220523</td>
<td>257603</td>
<td>252462</td>
<td>288776</td>
<td>1092364</td>
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<tr>
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<td>Reading</td>
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<td>35013</td>
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<td>35219</td>
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<td>33063</td>
<td>0</td>
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<td></td>
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<td></td>
<td>Writing</td>
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<td>0</td>
<td>33914</td>
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<tr>
<td>Total</td>
<td></td>
<td>72006</td>
<td>104990</td>
<td>136228</td>
<td>137275</td>
<td>450499</td>
<td></td>
</tr>
</tbody>
</table>

In each one-way ANCOVA, the independent variable consisted of LMS staffing levels, expressed as full-time equivalence (FTE) units. These staffing levels were recoded into three levels: no LMS, part-time (P/T) LMS, and full-time (F/T) LMS. Table 2 displays the distribution of the LMS staffing levels at each grade span and shows that the largest percent (42.4) of schools with full-time LMSs were at the high school level.
Table 2. Distribution of library media specialist staffing levels by grade span.

<table>
<thead>
<tr>
<th>Grade Span</th>
<th>LMS Staffing</th>
<th>Number of Schools</th>
<th>Percent of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>No LMS</td>
<td>127</td>
<td>17.3</td>
</tr>
<tr>
<td></td>
<td>P/T</td>
<td>344</td>
<td>46.9</td>
</tr>
<tr>
<td></td>
<td>F/T</td>
<td>262</td>
<td>35.7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>733</td>
<td>100.0</td>
</tr>
<tr>
<td>Middle</td>
<td>No LMS</td>
<td>83</td>
<td>20.8</td>
</tr>
<tr>
<td></td>
<td>P/T</td>
<td>190</td>
<td>47.6</td>
</tr>
<tr>
<td></td>
<td>F/T</td>
<td>126</td>
<td>31.6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>399</td>
<td>100.0</td>
</tr>
<tr>
<td>High School</td>
<td>No LMS</td>
<td>36</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>P/T</td>
<td>112</td>
<td>43.6</td>
</tr>
<tr>
<td></td>
<td>F/T</td>
<td>109</td>
<td>42.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>257</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>No LMS</td>
<td>246</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>P/T</td>
<td>646</td>
<td>46.5</td>
</tr>
<tr>
<td></td>
<td>F/T</td>
<td>497</td>
<td>35.8</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1389</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Kansas does not vertically articulate its content standards or vertically scale its assessment scores. Consequently, comparing scores or score differences across different grade spans or subject areas created the risk of error and misinterpretation, inasmuch as a five-point score difference in elementary reading, for instance, might mean something very different from a five-point score difference in high school mathematics. Therefore, proficiency rates were the focus.

Kansas uses students’ percent-correct scores to classify students into one of five performance categories: Academic Warning, Approaches Standard, Meets Standard, Exceeds Standard, and Exemplary. Cut scores have been established to delineate these categories. The cut scores (thresholds) vary across grade levels, subject areas, and test types (the general assessment, the modified assessment for moderately disabled special education students, and the alternate assessment for severely disabled special education students). For AYP purposes, students are considered proficient in a subject area if they are classified as Meets Standard or better. Students in the bottom levels are classified as non-proficient. A proficiency rate is simply the average of the number proficient over the total number of tested students.

Proceeding on the assumption that the proficiency-level cut scores were set appropriately, it is evident that proficiency rates tend to be more comparable than percent-correct scores across different subject areas, grade levels, etc. However, proficiency rates also tend to be more volatile from year to year than percent-correct scores. To increase temporal stability, the four years of proficiency data were converted into two composite proficiency rates within each subject area. Reading Proficiency 1 (RP1), for example, was constructed as the mean of the 2006 and 2007 proficiency rates in reading. Reading Proficiency 2 (RP2) was a composite of the reading proficiency rates for 2008 and 2009. Similarly, MP1 and MP2 were the composite proficiency rates for mathematics; SP1 and SP2 were the rates for science, and so on.

The composite proficiency rates for 2008 and 2009 served as the dependent variable in each ANCOVA. The composite proficiency rates from 2006 and 2007 served as a covariate in the ANCOVA models to control for between-school differences in prior student achievement. In addition to prior achievement, the other covariates in the ANCOVA model included school size (the number of valid assessments results), percent of students receiving free or reduced-price lunch, percent of special education students taking the modified assessment, percent of special education students taking the alternate assessment, and percent of English language learners (ELLs).
To enable meaningful comparison of the results across different grade spans and subject areas, effect sizes were computed by dividing the observed difference in adjusted proficiency rates by the root mean squared error (RMSE) yielded by each ANCOVA. A second set of effect-size indices was computed, based on 99 percent confidence intervals (CI) around each observed difference, between the lower limit of each No LMS condition and the upper limit of each Full-Time LMS condition. These CI-related proficiency differences represent a sort of best-case scenario with respect to the impact of LMS staffing levels.

In addition, an analysis of covariance was rerun with a three-value summary version of each covariate as an independent variable, removing its interval-level counterpart from the covariate input list. Doing this further ANCOVA enabled the researchers to graph the interaction between the LMS staffing level and each covariate. These secondary independent variables were constructed by collapsing—separately by grade span—the interval-level covariate into three approximately equal-sized groups at the 33rd and 67th percentile of each distribution.

Results

The differences in proficiency rates displayed in table 3, as well as the effect-size magnitudes, indicate that schools with an LMS tend to outperform schools with no LMS. The finding is consistent across grade spans and subject areas. Also, the finding is consistent with other impact studies that provide data from which effect sizes can be computed for purposes of cross-study comparison, such as studies in Massachusetts (Baughman 2000) and Colorado (Francis, Lance, and Lietzau 2010).

Table 3. Overall proficiency rates, observed and CI-related proficiency differences, and corresponding effect sizes.

<table>
<thead>
<tr>
<th>Subject</th>
<th>N of Schools</th>
<th>Overall Proficiency Rate</th>
<th>LMS vs. No-LMS Proficiency Difference (Observed)</th>
<th>Effect Size (Observed)</th>
<th>LMS vs. No-LMS Proficiency Difference (99% CI)</th>
<th>Effect Size (99% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>796</td>
<td>85.9</td>
<td>2.6</td>
<td>.23</td>
<td>4.7</td>
<td>.42</td>
</tr>
<tr>
<td>Middle</td>
<td>435</td>
<td>85.7</td>
<td>3.0</td>
<td>.23</td>
<td>3.9</td>
<td>.30</td>
</tr>
<tr>
<td>High School</td>
<td>285</td>
<td>82.8</td>
<td>5.4</td>
<td>.26</td>
<td>10.9</td>
<td>.62</td>
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<tr>
<td>Math</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>796</td>
<td>86.3</td>
<td>4.2</td>
<td>.38</td>
<td>5.5</td>
<td>.50</td>
</tr>
<tr>
<td>Middle</td>
<td>435</td>
<td>80.1</td>
<td>3.9</td>
<td>.24</td>
<td>4.1</td>
<td>.37</td>
</tr>
<tr>
<td>High School</td>
<td>285</td>
<td>75.2</td>
<td>4.1</td>
<td>.17</td>
<td>8.8</td>
<td>.39</td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>692</td>
<td>92.3</td>
<td>2.1</td>
<td>.18</td>
<td>3.8</td>
<td>.34</td>
</tr>
<tr>
<td>Middle</td>
<td>397</td>
<td>86.0</td>
<td>2.8</td>
<td>.16</td>
<td>5.3</td>
<td>.31</td>
</tr>
<tr>
<td>High School</td>
<td>244</td>
<td>85.1</td>
<td>0.5</td>
<td>.04</td>
<td>5.4</td>
<td>.41</td>
</tr>
<tr>
<td>History/Govt.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Middle</td>
<td>416</td>
<td>81.6</td>
<td>2.8</td>
<td>.16</td>
<td>5.3</td>
<td>.36</td>
</tr>
<tr>
<td>High School</td>
<td>271</td>
<td>80.9</td>
<td>1.6</td>
<td>.11</td>
<td>5.9</td>
<td>.41</td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>638</td>
<td>72.4</td>
<td>2.0</td>
<td>.10</td>
<td>5.1</td>
<td>.27</td>
</tr>
<tr>
<td>Middle</td>
<td>421</td>
<td>74.6</td>
<td>2.5</td>
<td>.13</td>
<td>6.6</td>
<td>.36</td>
</tr>
<tr>
<td>High School</td>
<td>274</td>
<td>76.4</td>
<td>2.2</td>
<td>.15</td>
<td>6.4</td>
<td>.42</td>
</tr>
</tbody>
</table>

Kansas does not administer a history/government assessment at the elementary level.
The magnitudes of the observed and CI-related proficiency differences, as well as the effect sizes, would customarily be considered in the small to moderate range. However, a school’s proximity to the AYP target is an important consideration in determining the practical significance of the proficiency differences. For example, consider elementary reading, where the CI-related proficiency difference was 4.7 points. Of the 158 schools whose 2008–2009 composite proficiency rate was below the 2009 AYP target of 79.7 percent proficient, 36 schools (23 percent) would likely have made AYP if they had a full-time LMS. Conversely, of the 575 schools whose composite proficiency rate was 79.7 or better, 26 schools (4.5 percent) would likely have missed AYP if they had not had a full-time LMS.

Initially, this study was designed to examine proficiency in terms of only the 2008–2009 composite LMS staffing levels. However, the researchers noticed in the raw data that FTE allocations at particular buildings often varied greatly across the four years. In more than a third of all Kansas schools, the variation involved rather erratic fluctuations. At more than 100 schools, the fluctuation involved no LMS in at least one year, a full-time LMS in at least one other year, and different levels of part-time LMS during the other two years. Observing such variation led the researchers to add the Trend variable to the study’s design. Table 4 provides an example of each trend type. Table 5 shows the number and percent of schools by trend type and indicates that 901 (64.9 percent) schools had steady full-time, stable part-time or increase in LMS FTE allocation. Table 6 shows the overall distribution of the trends across the three grade spans. In turn, figure 1 shows a typical pattern in overall distribution trends across the three grade spans and all content areas; in the instance depicted in figure 1, proficiency by trend for elementary reading is shown. This pattern suggests that stability of the LMS staffing may matter almost as much as the level of the staffing. If so, changing the FTE allocation every year or two may have a disruptive effect on student achievement.

**Table 4. LMS staffing trend types.**

<table>
<thead>
<tr>
<th>FTE 2006</th>
<th>FTE 2007</th>
<th>FTE 2008</th>
<th>FTE 2009</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>No LMS</td>
</tr>
<tr>
<td>1</td>
<td>.8</td>
<td>.5</td>
<td>0</td>
<td>Steady Decrease</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>.8</td>
<td>Erratic</td>
</tr>
<tr>
<td>.2</td>
<td>.5</td>
<td>.7</td>
<td>.9</td>
<td>Steady Increase</td>
</tr>
<tr>
<td>.3</td>
<td>.3</td>
<td>.3</td>
<td>.3</td>
<td>Stable P/T</td>
</tr>
<tr>
<td>.6</td>
<td>.6</td>
<td>.6</td>
<td>.6</td>
<td>Stable P/T</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Stable F/T</td>
</tr>
</tbody>
</table>

**Table 5. Number and percent of schools by staffing trend types.**

<table>
<thead>
<tr>
<th>Staffing Trend</th>
<th>Number of Schools</th>
<th>Percent of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>No LMS</td>
<td>246</td>
<td>17.7</td>
</tr>
<tr>
<td>Steady Decrease</td>
<td>121</td>
<td>8.7</td>
</tr>
<tr>
<td>Erratic</td>
<td>121</td>
<td>8.7</td>
</tr>
<tr>
<td>Steady Increase</td>
<td>143</td>
<td>10.3</td>
</tr>
<tr>
<td>Stable P/T</td>
<td>261</td>
<td>18.8</td>
</tr>
<tr>
<td>Steady F/T</td>
<td>497</td>
<td>35.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1389</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 6. Overall distribution trends across three grade spans.

<table>
<thead>
<tr>
<th>Grade Span</th>
<th>Element</th>
<th>Count</th>
<th>No LMS</th>
<th>Steady decrease</th>
<th>Erratic</th>
<th>Steady Increase</th>
<th>Stable P/T</th>
<th>Steady F/T</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Row %</td>
<td></td>
<td>17.3%</td>
<td>8.9%</td>
<td>9.1%</td>
<td>11.2%</td>
<td>17.7%</td>
<td>35.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Elem</td>
<td></td>
<td>127</td>
<td>65</td>
<td>67</td>
<td>82</td>
<td>130</td>
<td>262</td>
<td>733</td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>Count</td>
<td>83</td>
<td>35</td>
<td>32</td>
<td>45</td>
<td>78</td>
<td>126</td>
<td>399</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Row %</td>
<td></td>
<td>20.8%</td>
<td>8.8%</td>
<td>8.0%</td>
<td>11.3%</td>
<td>19.5%</td>
<td>31.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>HS</td>
<td>Count</td>
<td>36</td>
<td>21</td>
<td>22</td>
<td>16</td>
<td>53</td>
<td>109</td>
<td>257</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Row %</td>
<td></td>
<td>14.0%</td>
<td>8.2%</td>
<td>8.6%</td>
<td>6.2%</td>
<td>20.6%</td>
<td>42.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>246</td>
<td>121</td>
<td>121</td>
<td>143</td>
<td>261</td>
<td>497</td>
<td>1389</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Row %</td>
<td></td>
<td>17.7%</td>
<td>8.7%</td>
<td>8.7%</td>
<td>10.3%</td>
<td>18.8%</td>
<td>35.8%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Figure 1. Elementary reading percent proficient plotted against staffing trends.
Post Hoc Analyses
To “drill down” to a deeper level of understanding the effects of LMS staffing and trend on school-level proficiency rates, a series of post hoc analyses were conducted. Specifically, the interaction between FTE allocation or Trend with a summary (three-value) version of each interval-level covariate was examined. Consider elementary math, for example. Figure 2 reveals the relationship between LMS staffing across schools with varying levels of poverty, expressed in terms of the percent of students receiving free or reduced-price lunch subsidy. It shows that schools with a full-time LMS tend to outperform no-LMS schools regardless of their poverty levels. The relationship is generally consistent across other grade spans and subject areas.

Figure 2. Mathematics percent proficient plotted against levels of poverty (free or reduced-price lunch subsidy) for three levels of LMS FTE allocation.

Figure 3 shows how the student-LMS ratio affects proficiency rates. Small elementary schools, those with fewer than 100 students with valid test scores, outperformed their larger counterparts by 7 to 10 proficiency points. Conversely, in schools with more than 180 students with valid test scores, there was virtually no difference in proficiency regardless of LMS staffing, presumably because the student-LMS ratio was too high for the LMS to function effectively. Because the pattern was consistent across all three grade spans and all five subject areas, this finding provides evidence to support an argument that larger schools would benefit greatly from allocating more than one full-time LMS to the school library.
Summary
The results of the study’s overall findings are summarized in figure 4, which displays a bar graph of the five middle school subject areas. It shows that having at least a part-time LMS (and preferably, a full-time LMS) tends to yield notably higher proficiency rates in all five subject areas than does having no LMS. The elementary and high school summaries exhibit a pattern of differences that is similar to the middle school results.
Discussion

This paper reports the results of a four-year, empirical investigation of school librarian employment (LMS staffing levels) as reported in Kansas licensed-personnel data and student achievement at the school level as reported in the Kansas QPA (Quality Performance Accreditation) state assessment data in reading, math, science, history/government, and writing at the elementary, middle, and high school levels. This study supports the assumption that when school librarians’ hours are reduced or eliminated at a school building, there is likely to be a negative influence on student learning and achievement. While school librarians may be perceived by some as an expensive luxury, particularly when school budgets are cut, higher student proficiency rates at schools where school librarians are employed may be something schools cannot afford to do without.

Through the lens of AYP data, this study creates a new “picture” of the presence or absence of school librarians. We found that where schools maintained higher and more stable staffing levels, the AYP data revealed that schools’ students had higher proficiency rates. The proficiency differences between the no-LMS and full-time LMS conditions were small to moderate in magnitude but, nonetheless, critical with respect to meeting annual AYP targets. The corresponding effect sizes were consistent not only across grade spans and subject areas but also with other state impact studies. In particular, it should also be noted that across the years represented in this study, the greater reading proficiency scores in schools with full-time LMS, compared to those schools with no LMS, were in many cases enough of a difference to achieve the required Reading AYP target. This suggests that students in schools with at least one full-time school librarian may achieve higher reading proficiency. To strengthen the findings in this quantitative study design, qualitative descriptions of school librarians’ participation in teaching reading in schools meeting reading AYP targets should follow up to present a comprehensive “picture” of the influence of the school librarian.
An issue that requires an explanation is the matter of the impact of school size on student proficiency levels. For example, according to the data, in reading proficiency small schools with full-time school librarians outperformed their larger counterparts with full-time school librarians. Also, larger schools (those with the most students) have the highest percentage of full-time LMS. These matters raise the question of whether or not FTE of the school librarian or school size is most meaningful. We believe that both FTE allocation and school size are likely to be relevant to understanding the influence of the school librarian on students’ proficiency levels. We know from observation that some of the larger schools employ more than one full-time LMS. However, these findings caused us to consider that the effects of hiring trends, which we also observed, may be even more complicated than we initially thought when the affects of the presence or absence of school librarians are considered. Erratic coming and going of state-licensed school librarians may be more disruptive to students’ learning than we anticipated. A useful future study would be to investigate and describe the nature of students’ learning experiences and the school community in schools with erratic (unstable) employment of state-licensed school librarians.

Another issue that must be addressed is the matter of proficiency in schools with high poverty. The data reveals that schools with high poverty have high percentage of No LMS (38 percent). According to the data, students in low poverty (<33 percent free and reduced-price lunch) with a full-time school librarian achieve approximately 7 points higher in math than those with no school librarian. Students in high poverty (33–67 percent free and reduced-price lunch) with a full-time school librarian achieve approximately 13 points higher in math than those with no school librarian. In a case study (2006–2009) of high-poverty schools, our visits to buildings revealed that the school facilities were modern, aesthetically designed buildings that offered special programs such as English for Speakers of other Languages, special education, and Title 1 at the elementary level. School librarians were highly involved in partnering not only with classroom teachers but also with program specialists in teaching reading, math and other content areas; implementing before- and after-school programs; making available computer technology equipment and instruction; and supervising support staff. These observations, together with the data in this study, suggest that where there are highly qualified educators and available resources and instruction, students living in poverty can—despite many challenges—become academically proficient.

It also is important to note that since approximately 1995, Kansas veteran and new school librarians have used an established approach to collaboration with teachers that includes a common language and a five-step method: The Handy 5 (Grover, Fox, and Lakin 2001; Blume et al. 2007). This model correlates with the five steps in mathematic problem solving: the assignment; plan of action; doing the job; product evaluation; and process evaluation. The Handy 5 steps are applied to curriculum in reading, writing, mathematics, social studies, science, the arts, and information-literacy skills. Analysis of data from a sample of participant schools where teachers used The Handy 5 yielded multiple findings including “use of the model had an impact on low achieving students,” and “use of the model helped students learn higher order thinking skills, i.e., analysis, synthesis, and evaluation” (Grover, Fox, and Lakin 2001, 88). These findings suggest that, while mathematics teachers and school librarians might not be teaching in the same room, instructionally they “mirror” each other in their efforts to teach logic, reasoning, problem-solving, and critical thinking.

It should be further understood that issues of causality, or the lack thereof, in this study can be addressed and remedied in a future study in two phases. First, we will approximate stratified random samples of students using propensity-score match techniques based on logistic regression. After aggregating the samples to the building level, researchers would create indices of contribution by weighting the ANCOVA-based proficiency differences by the ratio of R² values without covariates to the R² values with covariates. Such weighting will adjust the observed and CI-related proficiency differences in a manner that reveals the relative “contribution” to the variability in proficiency rates made only by the LMS staffing levels. In short, the propensity-score matching will combine with the contributory indices to identify in a more accurate and trustworthy manner the impact of the LMS staffing on student achievement.
Works Cited


Cite This Article

<http://www.ala.org/aasl/slr/volume15/dow-lakin-court>

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The mission of the American Association of School Librarians is to advocate excellence, facilitate change, and develop leaders in the school library field. Visit the *AASL website* for more information.
Resource Provisions of a High School Library Collection

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Dr. Carol A. Doll, Teaching and Learning Department, Darden College of Education, Old Dominion University

Abstract

The mission of the school library “is to ensure students and staff are effective users of ideas and information” (AASL 2009, 8). The school library collection should, therefore, support instruction throughout the school. However, teachers do not always understand the potential value of the resources available. This research explored perceptions teachers held about the instructional role of the school library collection. Two surveys and a set of interviews yielded data to document the perceptions of teachers at one high school. Results showed that teachers: used and saw students use more digital than print materials; downplayed the value of textbooks; and spent a large amount of time finding quality resources for instruction, often without the inclusion of library resources or assistance of librarians.

Introduction

In 2007 the American Association of School Librarians (AASL), a division of the American Library Association, developed new standards for today’s elementary and secondary students: Standards for the 21st-Century Learner. The purpose of the new standards is to guide instruction to prepare learners for today’s information-rich society (AASL 2007). The Partnership for 21st Century Skills defines 21st-century student outcomes as “the knowledge, skills and expertise students should master to succeed in work and life in the 21st century” (Partnership for 21st Century Skills 2009). These AASL standards work with the curricular standards to define what and how 21st-century students should learn.

The role of the school library is to support the classroom teachers and curricula throughout the school. Keeping in mind what is taught, how students learn, and what students want to know, the school librarian strives to adequately supply materials for the school community by developing a
well-rounded collection of instructional materials. According to Patrick Jones, Patricia Taylor, and Kirsten Edwards, “The purpose of any collection is to fulfill the wants and needs of a library’s users” (2003, 361). As evidenced in the new standards, the needs of 21st-century learners are changing, and school library collections should be developed and managed in a manner that will keep up with the changes (AASL 2009). What types of resources are teachers currently using, and to what extent is the school library collection providing resources for classroom instruction?

**Purpose**

The purpose of this concurrent mixed-methods study was to examine high school teachers’ perceptions of the resource provision of the school library collection and to determine the types of resources teachers currently use in their instruction. In this study, two questionnaires were used to gather quantitative and qualitative data from sample groups, and interviews were conducted with individual teachers. The data were combined to provide a more complete picture of the perceptions of the teachers in the sample. Given the changing state of library collections in the current technology-infused climate, it is important to consider the needs of all users of the library. This study marks the beginning of that process by examining the current perceptions of high school teachers. This is foundational research to support future studies of how specific user-groups perceive, access, and use school library resources in the quickly changing information age.

**Research Questions**

The research questions explored in this study were those listed below.

- What are teachers’ understandings of the role of the school library in supporting classroom instruction?
  - How do teachers characterize their use and student use of resources?
  - How do teachers use materials in various formats?
  - Which resources do teachers incorporate into classroom instruction?

- What factors influence the likelihood of teachers’ using library resources as part of instruction?

**Review of the Literature**

**History of School Libraries**

School libraries have undergone vast transformation in the past century, from schools relying on public library support in the early 1900s (Wiegand 2007) to excellent collections of print and digital materials within a school library today. In the early 1900s the goal of the library was to bring the best of literature to the people (Weihs 2008). This attitude changed in the 1950s and 1960s, with a more open approach to reading across all subjects (Weihs 2008). In 1918 the National Education Association set standards for school libraries (Roscello 2004). In 1928 the *Standard Catalog for High School Libraries*, which later became H. W. Wilson’s *Senior High
School Library Catalog, was first published (Wiegand 2007). This 1928 publication included titles that were considered by the selection committee to be worthy of inclusion in a basic high school library collection. Until the mid 1960s school library collections grew slowly with the focus on including only the best titles from respected review sources (Woolls 2002). Passed in 1965, the Elementary and Secondary Education Act (ESEA) gave money to school libraries to build their print and media collections (Todd, Gordon, and Lu 2010; Wiegand 2007; Woolls 2002). Instead of relying only on the review sources, school librarians felt more freedom to seek advice from teachers regarding materials that should be included as part of the library collection (Woolls 2002). The prevalence of school libraries grew from 58 percent of schools having libraries in 1958 to 93 percent of schools having libraries in 1993 (Wiegand 2007). According to Blanche Woolls (2002), the mid 1980s brought a shift in the focus of school budgets to include computers and technology. She suggested that this inclusion of computers and other technology took away some of the money that formerly had been spent on school libraries’ print collections. In 2001 the emergence of No Child Left Behind eliminated school library funding that had been allocated through ESEA (Todd, Gordon, and Lu 2010). Because allocation of school budgets is often dictated by school principals, another factor that affects spending on school library collections is principals’ expectations of how money should be used (Maxwell 2005).

In this tight economic time, school libraries are again seeing a shift in philosophy—this time driven by budget constraints (Maxwell 2005). Academic libraries, which in the past were defined by their large print collections, are now focusing attention on their special collections as a new defining point (van Zijl, Gericke, and Machet 2006). Large libraries, which once were able to collect almost everything their librarians wanted to add to the collection, now must focus their budget on what is most needed by the users (Agee 2005). Dwindling budgets mean school librarians must now decide between acquiring print or digital resources. However, many publishers are packaging their resources together, forcing schools to purchase several products in one package instead of purchasing only the resource that is most useful to the school. (Woolls 2002). Some states have purchased state licenses for electronic resources that are made available to schools, and schools have joined together to share costs of resources (Maxwell 2005; Woolls 2002).

Until recent years, the print collection has been the organizational point of the library, but now libraries must try to keep up with the rapidly changing world of technology—an area in which education has not traditionally been able to keep pace (de la Vega and Puente 2010). In a research report of the state of school libraries in New Jersey, Ross J. Todd, Carol A. Gordon, and Ya-Ling Lu (2010) described school libraries as Informational, providing information and technology; Transformational, providing instruction; and Formational, focusing on student outcomes. These three descriptors are particularly appropriate in this technology-driven time, as information and knowledge are so quickly evolving.

The Current School Library Collection

The term “collection” refers to much more than just the books on the shelf of the school library. It includes all aspects of educational materials, defined by Sacristan J. Gimeno in an article by Aurora de la Vega and Rosa Tafur Puente as “specific elements that bear educational messages, through one or more communication channels (2010, 309).” A collection might include books, periodicals, e-books, CDs, DVDs, videos, software, and access to databases, among many other types of resources. In a review of collection-development literature published between 2004 and
2008, Daryl Bullis and Lorre Smith found a prevalence of articles related to electronic resources in the library collection. According to Bullis and Smith, the research of this time period indicated that “librarians continued to be challenged to define their core collections in an environment of globally accessible resources” (2011, 214). For the purposes of this study, the library collection will refer to the variety of resources made available to teachers and students through the school library, including print books, periodicals, and reference materials, online databases and websites, and audio/video resources in physical and streaming formats.

Researchers agree on the importance of a current, adequate collection that meets the needs of the users and supports the curriculum (Sunil and Zainab 2002; Todd, Gordon, and Lu 2010; Young 2010). However, results of a study by W. Sunil and A. N. Zainab (2002) in Sri Lanka showed that students did not think the collections were current or met their needs. The New Jersey research (Todd, Gordon, and Lu 2010) found that the oldest books were in high schools, and schools with lower socioeconomic populations had fewer books. As budgets tighten and library resources evolve into more expensive digital formats, the school librarian must make careful decisions regarding collection development, taking every aspect of the collection into account.

To effectively develop a collection, the school librarian must first evaluate the collection to determine its strengths and weaknesses, as well as how well it meets the needs of the users. Jim Agee (2005) defined three types of collection development activities. The first type is user-centered, focusing on evaluating the collection based on the needs of users. This focus can be achieved through surveys or observations to discover what the users want and need from the collection. The second type is physical assessment, which involves examining the physical condition of the book to determine if it is in good shape and examining the content of the book to determine if it is appropriate for the current needs of the learners. Agee listed the last type of evaluation as subject-specific. This evaluation involves a careful analysis of a specific section of the collection to determine strengths and weaknesses in its support of the curriculum. Agee’s three types of collection evaluation work together to form a complete analysis of a collection.

Michelle Emanuel (2003) identified more-specific steps in evaluating a collection; these steps were derived from a study of collection management conducted at the University of Alabama. She recommended four important steps: 1) determine the size of collection needed, using recommendations from selection sources and state requirements; 2) compare the current collection to recommended lists in selection sources; 3) analyze circulation statistics; and 4) analyze all of the collected data. According to Emanuel, these steps will result in information regarding the strengths and weaknesses of the portion of the collection evaluated. She recommends focusing on one specific section at a time, instead of attempting to analyze the entire collection simultaneously. However, one weakness of this approach is its failure to account for the needs of users.

As a different form of data collection, Lesley S. J. Farmer (2002) recommended that the school librarian collect data focusing on the users, and design a plan specifically intended to involve youth in the collection-development process. Included in the information Farmer recommended gathering and analyzing were circulation statistics, data related to books that were used in the library and not re-shelved, survey and interview results, input from focus groups with students, and information gathered from social networking sites designed by the school or school library staff. She also recommended that the school librarian work with classroom teachers to analyze citations and bibliographies from student work, thereby discovering which resources had been
used for class writing assignments. Farmer stressed the importance of asking youth for input, and making them feel that they are part of the selection process. She cautioned that an evaluation of student needs should not just include current library users but should also include those who do not currently use the library.

A common form of collection evaluation is referred to by many researchers as “collection mapping.” Terry Young defined this term as “the process of examining the quantity and quality of the library’s collection and identifying its strengths and weaknesses” (2010, 3). Collection mapping takes the evaluation process a step further by comparing the collection to what is being taught in the school. Jody K. Howard (2010) specified some activities in collection mapping: 1) determine what is currently available; 2) physically examine the resources; 3) include all resources, not just print materials; 4) work with teachers to determine the best format for the specific curriculum. In his book *Collection Mapping in the LMC*, David V. Loertscher recommended dividing the collection into small sections to examine how the sections meet the needs of the curriculum. He stated that a good collection map should provide evidence that the collection meets the needs of the curriculum and should be maintained as the collection is developed (1996).

As a collection is developed, it is imperative to keep in mind the specific needs defined by the curriculum, written and unwritten, taught within the school.

**The Curriculum**

According to Farmer (2002), school libraries “exist to serve curricular and personal needs of their constituents, most of whom are students” (2002, 67–68). Her article “Collection Development in Partnership with Youth” points out what she believes to be the best practices to guide collection development for libraries serving youth, as noted previously in the discussion of her collection-evaluation types. The school librarian should be viewed as a leader in the school, and should develop relationships with teachers to gain their trust and support. These relationships allow access to specific information related to what is taught in the classroom (Howard 2010). Researchers de la Vega and Puente (2010) believe that the teacher and librarian are essential in guiding the information use of the students, and a trusting relationship may be necessary for this partnership to develop and evolve.

School curriculum is typically determined by state or local standards, but more may actually be taught than is included in the standards. A school librarian needs to be aware of the specifics that are taught, not just the official curriculum. A map of the actual curriculum would show the school librarian the topics and timeline of what is taught within the school (Howard 2010). An analysis of the curriculum compared to the collection map would allow the school librarian to further develop a collection that meets the needs of the school population. Robin Lindbeck and Brian Fodrey described two aspects of setting school library programs’ collection-development goals: “inside the box,” referring to improving and using current resources and “outside the box,” incorporating new ideas and practices (2010). A comprehensive curriculum review and collection map would allow the school librarian to accomplish both of these sets of goals by using the strengths of the current collection and building on it to improve its connection to the curriculum. Focusing on the curriculum when developing the school library collection also encourages the inclusion of new forms of media in the library collection.
21st-Century Learners

The students in the classroom today are considered to be part of the Millennial Generation, those born between approximately 1980 and 2000 (Howe and Strauss 2000). They have always lived in a world that included personal computers and, for most of their lives, the World Wide Web (Considine, Horton, and Moorman 2009). They want to be entertained, look for personal gain, and are influenced by others, both peers and parents. Their parents are more educated and more involved than those of any previous generation (Furbeck et al. 2003). Their parents are ready to protect them and pick up the pieces when necessary. Members of this group of parents are commonly referred to as “helicopter parents,” and students feel the pressure imposed by the parents (Pricer 2008). Millennials want control over their surroundings (Considine, Horton, and Moorman 2009), and are socially connected, confident, collaborative, and technology-friendly (Lindbeck and Fodrey 2010). They want to be challenged and given a choice. They are interested in things that apply directly to them and are very in tune with their social, digital world.

Millennials are more in touch with technology than any previous generation, especially in the use of information communication technology (ICT) (Considine, Horton, and Moorman 2009). Through their use of ICT, they are given access to more information than was ever available before. Because of easy access to vast amounts of information, they are confident in their own perception of what they know. Millennials do not just use technology, but they interact with it and create content. Living their personal lives in this digital world, this generation has developed special skills that are typically untapped by their teachers (Considine, Horton, and Moorman 2009).

To create instruction and instructional spaces that are appropriate for this special group of learners, educators should examine what the learners need from adults to be successful. David Considine, Julie Horton, and Gary Moorman (2009) described the Millennial Generation as particularly weak at comparing, contrasting, critiquing, and analyzing information. Those authors also stated that the ability to access information does not equate with the ability to comprehend that information. They described the role of the teacher as a bridge between what the students know and can do, and what they need to learn to be successful in the future. The teacher should be able to teach the content while providing the context in which the students can relate. However, this bridge is often broken by schools with tight control over the use of technology through Internet filters or limitations on technology that students are accustomed to using in their personal lives (Considine, Horton, and Moorman 2009).

Niels Ole Pors’s research of high school students in Denmark found that most of the teenagers used the Internet for research, but few used library-provided databases. The study showed that Google was the search engine most widely used among the participants. Pors’s research showed a positive relationship between students who used digital resources and those who used the physical library. Although this study found that use of libraries increased as the students got older and the number of school assignments increased, the study also revealed that many students still found it difficult to evaluate the quality of information from resources (2008). Pors also pointed out the interesting finding that many of the students surveyed indicated a preference for traditional aspects of school libraries, such as “kind and polite service” and “ambiance” (2008, 440).

Implications
The reviewed research gave an overview of many aspects of a 21st-century school library collection, including the users, alignment with the curriculum, and the collection itself. Most of the researchers agree that this is a topic of extreme importance to our school libraries, and one that involves careful planning and consideration, especially as budgets shrink and resources become more digitized and, therefore, more expensive. Lee F. Furbeck et al. (2003) described the shift as a change in view that sees the book as the print edition of the digital work. This generation of learners undeniably has very specific needs that are not always addressed by the current educational world.

To address the fact that vast amounts of information in many formats are available today, when developing the school library collection, the librarian must examine the needs of the entire school population and involve all users in decision making. In this way, the users will feel a sense of ownership for the resources available and managed through the library. The issues presented in the review of the literature lead to the research questions for this study.

Methods

The nature of the study was not conducive to an experimental design, which would have required the manipulation of factors, such as access to library materials that would have influenced teachers’ experiences. The non-experimental design is appropriate to provide exploratory, foundational data about teachers’ perceptions of the school library collection. The study used a concurrent mixed-methods design in which data were collected through a variety of methods including questionnaires and interviews. The interview data were embedded within the larger data set collected by means of the questionnaires. The data from the two questionnaires and the interviews served to triangulate the results. In an attempt to make the questionnaires friendly to the participants and to encourage participants to carefully read each question, throughout the questionnaire the researcher used a variety of question types, including multiple opportunities for open-ended responses. The researcher was aware of the challenge this mix of question types would present during data analysis, since the questions were not all a consistent format, such as a Likert-type scale.

Participants

The sample for this mixed-methods study came from the population of classroom teachers in one public high school in the mid-Atlantic United States. The population was chosen for convenience because the researcher was also one of the school librarians at the location. As a librarian at the school, the primary researcher had a working relationship with the teachers in the building, and knew which teachers frequently used library resources and which did not. This allowed insight when purposefully choosing the sample for the interview portion of the study.

Instead of AASL’s official term “school librarian” (AASL 2010), the school division under study uses the term “school library media specialist.” Both terms may be used interchangeably in this portion of the paper.

For the purposes of this study, “classroom teacher” was operationally defined as any teacher, either full-time or part-time, who was responsible for at least one assigned classroom group of students as indicated by the school’s faculty listing. Included were special education teachers with self-contained classrooms, but not those who worked in a supporting role within a
collaborative classroom. Also included were teachers from specialty areas, such as career and technical education, fine arts, and health and physical education. Educational-support staff, itinerant teachers, and other specialists did not receive the questionnaire.

Of the eighty classroom teachers who received the School Media Center Resources Questionnaire (Appendix A), twenty-eight chose to participate in the study, a return rate of 35 percent, but a representative sample of the population. Of those who provided demographic information about number of years teaching (n = 24), over half (58 percent) reported having taught over ten years. Two respondents stated they were in their first year of teaching. The remainder stated they had between one and ten years of experience. Of those who provided the information (n = 23), the largest percentage of respondents stated they had experience teaching science (35 percent), math (26 percent), and social studies (22 percent). Participants represented all levels of teaching experience and all educational departments within the school, providing a good cross section of the population.

The participants for the second questionnaire came from those who had collaborated with the school librarians during the current semester. Of the eight teachers who received this questionnaire, five returned it, resulting in a 63 percent return rate.

The participants for the interviews were purposefully chosen from the Social Studies Department at the school because this department included extreme-case examples from among the teachers. Some teachers were frequent users of the library, while others did not use the resources at all during the year. As a librarian in the school, the researcher had a professional relationship with the teachers and chose teachers who would represent extreme cases and be willing to talk openly about their teaching experiences.

**Survey and Instrumentation**

**School Media Center Resources Questionnaire**

The purpose of the School Media Center Resources Questionnaire (Appendix A) was to gather data regarding classroom teachers’ understandings of the role of the school library. The questions were related to how teachers currently use resources as part of their instruction, the resource formats used, and teachers’ perceptions of student use of resources within the classroom. The questionnaire included fifteen questions; these were a mix of selected-response questions and open-ended questions that allowed teachers to give detailed responses. The questionnaire was divided into three sections:

1) Current use of resources—This section was designed to provide information about the types of resources, other than textbooks, teachers currently used in their instruction. A variety of resources were mentioned, and space was given for teachers to write in responses, as well. This section also addressed how teachers saw students use resources in their classrooms, and the adequacy of the school library collection. This section included selected-response and open-ended questions, with a variety of question types to allow for greater understanding of collected data, depending on the information desired. This variety of question types was also employed to decrease the chance of participants answering without careful consideration of each question.

2) Independent or assigned reading, and 3) Research or information gathering—These sections asked a series of questions intended to provide information about which resource format—print
or electronic—teachers perceived as best for supporting students’ reading and research. These questions asked the participant to select either print or electronic resources as most appropriate for the stated activity. Also included were questions that asked about teachers’ expectations for format of resources students could use to complete assignments. These questions asked the teacher to state whether or not they required students to use a specific format.

At the end of the questionnaire, optional demographic information was requested to allow for additional data analysis.

Standard Institutional Review Board procedures were followed, including securing permission for the study from the senior administration of the school division and the building principal.

The study was approved by the Old Dominion University Human Subjects Review Board within the Darden College of Education.

Soliciting their voluntary participation, the researcher gave the questionnaire to every classroom teacher in the school, resulting in the sample as described above. The questionnaire was given in print format, and placed in the teachers’ mailboxes at school, along with a letter of explanation that mentioned administrative support for the survey, and an informed-consent form. Participants were encouraged to ask questions of the researcher regarding the study. A central collection location was provided that ensured confidentiality of data. After a week, a follow-up e-mail was sent to all classroom teachers, thanking them for their participation and encouraging further participation. Questionnaires continued to be collected through the week after most teachers left for summer vacation to allow time for any additional questionnaires to be submitted. Two additional questionnaires were returned during that week.

Support of Collection Questionnaire
The purpose of the Support of Collection Questionnaire (Appendix B) was to determine if the library resources available for a specific lesson met the needs of the teacher, the students, and the instructional task. The questionnaire was divided into three sections focused on the following:

1) Available resources—The initial questions related to the types of available resources for a specific lesson that used the library collection, and to how the resources benefitted the students or enhanced the lesson. Participants were asked to respond to a variety of question formats, including rank ordering and circling all responses that applied.

2) Print resources—The second set of questions contained statements related to the print resources that were available for the lesson and asked the participants to respond on a four-point Likert-type scale, ranging from Strongly Disagree to Strongly Agree.

3) Electronic resources—The third set of questions was organized in the same fashion as the second group, but the statements were related to electronic resources that were available and relevant for the lesson.

Two open-ended questions were posed at the end of the questionnaire; these open-ended questions asked teachers to comment about their experience with the library resources. The questions asked what the respondents liked about the resources and what resources were lacking but would have helped support the lesson.
The questionnaire was given to all teachers who had used library resources as part of their instruction during the current school semester, as reported by the school librarians. This sample included teachers from English, social studies, health and physical education, and science. After an initial face-to-face contact explaining the reason for their selection for the additional questionnaire, eight teachers received the questionnaire, which was distributed in print format in their school mailboxes. Background information about the study was provided, and an informed-consent form was given to each teacher chosen for this questionnaire. To encourage completion, after a week a follow-up e-mail was sent to all selected teachers in the sample for this questionnaire.

**Interviews**

Interviews were designed to gain a richer understanding about why teachers used or did not use library resources, and what factors contributed to the choices made by the teachers. Through extreme-case sampling, four teachers were purposefully chosen based on their level of library resource use during the current school year, as reported by the school librarians. The sample was made up of four social studies teachers to allow for comparisons of teaching styles within one department. Two interviewees were frequent users of library resources, and two had not used library resources during the current school year, to the knowledge of the school librarians. The four teachers were asked in person if they would be willing to participate, and all four agreed.

Interview questions (Appendix C) were developed for a semi-structured interview; use of these questions ensured that each interview contained the same base of information, but allowed for a natural conversation as the interviews progressed. Two teachers were interviewed together at their request; the remaining two teachers were interviewed separately. All interviews were conducted at times and locations chosen by the interviewees. Because of the timing of the study and number of commitments at the end of the school year, the interviews were conducted during the last week of school for the year. Before each interview, interviewees were given a letter explaining the study and the importance of their input. They were also provided with the interview protocol description and an informed-consent form, including opt-out and confidentiality information. With the consent of the interviewees, all interviews were audio-recorded for later transcription and coding.

Each participant chose a pseudonym to maintain anonymity in the study process. “Abby” was a teacher who used the library with increasing frequency throughout the school year. She taught ninth- and tenth-grade World History and World Geography. Abby was chosen for her frequent use of library resources and her strong collaborative relationship with the librarians.

“Peyton” and “Megan” were interviewed at the same time, at their request. Megan, also a frequent user of library resources, often brought her students into the library for research and other assignments. She had worked collaboratively with the librarians on projects throughout the school year. Megan taught Advanced Placement United States History and Human Geography to tenth- and eleventh-grade students. Peyton taught World History (World War Two to present) to ninth-grade students, and Sociology and Advanced Placement Government to twelfth-grade students. To the knowledge of the school librarians, Peyton had not used library resources during the school year. She was the curriculum leader for the Social Studies Department at the school. Peyton was chosen to interview because the researcher felt she would be willing to give a true impression of how she taught and how she used resources as part of her instruction.
“Suzanne” taught Sociology to eleventh- and twelfth-graders, and Advanced American Studies to eleventh-graders. She was not a user of the library resources during the school year. Suzanne was chosen to interview because the researcher felt she would give an honest opinion about her teaching style and why she did not use the library resources.

Validity and Reliability
The instrumentation for this study was developed by the researcher. Therefore, steps were taken to ensure content validity and reliability of the instruments. To ensure content validity, a survey blueprint was used in the design of the questions. After the initial questionnaire was developed, it was reviewed and edited by two outside researchers and a small group of teachers from a neighboring school. For face and content validity, revisions were made to the questionnaire based on the feedback of the reviewers. After the interviews were transcribed and verified, the data were also coded by a second researcher to establish inter-rater reliability.

Data Analysis
Once all data were collected, questionnaire responses were recorded and analyzed using Microsoft Excel 2007 software. Descriptive data were calculated for each question to determine frequencies and percents for specific responses, as well as range and mean for questions when appropriate. Individual question results were analyzed, including qualitative data from open-ended responses. Because of the variety of question designs used in the questionnaire, further statistical analyses were not done. Instead, each question was analyzed separately and results were triangulated with the two questionnaires and the interviews. The interview responses were embedded into the item analysis from the questionnaires to determine themes from the data.

Results

Terminology
To clarify the reporting of the results, the School Media Center Resources Questionnaire, which was given to all classroom teachers, will be referred to as “SMCR Questionnaire.” The Support of Collection Questionnaire, which followed up on collaborative lessons of eight teachers, five of whom responded, will be referred to as “Collaboration Questionnaire.”

Current Use of Resources
SMCR Questionnaire (Appendix A) began by asking, “What types of resources do you currently use in your delivery of instruction?” Teachers were instructed to choose all that applied. The most commonly used type of resource in instruction was general websites (96 percent, n = 28). Only one respondent did not choose websites as a resource used in instruction. The other top resources selected were videos (86 percent) and print materials (79 percent); see figure 1.
Later questions in which respondents were asked to rank their use of specific print materials (question 2) and non-print materials (question 3) confirmed this finding. Question 2 asked teachers to rank order the types of print materials used in their classroom instruction. Periodicals, reference, and nonfiction were the most-often reported print resources, with periodicals and reference works receiving the highest number of top rankings. Primary sources also received high first and second rankings in this question.

The use of print materials was verified in the interview responses, where the teachers mentioned the use of advertisements and articles found in magazines and newspapers, maps, and other primary-source documents as part of their instruction. Peyton, a teacher who did not use library resources in the current school year, stated she used “newspapers, magazines, I mean we’re forever cutting things out of the newspaper.” Similarly, Suzanne, another teacher who did not use library resources, mentioned finding articles in periodicals and using those references to find more information:

*I get a lot of it out of the newspaper. I rip it out. I think I got four articles last week. And just a name with the study they reference, that’s where I get a lot of it from.*

She went on to say, “I can scan the newspaper fifteen minutes in the morning before I come to school, and anything that has to do with anything in my class, I rip out and put in a pile on my desk.”

In question 3, which was related to the use of electronic resources, teachers most frequently indicated they used websites as a resource, and most often gave websites the top ranking. Specifically, teachers reported websites chosen by the teacher as the most-often used electronic resource. All of the interviewed teachers mentioned the use of websites to find information for their instruction. Peyton said, “I use the Internet a lot, because so much of government...we can find the laws that have been proposed, etc. Just focus on government first, and you can find that online. There are some websites that are very pinpointed.” The other frequently chosen non-print resource was video, although its ranking had more variation.
The SMCR Questionnaire included an open-ended question that asked the teachers, “How do your students access information for school assignments?” The responses from this question were coded by the researcher according to common themes in the responses, and served to further verify the results of question 1. Of the forty-eight separate resources mentioned, the use of computer resources was identified twenty-five times, as shown in figure 2.

Also related to the use of resources, SMCR Questionnaire question 5 asked, “How do you currently use the school library media center resources as part of your instruction?” Respondents were asked to circle all that apply. As shown in figure 3, the most-frequent choices were: formal research assignments and projects (63 percent), and general fact-gathering (58 percent). The next question followed up by asking, “When your students use print books from the school library media center, do they generally need to read the entire book, or need to find information from within the resource, but not read the entire book?” Ninety percent of the respondents stated that their students do not need to read the entire book.
The social studies teachers who were interviewed talked about the difficulties presented by the amount of information available to students, and indicated they often help students wade through it all. Suzanne said, “I believe that we need to guide, with either pre-selected sites, which is what I normally do, and then I create the activity. I want you to take that information and do something with it.” Megan, a teacher who frequently uses the library resources, stated, “We try to do discussions...have them read documents and discuss documents, looking at different types of primary sources.” The only mention of reading entire books as part of instruction came during a discussion of an American studies class that is team-taught with an English teacher for both English and social studies credit. In this case, the novel was read as part of the class and used as a resource for further study about American history.

**Impact of Resource Format**

The SMCR Questionnaire presented characteristics related to both print and electronic resources and asked participants to rank order the characteristics according to their importance. As shown in table 1, the results indicated that teachers felt the most important factor in students’ use of a resource was “ease of use.” Forty-two percent of the respondents chose this as the top priority. The majority of the respondents (60 percent) ranked format (print or online) as the lowest priority.

<table>
<thead>
<tr>
<th>Ease of Use</th>
<th>Reliable</th>
<th>Availability</th>
<th>Accuracy</th>
<th>Current</th>
<th>Appropriate</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank 1</td>
<td>42</td>
<td>15</td>
<td>8</td>
<td>19</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>Rank 2</td>
<td>8</td>
<td>33</td>
<td>19</td>
<td>19</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Rank 3</td>
<td>8</td>
<td>7</td>
<td>23</td>
<td>15</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Rank 4</td>
<td>12</td>
<td>15</td>
<td>19</td>
<td>22</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Rank 5</td>
<td>8</td>
<td>19</td>
<td>23</td>
<td>11</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Rank 6</td>
<td>23</td>
<td>4</td>
<td>4</td>
<td>15</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>Rank 7</td>
<td>0</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

However, when asked which format best supports research as part of their instruction, the overwhelming majority (81 percent) answered “electronic” (see table 2), and, when asked which format is used the most for students’ research, all respondents answered “electronic.” This finding seems to contradict the responses to the rank-ordered question mentioned above for which teachers ranked format as the least important trait of a resource.

<table>
<thead>
<tr>
<th>Question</th>
<th>Print</th>
<th>Electronic</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best supports reading</td>
<td>21</td>
<td>75</td>
<td>4</td>
</tr>
<tr>
<td>Students use most for reading</td>
<td>44</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>Best supports research/information retrieval</td>
<td>15</td>
<td>81</td>
<td>4</td>
</tr>
<tr>
<td>Students use most for information retrieval</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

Some of the comments from participants of the questionnaire included, “Kids will look at quality print materials if they are put in front of them.” Also, “I don’t necessarily ‘require’ them to use a specific resource. I do, however, encourage my students to use the most reliable and most accurate resource.”
The interviewed teachers mentioned resource format extensively. For example, Megan said, ‘If I force them to use a book, they’ll use books to do research. But they would prefer to be on the Internet. They’re much more comfortable surfing that way.” She followed up by saying:

*I don’t know what it is about the books. They don’t recognize that as being a useful way of getting information, or they don’t know how to use it—I’m not sure where their hang up is, but they will automatically go to the computer.*

Peyton, who was interviewed at the same time, agreed, “Absolutely. Every one of them [will use online sources] if you don’t require it [use of hardcopy print resources].

However, when asked which format teachers saw students using for reading, results were mixed. In the results of the SMCR Questionnaire, print and electronic were not vastly different, with 44 percent stating that students used print materials, and 56 percent indicating electronic materials were read most. One teacher speculated, “Print now; electronic in the near future.” In the interviews, the teachers reported seeing more of their students using print books for reading. When asked which format they saw their students reading, Megan said, “Most of mine are print books still. I have a couple of kids who are carrying some sort of electronic reader or laptop.” Peyton agreed, “Yeah, it’s print books. When they’re reading for English too, when they’re sitting in my room reading, it’s print books.” In response to the same question Abby said, “Print books are all I see.” Suzanne also stated that her students used print books for reading while in her classroom.

**Teaching Strategies**

Since all four of the teachers interviewed were from the same department in the school, it was not surprising to hear that many of them use similar strategies and work together on new ideas for teaching. One theme that emerged from the interviews was the idea of making connections. Megan said she works hard at “getting them to see what’s going on around the world—what’s really going on around the world as opposed to just concepts.” Peyton agreed, “Because it’s all the practical knowledge they can apply to their real lives. They really like that kind of stuff.” When asked about specific teaching strategies, Peyton stated she used strategies that included “a lot of looking at documents, analyzing them, connecting them to larger concepts.” Abby used similar styles:

*I call it “feet on the ground” or real-world application, so that even though we’re learning all this vocabulary, this theory, and what’s going on everywhere else, we always try to connect it to something that’s going on here.*

When asked to describe her teaching style, Suzanne said, “Crazy! High expectations, critical thinking, emphasis on making connections. Opposite of the standards.” It is apparent through all the responses that the teachers value students’ being able to connect the subject being taught to their lives to clearly demonstrate that they understand the concepts.

Another idea common to all teachers’ styles was the interactivity of their lessons. Megan talked about one specific course structure that allowed her “more freedom to let them engage with
material. Like we do map analysis and they do far more activities in class. It’s a whole bunch of different things...photo analysis, map analysis, reading stuff.” She also said she would:

> Have them read documents and discuss documents, looking at different types of primary sources. I try to bring in art; I try to bring in advertisements—more-visual type things to analyze and discuss in class. We do some small-group investigations.

Peyton mentioned, “We do lots of projects. We wrote big papers, and we did a campaign project, which was more hands-on fun.” Abby talked about the reasons for making lessons interactive. “Unless they play with those facts, they don’t get it. Once again I can tell them this is what happened. But if we act it out, [they] might get it.” Within the varied teaching styles, the teachers provide opportunities for the students to interact with the material for deeper understanding.

**Library Resource Provision**

The Collaboration Questionnaire (Appendix B) asked the eight teachers who had collaborated with the school librarians during the current semester to identify the types of resources that were available for the assignment. All five of the teachers who responded reported that websites and print materials were available. In question 3, respondents selected these resources, along with online databases, most frequently as the most beneficial to student learning in the assignment. Additionally, question 2 asked the teachers to rank the resources in the order they were used most by the students for the assignment. Websites were chosen most often as the materials used by the students. The teachers indicated that the resources that were required for the assignment were available, and the majority strongly agreed that the information was reliable (80 percent) and accurate (60 percent). Comments in the open-ended section of the questionnaire included “wide variety of access,” and “relevant.” Data from the Collaboration Questionnaire indicated that the five respondents were satisfied with the resources provided for the assignments.

One theme that emerged from the interviews was related to the amount of time it takes to find quality materials that are appropriate for instruction. Many of the questionnaire respondents said they found most of their resources on their own, spending a lot of time searching for the right material. When talking about the type of materials that motivated the students, Megan said, “They like that stuff, which is completely unnecessary but takes some digging to go find that kind of stuff to share with them.” Later, when talking about a class in which she tends to lecture more she added, “I still manage to use a lot of different resources. It’s just digging them up that is the bigger problem.” Peyton said, “It’s a lot of searching. Sometimes you get lucky, and you get them from other people, but it’s a lot [of searching].” She said, “That’s the most time-consuming part of what we do, probably, is finding the good stuff to use.” Peyton also talked about the outside reading she and the other sociology teacher do during the summer to keep current in the subject. “We probably read four to five books between the two of us each summer just to keep up-to-date.” When talking about finding new digital-video resources to use in the classroom, Suzanne said, “I must have watched twenty hours of stuff that was not any better than the old stuff I had.” All of the interviewed teachers mentioned the amount of time they spent looking for resources.

Time was of particular concern when it came to assimilating new resources into the curriculum. Peyton said, “During the year y’all find these great new things. I simply don’t have the time to process them or design an activity to use them.” She went on to say, “I just haven’t had time to
digest most of what’s out there, much less see how it could be applicable in my classroom.” Similarly, Abby said, “I just think there’s an awful lot out there that I don’t have a clue about. And it almost seems too big for me to figure out how to attack it.” She later said, “It’s not that I don’t want to do this—it’s just the time it takes.” She also said, “I have more resources now than I ever had, so I’m almost overwhelmed with what’s out there that I don’t always feel like I know how to utilize.”

The teachers seemed greatly concerned with the amount of information they are expected to cover during the semester, and the time needed to adequately cover the material. Suzanne stated, “When you have ninety minutes a day, there’s not one day that we have not agonized over every twenty-minute activity.” A concern for Abby was “not feeling like I have the two extra days to be able to do some little corner to beef that up.” She summed up the problem for her subject by saying, “Since history doesn’t get shorter, they don’t kick out anything, but they give us lots more to cover.” Megan mentioned “the sheer amount of stuff you gotta cover,” while Peyton added, “We’re still both restrained by the amount of curriculum we have to get out there.”

These concerns over time and use of resources led to reasons the teachers did not use the library resources more often. Abby described problems associated with activities in which she would use the library resources:

> There’s not a lot of extra time to do some of that supplemental stuff that actually would help them remember certain things. And those would be the kind of projects I would probably use the media center more with. I just feel like there’s not enough time.

Peyton lamented, “Sometimes I think, ‘Ooh, that would be such a great project,’ but I don't have time.”

When asked about ways the school library helps support instruction, the teachers were clearly split according to their current use of the library. Peyton, a non-user of the library, said:

> I know for me sometimes it’s not clear. If I wanted your help in designing blank, how much is your role to do and how much is my role, to provide all that and you just pull the sources. I think there’s just lack of clarity.

On the other hand, Megan, a frequent library user, said, “I think you all have been wonderful as far as I needed travel-type books and they’ve been acquired. I feel the library meets my needs.” Megan went on to talk about her frequent library visits. “I’m parked in there...at this point I feel like I can come in and be like, ‘do this’.” Since these two teachers were interviewed together, Megan then started generating ideas for future library use. As the curriculum leader for the department, she went on to invite the librarian (researcher) to a department meeting to discuss options for curricular support.

The interviews with the other two teachers followed similar patterns. Abby, a frequent library user, talked about the support she already receives from the library, including physical resources as well as human resources—the librarians. “I can just dump a whole lot of what I need to do on you because I kind of have an idea about what you can do, or that you’ll tell me you can’t.” She went on to add, “I don't know the dimensions of what’s available. I feel such a comfort of being able to be directed toward it.” Suzanne, a non-user of the library, wondered about resources the
library might be able to acquire. “Electronically, I think we could have some more resources, like I tried to get a couple of those sociology journals electronically...It would help me and save me lots of time.” As a non-user of the library, Suzanne was not familiar with the currently available resources related to her subject area.

**Use of Textbooks**

One unexpected theme that surfaced in the interviews was related to the use of textbooks as part of instruction. The teachers who were interviewed stated that they do not rely heavily on the use of textbooks, but use them as a supplemental resource. When talking about how resources were used in Peyton’s and Megan’s classrooms, Peyton said, “I think both of us probably use textbook reading only as background knowledge that they do on their own.” Peyton and Megan went on to describe other resources they used for readings, and Peyton added, “We design activities based around those readings because the textbook is like, ‘Here’s the definition of this word.’” She also said, “Neither of us ever assigns questions at the end of a chapter, nothing like that.” In her interview, Abby similarly stated, “I rarely give them questions to find out of the textbook, rarely in class, because I’m there, so why would I give them that kind of assignment then?” She described how she sometimes used the textbook. “I try to condense it a little bit; try to make sense of it; give them a more-condensed version, maybe with some notes.” When asked if she saw a future without textbooks, Suzanne described herself as already “textbook-less,” and said, “Higher-order thinking is not in the textbook.” She then showed a cabinet filled with print resources she had collected through the years and described how she includes those resources in her instruction in place of the textbooks provided through the school division (district). While textbooks may not normally be considered library resources, it was interesting to note the common theme among all of the interviewed teachers: They rely on resources other than the textbook for instruction.

**Discussion**

**Discussion and Implications for Practice**

The results of this study clearly show that the teachers in the sample use both electronic and print materials, but rely heavily on online content and resources. However, the results indicate that the teachers do not always rely on the school library to provide the support that is available. This find-it-myself attitude may not be a reflection on the usefulness of the collection, but an indicator of a mindset within the culture of the school. The teachers in the sample indicated they are overwhelmed by the amount of material to cover in the curriculum, as well as by the amount of material available to them as resources.

The results offer some direction to the school librarians for ways in which the teachers can be supported. One way in which the school librarians can provide support is by making the resources easily accessible to the teachers and to the students. The results showed ease of use to be an important factor in the use of resources, whether print or electronic. The school librarians should take this factor into consideration when providing access to materials.

Another means of supporting teachers is in the area of resource management. The results indicate that teachers are overwhelmed by the amount of information available and do not take advantage of new resources due to lack of time required to organize the information for later integration.
into lessons. The school librarians can assist in this effort by providing suggestions of existing lessons in which the resources could be varied and new materials could be included without taking time away from other important lessons. This type of collaborative lesson would include the teacher and the school librarians, and provide support for the teachers without adding more to their already-full plates.

One of the teachers in the interviews had been in the school for her whole career, and did not know what to expect from a collaborative relationship with the librarians. To open the door to collaboration with a teacher like this one, the school librarians should make an opportunity to provide examples of lessons that were collaboratively planned and implemented with other teachers in the school.

From the interview data, it is clear that the teachers in the Social Studies Department use a large number of electronic and digital-video resources to keep their course content current. The resources they are not using are online databases that are available through the library. The school librarians’ goal should be to gather the database resources that will be most helpful for specific course content and make those resources easy to access, perhaps through a department-specific portal. Additionally, the school librarians should conduct an analysis of the collection for specific courses and curricula, possibly beginning with the subject areas of the teachers involved in the interview process. This information could then be shared with these teachers in a manner that would permit them to easily incorporate the materials into instruction. Suggestions for collaborative lessons could be made at the same time. The collection-development plans discussed by Jim Agee (2005), Michelle Emanuel (2003), and Lesley S. J. Farmer (2002) would provide guidance in this evaluation. Likewise, collection-mapping strategies would help guide the analysis of the collection to provide resources that are needed by all users in the school (Howard 2010; Loertscher 1996; Young 2010).

The school librarians should take the results of the study into consideration as they plan the future of the library collection and develop various sections of the collection. The results indicate that the librarians should take a strong look at the online resources that are provided to the school community and the ways in which these materials are accessed. An analysis of the collection would reveal the currency of resources and the subject areas in which materials are available. Consideration should be given to including more digital resources that are informational and content-specific. At the same time, care should be taken to ensure that all resources, regardless of format, are easy to access.

**Limitations**

Many of the limitations of this study revolved around the timing of the survey’s implementation, which may have affected the sample size. To take advantage of the full year of teachers’ experiences, the survey was given to participants at the end of the school year. However, with exams, final grades, and other end-of-the-year activities, this is a busy time for teachers. It is likely that timing contributed to the low response rate for questionnaires.

It was interesting to note that the largest percentage of responses came from science and math teachers, even though teachers in these two subject areas do not have an established pattern of using library resources as often as do teachers in other subject areas such as English and social
Most likely, teachers in these departments were encouraged by their curriculum leaders to complete the questionnaires and return them before leaving for the summer.

The initial plan was to conduct each interview separately. However, Megan and Peyton asked to be interviewed together. Since these two teachers represented different levels of library use, the researcher was concerned about interviewing them together. To ensure the comfort level of the teachers so they would be willing participants, the researcher decided to agree to their request. While this dual interview could have been a limitation in the study, the discourse between the interviewer and the two teachers allowed for a rich discussion that may not have resulted from individual interviews.

The design of the questionnaires was another limitation of the study. Since the decision was made to design a questionnaire with a variety of question types, it was difficult to analyze the results in a manner that would allow for comparison of data. This variety of question types also made determining the validity of the responses through statistical analysis difficult. No pilot test was conducted to establish the validity and reliability of the researcher-designed questionnaire although feedback had been obtained from educators outside the school.

**Threats to Transferability and Reliability of Interview Results**

The extreme-case sampling method used for selecting participants for the interviews led to a threat to external validity because the results of the interviews cannot be generalized to teachers who do not have the characteristics of the teachers interviewed. Additionally, the results cannot be generalized to teachers in other subject areas. Additional interviews could be done in other subject areas to allow greater generalizability. Likewise, the study could be conducted within another school in the division to allow for greater generalizability of the results. Changes in the personnel and goals of the school library program in recent years are still changing the culture of the school library, which led to the researcher’s interest in conducting this study. Replicating the study in future years and including teachers who were not part of the old culture of the library program would decrease history’s threat on external validity.

Selection is a threat to internal validity in this study because teachers self-selected to participate in the study by their return of the questionnaires. Those who returned the questionnaires could have been inherently different from the larger population, a circumstance that would affect the results. Teachers could have been motivated to participate based on a strong opinion for or against the school library program. This threat could have been minimized by randomly selecting teachers from the population to serve as the sample.

**Future Research**

This study provides avenues for future research related to the content and access of the library collection. The next logical step is to conduct a similar study of student perceptions of the school library collection to find out what resources the students are using and how they access information. The school librarians could also analyze library-usage data, such as circulation statistics, and observations of teachers’ and students’ use of resources within the library. This information would add to the current data about the types of resources used in this school library.
Of particular interest in the current electronic age is the use of electronic resources as compared to print resources. A larger study into how students use various formats would provide guiding information not only for management of current school library collections, but also for development of new school libraries. Data from this type of study could guide decisions about the core collection for a school library.

A separate research idea that came out of this study is related to the use of textbooks in the current high school curriculum. In the current economic climate, budgets may not allow for purchasing new textbooks. Data from the small sample in this study indicates that textbooks may not be used as heavily as they were in the past. It would be interesting to study this idea to determine if this is a trend in the larger population and in other subject areas. If the use of textbooks is indeed changing, this may be an area in which school districts could reexamine their budget allocations.

Works Cited


Appendix A

School Media Center Resources Questionnaire – To All Faculty

Current Use of Resources
1. What types of resources do you currently use in your delivery of instruction? (circle all that apply)
   a. Print (books, encyclopedias, magazines, etc.)
   b. Online databases available through the school (Gale, eLibrary, Worldbook Online, CultureGrams)
   c. Websites open to the general public
   d. eBooks or digital books (books available digitally either through the library or another source)
   e. Videos
   f. Other (please specify)_______________________________________

2. Other than textbooks, which of these categories of print materials do your students use as part of your class assignments? Rank order in terms of the amount of time each area is used. (1 = most often)
   ___ Fiction (novels, picture books, short stories, etc.)
   ___ Non-fiction (informational books, poetry, etc.)
   ___ Biography
   ___ Reference (larger informational books, encyclopedias, atlases, dictionaries, etc.)
   ___ Periodicals (magazines, newspapers, journals)
   ___ Primary source documents (letters, documents, etc.)
   ___ Other (please specify) ___________________________________

3. Other than textbooks, which of these categories of non-print materials do your students use as part of your class assignments? Rank order in terms of the amount of time each area is used. (1 = most often)
   ___ Online databases available through the school (Gale, eLibrary, Worldbook Online, CultureGrams)
   ___ Websites chosen by the teacher
   ___ Websites chosen by the library media specialist
   ___ Websites chosen by the student
   ___ eBooks (books available digitally either through the library or another source)
   ___ Videos
   ___ Other (please specify) ___________________________________

4. What percentage of your instruction depends on the textbook? _____________________

5. How do you currently use the school library media center resources as part of your instruction? (circle all that apply)
   a. Independent reading for students
   b. Assigned reading for students
   c. Formal research assignments/projects
   d. General fact-gathering
   e. Professional learning/lesson development
   f. Other _____________________________________
6. When your students use print books from the school library media center, do they generally
   a. Need to read the entire book
   b. Need to find information from within the resource, but not read the entire book

7. How do your students access information for school assignments?
   _______________________________________________________
   _______________________________________________________
   _______________________________________________________
   _______________________________________________________

8. Rank (from a high of 1 to a low of 7) the following according to what you believe to be their
   importance for your students’ use of both print and non-print resources

   ___ Ease of access
   ___ Availability
   ___ Accuracy
   ___ Reliable information
   ___ Current
   ___ Appropriate for my students
   ___ Format (print or online)

9. Does the current school library collection meet the needs of your curriculum?
   a. Yes
   b. No

**Independent or assigned reading**

10. Which format do you believe best supports independent or assigned reading as part of your
    instruction?
    a. Print
    b. Electronic

11. Which format do you see students using most for reading (independent or assigned)?
    a. Print
    b. Electronic

**Research or information gathering**

12. Which format do you think best supports research or information gathering as part of your
    instruction?
    a. Print
    b. Electronic

13. Which format do you see your students using the most to gather information?
    a. Print
    b. Electronic

14. When your students are researching for your class assignments, do you *require* them to use
    print resources?
    a. Yes
    b. No
    c. Sometimes
15. When your students are researching for your class assignments, do you require them to use online or electronic resources?
   a. Yes
   b. No
   c. Sometimes

If you have any additional comments regarding the information in this survey or would like to clarify any of your responses, please write here:

________________________________________________________________________
________________________________________________________________________

Demographic Information - No personally identifying information will be used in study reports.

Please indicate the following:

Number of years teaching, including this year.
___ 1
___ 2–3
___ 4–5
___ 6–10
___ over 10

Which subjects areas have you taught in your career? (Check all that apply)
___ Business
___ English
___ Fine Arts
___ Math
___ Physical Education
___ Science
___ Social Studies
___ World Languages
___ Other – please specify _________________________________________

Which grade levels have you taught in your career? (Check all that apply)
___ PreK–5
___ 6–8
___ 9–12
___ College

OPTIONAL: Which subject area(s) do you currently teach? ____________________

Thank you for taking the time to complete this survey. Your responses are very important as we work to provide the best resources to support your instruction.
Appendix B

Support of collection – Follow-up to use of library resources as part of a lesson

1. What types of resources were available for your class to use in this assignment? (circle all that apply)
   a. Print books
   b. Print periodicals
   c. Online databases
   d. Websites
   e. Videos
   f. Audio/podcasting
   g. Other ________________________________________________

2. Which resources did you see students using the most?
   (Rank order, from 1 as the most important to 6 or 7 as the least important)
   ___ Print books
   ___ Print periodicals
   ___ Online databases
   ___ Websites
   ___ Videos
   ___ Audio/podcasting
   ___ Other ________________________________________________

3. Which resources do you think were most beneficial for student learning in this assignment?
   (Rank order, from 1 as the most important to 4 or 5 as the least important).
   ___ Print books
   ___ Print periodicals
   ___ Online databases
   ___ Websites
   ___ Other ________________________________________________

4. If you required specific resources, were they available?
   a. Yes
   b. No
Please respond to the following statements about the print resources (books, periodicals, etc.) available for students to use in this assignment. (Circle one: SD = Strongly Disagree, D= Disagree, A = Agree, SA = Strongly Agree)

5. The print resources contained up-to-date information.
   SD    D    A    SA

6. The print resources were in good condition.
   SD    D    A    SA

7. The information in the print resources was appropriate for my students.
   SD    D    A    SA

8. The information in the print resources was accurate.
   SD    D    A    SA

Please respond to the following statements about the electronic resources (websites, databases, etc.) available for students to use in this assignment. (Circle one: SD = Strongly Disagree, D= Disagree, A = Agree, SA = Strongly Agree)

9. The students did not report trouble accessing the resources.
   SD    D    A    SA

10. The resources were easy to navigate in order to find the needed information.
    SD    D    A    SA

11. My students could rely on the information to be there when they accessed the resource.
    SD    D    A    SA

12. The information in the resources was accurate.
    SD    D    A    SA

13. The resources were appropriate for my students to use in this assignment.
    SD    D    A    SA

14. Resources thoroughly covered the topic of the assignment.
    SD    D    A    SA
Comments

What did you like about the resources provided for this unit?

Were there resources missing that would have helped support this unit?

Thank you for your time!
Appendix C

Interview Protocol

The school library media center collection exists to meet the needs of the curriculum currently taught at the school. The library collection includes fiction and nonfiction print resources, such as books and periodicals, as well as electronic resources, such as databases and websites. As budgets become tighter and curriculum accountability increases, it is becoming increasingly important to know how well the library collection supports your teaching and student learning.

As part of my research, I am conducting interviews with teachers who have used the library collection recently and with teachers who have not used the resources recently. The purpose of this interview is to explore how you and your students use the resources with your classes and to determine if you believe that the resources currently available from the library adequately support the needs of the curriculum and the students. If you do not currently use the resources, this interview will help me better understand how the library might better serve your needs.

The results of this interview will help me understand how you use the current school library collection and how it can be improved. The information will be combined with information gathered from the recent surveys, and I will write a research report based on the results, and present the findings and further suggestions at the American Association of School Librarians national conference in November. The aggregated results will be made available on the media center SharePoint site when the study is completed.

The contents of this interview have been discussed with administration and have received administrative support. Your participation in this interview is voluntary, and your responses will be kept confidential. The interview will last less than an hour. I will be recording the interview so I can review it at a later time, and I will be taking notes as we talk. Do you have any questions about the process before we begin?

Thank you for your willingness to answer the survey questions. In addition, if you have any comments or concerns after we complete the interview, please contact me. Remember, your participation is voluntary, and you may choose to stop the interview at any time.

I am willing to participate in this interview. I understand that my responses will be kept confidential and that I may stop the interview at any time.

Name: ______________________________________________________
Interview Questions for Semi-Structured Interviews

1. Tell me about your curriculum. What subject do you teach? What is your favorite part of the curriculum? What do your students like the most?

2. Tell me about your teaching. How long have you taught? What subjects have you taught? What grade levels?

3. Describe the types of lessons you teach that require the students to use resources other than their textbooks or classroom materials.

4. Where do you usually go to find the resources?

5. Where do your students usually go to find resources?

6. How do students use resources when they are doing research or looking for information?

7. For assigned or independent reading, do you see students using print books or online books?

8. For research, do you see students using print resources or online resources?

9. In your teaching career, have you seen any changes in the way students access information?
Cite This Article


<http://www.ala.org/aasl/slr/volume15/collins-doll>

**School Library Research** (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the **SLR website** for more information.

The mission of the American Association of School Librarians is to advocate excellence, facilitate change, and develop leaders in the school library field. Visit the **AASL website** for more information.
State Library Conferences as Professional Development Venues: Unbalanced Support for the AASL-Defined Roles of the School Librarian

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This study was funded, in part, by a Texas Library Association/DEMCO Research Grant. The research was presented for the School Library SIG at the ALISE (Association for Library and Information Science Education) Annual Conference in Dallas, Texas, January 2012.

Abstract

The American Association of School Librarians (AASL) released new guidelines for school library programs in the summer of 2009. Empowering Learners: Guidelines for School Library Programs (AASL 2009a), hereafter referred to as EL, spells out the five roles that school librarians must practice to empower library users. The purpose of this content-analysis study was to investigate the professional-development offerings available to school librarians through state-level conferences and determine the degree to which these sessions promote the five roles for school librarians as identified in EL.

Using a stratified random sample, the researchers selected conferences held in the 2010–2011 academic year and sponsored or cosponsored by state-level school-library associations. The researchers developed and tested a domain matrix based on four of the five roles described in EL as topic domains (the leader role is embedded in the other four roles), and developed subcategories in each domain using the descriptors in EL. Using the matrix, they analyzed the titles and descriptions of twelve conference-program offerings. The results of the study show unbalanced conference-sponsored professional development in terms of the EL-defined roles for school librarians.
Introduction

To optimally support a school community, a school librarian must play a number of professional roles and master various competencies. In *Empowering Learners: Guidelines for School Library Programs* (AASL 2009a), hereafter referred to as *EL*, the American Association of School Librarians (AASL) delineates the school library practice necessary to meet the needs of 21st-century learners. Additionally, in *EL* AASL spells out and prioritizes the five roles that school librarians must embrace to empower library users: leader, instructional partner, information specialist, teacher, and program administrator.

*EL* builds upon the association’s previous guidelines *Information Power: Building Partnerships for Learning* (AASL and AECT 1998), but, in addressing the needs of society and education, increases the focus on learning for knowledge and emphasizes the important of the instructional partner role. Further, AASL recognizes the increasing need for librarians to practice leadership roles (Gordon 2009). In *EL* the role of “leader” was added to the other four roles previously described in AASL guideline documents.

*EL* charges that school librarians serving as leaders embrace “challenges and opportunities to empower learning through their roles as instructional partners, information specialists, teachers, and program administrators” (AASL 2009a, 46). *EL* further proposes that as leaders school librarians are visible and active in their learning communities; they communicate with and engage in collaborative activities with all library stakeholders and with decision-making communities in their schools, districts, and states. They also actively participate in their national associations. In *EL* leaders are described as librarians who build relationships and partnerships, integrate 21st-century skills throughout the school environment, demonstrate professional commitment and knowledge, and take a global view through active participation in the local and global learning communities to develop effective programs and to advocate for student learning (AASL 2009a, 17). Thus, an effective school librarian must demonstrate the ability to lead through mastery of the other four roles.

Literature Review

Having recently published new guidelines, it is imperative that AASL get the word out to practitioners in the field. Not only must the association disseminate the goals and objectives of the national organization, it must also ensure that practitioners fully understand how to implement and use the guidelines to affect practice (Sawchuk 2010). In the field of school librarianship, research repeatedly points to the incongruity between guidelines for best practice and enactment of those guidelines by practitioners (McCracken 2001). To address this issue, the AASL initiated Learning4Life (L4L), an implementation plan to disseminate both the guidelines and *Standards for the 21st-Century Learner* (AASL 2007). AASL offered L4L and other sessions focused on the new guidelines at 2010 and 2011 ALA Midwinter Meeting and Annual Conference, the 2010 Fall Forum, and 2009 AASL National Conference.

According to the National Center for Educational Statistics (Goldring and Gruber 2009), there were 50,910 full-time and 8,850 part-time state-certified school librarians in 2007–2008. Only 8,000, or 13.39 percent, of those professionals are members of AASL, and even fewer, approximately 2,250 of them, or 3.77 percent, attended AASL’s 15th National Conference in Minneapolis in 2011 (Jacobsen 2011). However, a larger number of school librarians do attend state-level conferences for library professionals, and these venues offer support for school
librarians’ professional development and advancement toward the goals and objectives of the national professional association.

The library and information science community widely recognizes conference attendance as an accepted form of professional development. A number of leaders in library and information science (Abram 2008; Morse 2008; Natarajan 2008; Simmons and Fenton 2010) as well as leaders among school librarians (Alaimo 2004; Franklin and Stephens 2008; Johns 2005; Laughlin 2010; Needham 2008) have encouraged conference attendance for professional development and networking purposes. In a review of the literature on LIS conferences, Rachel Harrison (2010) concluded that they serve as unique forms of professional development unavailable through other modes of continuing education.

A review of research in library and information science revealed few studies related to conferences. Several researchers have analyzed national association conference offerings (Garner, Davidson, and Williams 2008; Julien 2007; Snelson and Talar 1991). One study analyzed the offerings at provincial library conferences (Wilson 2010). Only one very dated study focused specifically on school library conferences (Eisenberg et. al. 1990), the topic of this study. Carol A. Brown and colleagues (2011) examined workshops and job-embedded professional-development options for school librarians, as well as conference programs. Their results suggest that school librarians find conference programs that integrate networking and sharing components to be most useful. Further, school librarians identify professional development that is closely aligned with their own school goals and immediately applicable to their own practices to be most valuable.

As state-level or national-level professional-development venues, library conferences should support the goals and objectives of the national organization, and in the case of school librarians, the various roles as outlined in EL. However, it is unclear if library conferences actually address the development of all five roles of the school librarian. Furthermore, when programming at school library conferences supports the roles, it is unclear if the offerings are sufficiently aligned with EL priorities.

**Research Questions**

The purpose of this content-analysis study was to investigate the offerings available to school librarians through state-level conferences and to determine the alignment of those offerings with AASL guidelines. Specifically, this study explored the degree to which state-level conference sessions for school librarians promote the five roles as identified in EL.

The following research questions guided the study: 1) How do the conference offerings align with and support the five roles of the school librarian as outlined in Empowering Learners and how do these differ across conference types? 2) What are the major topics of offerings available to school librarians at state conferences and how do these offerings differ by conference type? 3) How do state-level library conferences’ offerings support school librarians’ development as leaders, the newest role defined by the national association, and does this support differ across conference types?
Methodology

Sample
Using a stratified random sample, the investigators selected twelve conferences sponsored or cosponsored by state-level school library associations and held in the 2010–2011 academic year. The sample was drawn across three categories of conferences: state-level school-library-association-only conferences (n = 7), state-level association conferences in which school librarians were a unit within a larger library organization (n = 4), and conferences in which state-level school-librarian organizations partner with technology associations (n = 1). The samples represent approximately 24 percent of the state conferences in each category.

For each state-level association’s conference and for the conference in which a state-level school-librarian organization partnered with a technology association, the researchers identified all sessions with content that might inform school librarians about issues related to school libraries. Any sessions that did not seem relevant to school librarians were not considered in the analysis. For example, if a session focused on a public library’s relationship with the larger city government and other government organizations, the session was not included in the data set. Additionally, the researchers counted and analyzed only the first instance of programs that were repeated during a single conference.

Across the entire sample, after sessions relevant to school librarians had been selected, the study consisted of a total of 615 conference sessions. These sessions included only preconference sessions, keynotes, concurrent sessions, and workshops, and did not address other possible avenues that conferences offer for professional development. Table 1 illustrates the number of sessions per conference type.

Table 1. Number of program sessions across conference types.

<table>
<thead>
<tr>
<th>Conference Type</th>
<th>N</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Library Association Conference (SLOC)</td>
<td>384</td>
<td>62.44</td>
</tr>
<tr>
<td>Full Library Association Conference (FLAC)</td>
<td>154</td>
<td>25.04</td>
</tr>
<tr>
<td>School Library Association and Technology Association Joint Conference (NLOC)</td>
<td>77</td>
<td>12.52</td>
</tr>
<tr>
<td>Total</td>
<td>615</td>
<td>100</td>
</tr>
</tbody>
</table>

Data Analysis
Operating under the premise that leadership is embedded within each of the roles of the school librarian, the researchers developed a matrix of topic domains based on the other four roles described in EL. Under each domain, subcategories were identified based on the explanation of each role in EL. After field-testing the instrument to consistently achieve a minimum 85 percent inter-rater reliability, the researchers used the domain matrix (see figure 1) to analyze the titles and descriptions of offerings of twelve conference programs. Researchers examined each conference program independently, and then negotiated domains and subcategories when discrepancies occurred in their coding. For all conference program analyses, a minimum 85
percent inter-rater reliability was reached. Additionally, the researchers randomly selected one of
the conference programs to reanalyze approximately eight weeks after the initial analyses. All
researchers independently recoded the single conference program with 90 percent or greater
agreement with the first analysis.

**Figure 1. Domain matrix.**

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Topic</th>
<th>Details/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional</td>
<td>1.0</td>
<td>Policy, Practice or Curricula Development</td>
<td>including in-service and/or professional development for teachers</td>
</tr>
<tr>
<td>Partner</td>
<td>1.1</td>
<td>Collaborative Assignments Matched to Academic Standards</td>
<td>if technology not involved</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>Collaborative Assignments</td>
<td>Promoting Critical Thinking</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>Collaborative Assignments</td>
<td>Promoting Technology / Info. Literacy</td>
</tr>
<tr>
<td></td>
<td>1.4</td>
<td>Collaborative Assignments</td>
<td>Promoting Social Skills / Cultural Competencies</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>Instructional Design: Objectives, Goals, Assessments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.6</td>
<td>Learning Commons: 24/7</td>
<td>Learning Environment</td>
</tr>
<tr>
<td>Information</td>
<td>2.0</td>
<td>Technology Tools to Supplement School Resources</td>
<td>including databases; not hardware</td>
</tr>
<tr>
<td>Specialist</td>
<td>2.1</td>
<td>Creation of Engaging Technological Learning Tasks</td>
<td>activities in which the students engage; Skype; student-created book trailers</td>
</tr>
<tr>
<td></td>
<td>2.2</td>
<td>Communication Tools: Students, Teachers, Global Learning Community</td>
<td>cloud computing; user choices; Web 2.0; teacher-created book trailers</td>
</tr>
<tr>
<td></td>
<td>2.3</td>
<td>Emerging Technologies</td>
<td>trends; Second Life; apps; QR codes</td>
</tr>
<tr>
<td>Teacher</td>
<td>3.0</td>
<td>Promotion of Critical Thinking</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Literacy Skills</td>
<td>including storytime; storytelling; readers’ theater; oral history; writing</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Research Skills</td>
<td>including content-area lessons; content-area instructional design (objectives/goals/assessment); inquiry learning w/o technology</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Pleasure Reading Motivation</td>
<td>including booktalks; reading incentive programs; new literature; live author visits; book clubs</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Multiple Reading Formats: Graphic Novels, Periodicals, Audio-books, e-books</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>Peer Learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>Trends in Literature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>Social / Cultural Competencies for Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td>Author/ Illustrator / Poet Talking about Their Own Work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
</tr>
<tr>
<td>4.1</td>
</tr>
<tr>
<td>4.2</td>
</tr>
<tr>
<td>4.3</td>
</tr>
<tr>
<td>4.4</td>
</tr>
<tr>
<td>4.5</td>
</tr>
<tr>
<td>4.6</td>
</tr>
<tr>
<td>4.7</td>
</tr>
<tr>
<td>4.8</td>
</tr>
<tr>
<td>4.9</td>
</tr>
<tr>
<td>4.10</td>
</tr>
</tbody>
</table>

The researchers uncovered several challenges in collecting the data for this study. Conference program publications are not standardized and, therefore, do not include identical information about sessions. For example, some programs include titles and affiliations for presenters; others
do not. As a result, the researchers relied solely on sessions’ titles and descriptions to categorize sessions on the domain matrix. Without actually attending sessions or conducting exit interviews following the sessions, the researchers had no way to determine the impact of sessions on participants’ learning; no claims regarding the quality of sessions were made in this study. In addition, the researchers did not contact conference planners to ascertain whether or not they were satisfied with the range of sessions offered or if they felt constrained by the session proposals submitted for their review.

Results

The results of the analyses are presented below in the order of the research questions. This is also the order in which the researchers analyzed the data. They first determined which domain or role a session’s title and description addressed and then further categorized each session into a subcategory under that domain. Finally, the researchers discussed how the “leader” role can be addressed in conferences.

How do the conference offerings align with and support four of the five roles of the school librarian as outlined in Empowering Learners and how do these differ across conference types?

Table 2 displays the alignment of all conference program offerings with four of the five roles of the school librarian as outlined in *EL*. The number of sessions supporting the roles of teacher and program administrator are about equal, while the number supporting the other roles is considerably fewer. Just slightly more than one-fifth of the offerings addressed the information specialist role and only about one in every fifteen sessions focused on the instructional partner role.

Table 2. Conference offerings’ alignment with four school librarian roles.

<table>
<thead>
<tr>
<th>Role</th>
<th>Conference Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SLOC N=384</td>
</tr>
<tr>
<td></td>
<td>FLAC N=154</td>
</tr>
<tr>
<td></td>
<td>NLOC N=77</td>
</tr>
<tr>
<td></td>
<td>Total N=615</td>
</tr>
<tr>
<td>Teacher</td>
<td>162 (42.19)</td>
</tr>
<tr>
<td></td>
<td>39 (25.32)</td>
</tr>
<tr>
<td></td>
<td>9 (11.69)</td>
</tr>
<tr>
<td></td>
<td>201 (37.36)</td>
</tr>
<tr>
<td>Program Administrator</td>
<td>105 (27.34)</td>
</tr>
<tr>
<td></td>
<td>80 (51.94)</td>
</tr>
<tr>
<td></td>
<td>15 (19.48)</td>
</tr>
<tr>
<td></td>
<td>185 (34.39)</td>
</tr>
<tr>
<td>Information Specialist</td>
<td>86 (22.40)</td>
</tr>
<tr>
<td></td>
<td>30 (19.48)</td>
</tr>
<tr>
<td></td>
<td>48 (62.34)</td>
</tr>
<tr>
<td></td>
<td>116 (21.56)</td>
</tr>
<tr>
<td>Instructional Partner</td>
<td>31 (8.07)</td>
</tr>
<tr>
<td></td>
<td>5 (3.24)</td>
</tr>
<tr>
<td></td>
<td>5 (6.49)</td>
</tr>
<tr>
<td></td>
<td>36 (6.69)</td>
</tr>
</tbody>
</table>
School Library Association-Only Conferences (SLOCs)
The stratified random sample for this study included seven of thirty state-level conferences in the SLOC category. Slightly more than two-fifths of the sessions offered at SLOCs addressed the teacher role; nearly one-fourth focused on the program administrator role; approximately one-fifth dealt with the information specialist role; and about one-twelfth addressed the instructional partner role (see table 2).

Although the percentage of sessions related to the teacher role across the subset was high, great variability in the percentage of offerings existed among the individual conferences in this category. Nevertheless, at each of the SLOCs, more than one-third of the total program offerings supported the teacher role, and at one of the conferences programs addressing this role accounted for nearly half of the total programs offered. Programs addressing the teacher role offered at SLOCs included the promotion of critical-thinking skills, the teaching of research skills, and the discussion and examination of multiple reading formats, peer learning, trends in literature, and social and cultural competencies for students.

Across the sample subset, over one-quarter of the programs offered addressed the program administrator role. Program topics that addressed this role included those dealing with collection development, budgeting and grant funding, considerations of the physical and virtual library space, and partnerships with stakeholders, sister organizations such as PTA/PTO, and other library and educational associations.

In the overall subset sample, program sessions related to the information specialist role of the school librarian came in a close third behind those addressing the program administrator role. However, at three of the seven SLOCs within this sample, the number of programs addressing the information specialist role was equal to that of the program administrator role. Sessions addressing this role included information literacy, software and/or hardware evaluation, and information-ethics topics, which included cyberbullying and netiquette.

Program sessions supporting the instructional partner role accounted for a small percentage of total offerings across the sample subset, and at one SLOC no program sessions were offered to address this role. In fact, it is interesting to note that, among all but one of the SLOCs, fewer programs were offered to support the instructional partner role than any other role defined by EL.

One conference in this subset did offer an equal number of programs supporting the instructional partnership role as those addressing the information specialist role. Program sessions supporting the instructional partner role included those focused on curricula development, professional development for teachers offered by the school librarian, and various types of collaborative assignments including those matched to academic standards, and those promoting critical thinking, technology, information literacy, and social skills.

Full Library Association Conferences (FLACs)
The sample included four of seventeen state-level conferences in the FLAC category. The program administrator role accounted for more than half of the programs (see table 2). FLAC sessions that focused on the administrator role fell into two main types, which accounted for 60 percent of the offerings: 1) sessions on collection development or management, and 2) sessions pertaining to program mission, planning, and policies. Collection-development sessions included purchasing decisions and vendor presentations. Program-mission sessions predominantly focused on developing library curricula and policy planning. In fact, looking at all four FLAC programs, sessions in these two areas of program administration were most frequently offered: 14 (56 percent), 9 (52.94 percent), 51 (50.50 percent), and 6 (54.55 percent). Staff management was the
next most frequent program-administrator session topic; 11.25 percent of the total sessions focused on this role.

The teacher role at FLACs accounted for a bit more than 25 percent of the sessions. Nearly an equal number of these sessions focused on literacy skills and on author-illustrator-poet talks. Among the FLACs, all but one offered more programs on the teacher role than on the information specialist role. In the FLACs overall, the information specialist role was addressed in just under 20 percent of the sessions. About one-third of these sessions focused on technology tools to supplement school resources, with a focus on using databases. Only five conference sessions involved the instructional partner role; four of them were offered at just one of the conferences in this category.

Non-Library and School Library Association Joint Conference (NLOC)

All of the NLOC conferences, including the one represented in the sample, were held in conjunction with educational technology associations. Logically, the information specialist role, which today focuses on technology resources and tools, was the most prominent in the sessions offered (see table 2). With more than three-fifths of the conference offerings supporting this role, it was by far the most dominant role addressed.

Approximately one-fifth of the NLOC offerings addressed the program administrator role. A closer look at these data shows that the majority of the program administrator role sessions also focused on technology: technology policies and standards, and use of technology in building partnerships and providing services. The teacher role was addressed significantly less than in either the SLOC or FLAC programs. The instructional partnership role was addressed twice as frequently in the NLOCs as in the FLACs, with the SLOCs giving the most attention to this role.

What are the major topics of offerings available to school librarians at state conferences and how do these offerings differ by conference type?

As table 3 illustrates, the three topics that were most often addressed in session programs at state-level conferences for school librarians included: 1) motivating pleasure reading, 2) promotion of literacy skills (both part of the teacher role), and 3) the school library program mission, plan, and/or policies (which fall under the domain of the program administrator role). Sessions focused on motivating pleasure reading were those in which new and/or classic children’s literature was promoted through booktalks, as well as sessions that addressed ways for librarians to promote reading for pleasure via reading incentive programs, book groups and clubs, and reading competitions. Sessions addressing the promotion of literacy skills included those that presented, promoted, or addressed storytimes, storytelling, readers’ theater, and/or the teaching of specific literacy skills or strategies. Sessions related to the program mission, policies, or planning included those focused on evidence-based librarianship, strategic planning, and library and educational standards and policies. The seven program topics identified in table 3 accounted for nearly two-thirds of all of the program sessions available to school librarians at state conferences; however, these seven program topics supported only three of the four roles of the school librarian.
Table 3. Major topics at all school library state conferences.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Role</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasure reading motivation</td>
<td>Teacher</td>
<td>58</td>
<td>15.10</td>
</tr>
<tr>
<td>Promotion of literacy skills</td>
<td>Teacher</td>
<td>43</td>
<td>11.20</td>
</tr>
<tr>
<td>Program mission, plan, and/or policies</td>
<td>Program Administrator</td>
<td>39</td>
<td>10.16</td>
</tr>
<tr>
<td>Understanding of popular reading material:</td>
<td>Teacher</td>
<td>33</td>
<td>8.59</td>
</tr>
<tr>
<td>author/illustrator/poet talk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication tools to connect the school</td>
<td>Information Specialist</td>
<td>32</td>
<td>8.33</td>
</tr>
<tr>
<td>with the global learning community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collection development and/or management</td>
<td>Program Administrator</td>
<td>20</td>
<td>5.21</td>
</tr>
<tr>
<td>Technology tools to supplement school</td>
<td>Information Specialist</td>
<td>20</td>
<td>5.21</td>
</tr>
<tr>
<td>resources</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School Library Association-Only Conferences (SLOCs)

Table 4 illustrates those topics with the greatest coverage at school library association-only conferences. Of the top seven program topics, three of them fall under the domain of the teacher role; two relate to the program administrator role; and two are connected to the information specialist role. Each of the topics listed in the table accounts for more than 5 percent of the combined total of program offerings at SLOCs. The top three topics offered in the sample saw wide coverage at SLOCs, but garnered especially broad coverage at at least one of the conferences. For example, 58, or 15.10 percent, of the programs across this subset of conferences related to motivating pleasure reading, but this topic accounted for over 26 percent of the offerings at one of the seven conferences. Similarly, the promotion of literacy skills was a topic of much focus across the subset as a whole, but accounted for nearly 22 percent of the offerings at one of the conferences. Finally, program sessions focused on the school library program mission, plan, or policies accounted for just over 10 percent of the total offerings, but represented 20 percent at one of the conferences.

Table 4. Major topics of school library association-only state conference (SLOC) offerings, total (N = 384).

<table>
<thead>
<tr>
<th>Topic</th>
<th>Role</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasure reading motivation</td>
<td>Teacher</td>
<td>58</td>
<td>15.10</td>
</tr>
<tr>
<td>Promotion of literacy skills</td>
<td>Teacher</td>
<td>43</td>
<td>11.20</td>
</tr>
<tr>
<td>Program mission, plan, and/or policies</td>
<td>Program Administrator</td>
<td>39</td>
<td>10.16</td>
</tr>
<tr>
<td>Understanding of popular reading material:</td>
<td>Teacher</td>
<td>33</td>
<td>8.59</td>
</tr>
<tr>
<td>author/illustrator/poet talk</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Communication tools to connect the school with the global learning community**

<table>
<thead>
<tr>
<th>Role</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Specialist</td>
<td>32</td>
<td>8.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collection development and/or management</th>
<th>Program Administrator</th>
<th>20</th>
<th>5.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology tools to supplement school resources</td>
<td>Information Specialist</td>
<td>20</td>
<td>5.2</td>
</tr>
</tbody>
</table>

**Full Library Association Conferences (FLACs)**

Table 5 shows a closer look at the top program topics applicable to school librarians at full library association conferences. Forty-eight, or 31.06 percent, of the programs involved sharing information or practices related to collection development and management, or were sessions related to school library program mission, planning, and policies. In addition to sessions dealing with collection development and management in general, sessions on this topic included presentations by vendors and sessions about products that could be purchased.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Role</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection development and/or management</td>
<td>Program Administrator</td>
<td>24</td>
<td>15.58</td>
</tr>
<tr>
<td>Program mission, plan, and/or policies</td>
<td>Program Administrator</td>
<td>24</td>
<td>15.58</td>
</tr>
<tr>
<td>Literacy skills</td>
<td>Teacher</td>
<td>13</td>
<td>8.44</td>
</tr>
<tr>
<td>Understanding of popular reading material: author/illustrator/poet talk</td>
<td>Teacher</td>
<td>12</td>
<td>7.79</td>
</tr>
<tr>
<td>Technology tools to supplement school resources</td>
<td>Information Specialist</td>
<td>9</td>
<td>5.84</td>
</tr>
<tr>
<td>Staff management</td>
<td>Program Administrator</td>
<td>9</td>
<td>5.84</td>
</tr>
</tbody>
</table>

Two subtopics of the teacher role also each accounted for at least 5 percent of the FLAC programs. Thirteen sessions on literacy skills accounted for 8.44 percent of the sessions, and twelve talks by authors, illustrators, or poets accounted for 7.79 percent of the sessions. (It should be noted that author, illustrator, or poet sessions that focused on information beyond the presenter’s own work were not included in this category. Those sessions were categorized according to the topic the presenter addressed.)

Sessions related to technology tools to supplement school library resources (in the information specialist role) and staff management (in the program administrator role) each accounted for 5.84 percent, or 9 of the 154 sessions. The use of databases was the most common topic within this subcategory of technology-tool sessions. The largest of the FLACs offered 21 technology-tool programs, just three fewer than the total number of teacher role programs it offered. The staff-management sessions were the third area in program administration that accounted for more than 5 percent of these programs.

Only five conference sessions, or 3.25 percent, involved the instructional partner role. All five of these sessions were offered at the largest of the four FLACs. Two of these sessions focused on...
developing collaborative teaching policies, practice, and curricula. Another two sessions involved collaboratively planned and taught assignments that promote information literacy and/or technology use. And one session focused on the “learning commons,” a concept of the library as both a physical and virtual 24–7 learning environment for students, and a professional-development center for classroom teachers and librarians.

Non-Library and School Library Association Joint Conference (NLOC)

As illustrated in table 6, six topics had the greatest coverage at the joint school library association and technology association conference; each accounted for more than 5 percent of the total. Not surprisingly, four of the top six program topics supported the information specialist role. One of the program topics addressed the program administrator role, and one aligned with the teacher role. The top three topics addressed at this joint conference were the focus of nearly half of all of the programs offered: 1) creation of engaging technological tasks, including those in which students were directly and actively involved such as Skype visits with authors and content experts; 2) student creation of digital book trailers and other digital products; and 3) student engagement with various technology tools to achieve enhanced learning. Nearly one in seven of the conference offerings focused on participant evaluation of software that did not have to be purchased. (It is important to note that the researchers coded evaluation of free cloud technology to connect the school with the global learning community under the category Communication tools. Vendor presentations that involved purchasing technology tools were categorized in the Collection Development category under the program administrator role.)

Table 6. Major topics of joint school library association and technology association state conference (NLOC) offerings, total (N = 77).

<table>
<thead>
<tr>
<th>Topic</th>
<th>Role</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation of engaging technological learning tasks</td>
<td>Information Specialist</td>
<td>16</td>
<td>20.72</td>
</tr>
<tr>
<td>Software and hardware evaluation</td>
<td>Information Specialist</td>
<td>11</td>
<td>14.29</td>
</tr>
<tr>
<td>Program mission, plan, and/or policies</td>
<td>Program Administrator</td>
<td>11</td>
<td>14.29</td>
</tr>
<tr>
<td>Communication tools to connect the school with the global learning community</td>
<td>Information Specialist</td>
<td>10</td>
<td>12.99</td>
</tr>
<tr>
<td>Emerging technologies</td>
<td>Information Specialist</td>
<td>7</td>
<td>9.09</td>
</tr>
<tr>
<td>Promotion of literacy skills</td>
<td>Teacher</td>
<td>4</td>
<td>5.19</td>
</tr>
</tbody>
</table>

Discussion

While membership and full participation in professional organizations have many benefits, including “networking, learning about issues facing school librarians, lobbying for school libraries, a venue for new learning techniques, and a list to help with quick solutions to problems” (Woolls 2011, 131), this study proposed to identify conference session offerings in terms of professional development related to the instructional partner, information specialist, teacher, and program administrator roles as described by AASL in EL. The researchers quantified the total number and percentages of sessions in each topic domain within single...
confferences and across three different types of conferences, as well as by the subtopics within each role domain.

**Roles**

In states where school librarians are required to hold classroom-teacher certification or to have successfully completed a specified number of years as classroom teachers, it is not surprising that a focus on the “teacher role” would be a vestige of this heritage. In the SLOCs, sessions centered on the teacher role dominated the offerings. Many of these sessions provided conference participants with opportunities for skill development in the areas of literacy instruction, storytime methods, and book-promotion strategies. While the teacher role is valuable for school librarians (Neuman 2001; Todd 2011), they must also add the values, knowledge, skills, and responsibilities of “librarian” to their classroom-teacher skillsets. The instructional partner, information specialist, and program administrator roles more clearly focus on the “librarian” aspects of the job description.

In FLACs the program administrator role was most often demonstrated in conference sessions. While these topics are important to the foundation of managing the library collection and program, they do not necessarily ensure that the program is integrated into the larger school community or that it maximizes its impact on students’ learning outcomes. Interestingly, the order of frequency of FLACs’ offerings, ranging from most to least, was program administrator, teacher, information specialist, and instructional partner—the precise opposite of the order of priority suggested in *EL* (AASL 2007, 16).

As expected, the information specialist role was most often the topic of NLOC sessions. School librarians who want to improve their knowledge of digital resources and tools and to increase their technological skills can find many opportunities to do so at joint school library association and technology association conferences. Also, when school librarians present at these conferences, they are demonstrating their expertise as information specialists for an audience that includes technologists and classroom teachers. The NLOC is a particularly fertile venue for professional development because it can build a foundation for collaborative work among colleagues with various job descriptions.

**The Underrepresented Role: Instructional Partner**

Representatives from each state affiliate who attended the AASL Vision Summit in 2006 ranked four of the five roles in this order: instructional partner, information specialist, teacher, and program administrator (AASL 2009, 16). If this ranking was correct, then none of these conference types are in alignment with this vision for the future of the profession. When enacting instructional partnerships through coplanning and coteaching with classroom teachers and specialist colleagues, school librarians are able to achieve one of the central leadership goals of “integrating 21st-century skills throughout the learning environment” (AASL 2009, 17). It is through developing instructional partnerships that school librarians have the greatest opportunity to impact student achievement on standardized tests because these tests focus on content-area curriculum. Developing instructional partnerships puts the work of the school librarian at the center of the school’s instructional program and can also be a pathway to leadership (Achterman 2008; Haycock 2010; Moreillon 2007, 2012; Todd 2011).

The fact that conference sessions on the instructional partner role were nonexistent in three out of the four FLACs and represented such a small percentage of the fourth conference’s sessions is a noteworthy and alarming finding of this study. Even at SLOCs, where all program planners and
attendees focus on professional development for school librarians, this role ranked last in terms of representation at all of the conferences and was not supported by any of the sessions at one of the seven conferences in this sample.

The NLOC program could have been a “natural” venue for sharing librarian-technologist or librarian-classroom teacher instructional partnerships. Since technologist, classroom teacher, and school library personnel were all in attendance at this joint conference, instructional partnerships could have been a strong focus. Unfortunately, only a very small number of sessions, just 6.49 percent, addressed the instructional partner role in the context of the school librarian’s work. This finding does not suggest that partnerships are necessarily highly valued or that such sessions are in demand in the joint-conference venue. If school librarians are charged with integrating 21st-century skills, which include technological literacy, throughout the school environment then doing so through instructional partnerships could be an effective and efficient way for school librarians to meet this goal.

The study results indicate that the profession is not capitalizing on opportunities to showcase this role nor are leaders of school librarians fulfilling their obligation to advance the profession in the direction of instructional partnerships. In the conclusion to her study of elementary school principals’ attitudes towards school librarians’ instructional-partner responsibilities, Audrey Church (2008) posited, “School library media preparation programs must prepare their graduates to positively present their key instructional roles. Library media specialists already working in the field must have the opportunity for training and professional development.” She added, “For those library media specialists in the field, training in these areas should be presented in the format of workshops, in-service opportunities, and conference sessions.” Church’s directive aside, this study’s results show, in terms of the instructional partner role, this professional development did not happen in 2010–2011 state conferences.

The School Librarian’s Leader Role

How do state conferences support school librarians in developing as leaders? In this study, the researchers found it impossible to determine whether or not individual conference sessions addressed the leader role for school librarians. Of the 615 conference sessions in this study, only two session titles included the word “leader,” and four session titles included the word “leadership.” Likewise, these terms were rarely included in session descriptions. Without attending sessions, the researchers had no reliable way to assess conference program offerings in terms of developing the leader role.

Attending state-level conferences is a way to be visible, active, and participate in a professional association. Conference participants demonstrate a professional commitment and, in a broad sense, attend conferences to build knowledge. Conference attendance often involves building relationships and partnerships. By virtue of their attendance, then, many school librarians demonstrate many of the behaviors of a leader. Still, as suggested in EL, a school librarian who is an effective leader must demonstrate the ability to lead through mastering the other four roles. The findings point to the need for AASL to consider further measures to ensure all school librarians embrace the new guidelines and implement best practices intended to empower school library patrons in the 21st-century.

Subtopics

Seven program topics identified in table 3 account for nearly two-thirds of all of the program sessions available to school librarians at all of the state-level conferences in this sample regardless of type of conference. Three of the four most frequently offered session subtopics
support the teacher role: motivating pleasure reading, promoting literacy skills, and understanding popular reading material (specifically, author, illustrator, and poet talks).

Motivating reading and promoting literacy skills can be viewed as “traditional” activities of school librarians.

It is possible that sessions focused on literacy are highly important to school librarians given the current educational climate and focus on literacy that have developed since the advent of Reading First funding (U.S. Dept. of Ed. 2002). Additionally, there have been numerous calls in the school library field for school librarians to serve as literacy leaders within their schools and communities (Achterman 2010; Asselin 2003; Branch and Oberg 2001; Braxton 2008; Loertscher 2006, 2010; Moreillon 2007, 2012; Rosenfeld 2007). With a position statement on this topic, AASL has also worked to promote the school librarian’s role in reading (AASL 2009b). Although most of these literacy-leadership appeals suggest coteaching and instructional partnerships, basic and sufficient knowledge is a first step toward leadership (Zmuda and Harada 2008).

Sessions in which authors, illustrators, and poets talk about their own work have long been a staple of library conferences because readers/librarians enjoy meeting the creators of the literature they read and promote to students and classroom teachers. Librarians delight in sharing lesser-known anecdotes about the stories behind the texts, collecting autographed books, and having their photographs taken with their favorite authors, poets, and illustrators. While a measure of professional development may be associated with reading promotion and literacy sessions, these topics do not invite school librarians to expand or rethink their roles in the academic programs in their schools. Further, from the perspective of library science education, these topics are covered in graduate-level coursework.

Two of the major topics across all conferences dealt with library-specific information. Sessions related to the library’s mission, planning, and policies garnered 10.16 percent. While it is true that some of these issues, including acceptable-use policies, affect the entire school culture, these topics are also part of the core in formal library science education programs. Collection development and management, 5.21 percent of the sessions, was the other predominant topic related to the program administrator role. Sessions within this topic included timely trends, such as RDA (remote database access) and e-books, as well as standard collection-development fare in these areas. Of course, conference attendees benefit from learning the latest information in this area, but the question becomes, “How many program administrator sessions are needed to help preservice and practicing school librarians improve practice in this area?”

Two information specialist role topics were also among the major topics across conferences. Out of all 615 sessions, 8.33 percent dealt with electronic communication tools to connect the school with the global learning community. By far, sessions involving creating presentations and accessing knowledge using Web 2.0 tools dominated this subtopic. Librarian-created book trailers fell into this category and were a staple of the offerings at some state conferences. Technology tools to supplement school resources accounted for 5.21 percent of the sessions. These focused mainly on accessing and using databases in library instruction.

Together, these two information specialist topics garnered only 13.54 percent of the sessions across all conferences. (Information specialist topics were, of course, more frequently offered at the NLOC, which was held jointly with a technology association.) At a time when the technology landscape is changing daily, one could question why such a low percentage of conference sessions are focused in this area. While library science education addresses multimedia tools and resources, the dynamic nature of the information specialist role necessitates
continual and ongoing professional development for practitioners. Further, several leaders of school librarians have argued that school librarians’ proficiency in this area positions them to serve as leaders to teachers, students, and other stakeholders (Boelens 2007; Gilmore-See 2010; Mardis 2011). Finally, Barbara Immroth and W. Bernard Lukenbill (2007) found that classroom teachers appreciate librarians’ knowledge of newer technology and this value supports collaborative efforts.

Jo Ann Carr (2008) notes that, as leaders, school librarians are able to ensure that multiple literacies are woven into and throughout the curriculum. The leadership role involves school librarians in modeling the use of emerging technology to reach learners and to provide 24–7 access to the resources of the school library (AASL 2009a, 17). While technology-integration specialist may be one of the most visible leadership roles school librarians can play in the school’s academic program (Everhart 2007; Johnston 2011), the paltry number of technology-centered conference sessions may not bode well for developing either the information specialist or the leader role.

Sessions involving the instructional partner role were not among the major topics in this sample of state-level conferences. Research in our own field suggests that planning with teachers, coteaching, teaching ICT (information and communication technologies), and providing in-service training sessions to teachers are among the school-library-related predictors of students’ academic achievement on standardized tests, particularly in reading and language arts (Achterman 2008, 62–65). Debra E. Kachel et al. (2011) summarized the research findings of the School Library Impact Studies published by Library Research Service <http://lrs.org/impact.php>. In fifteen out of the twenty-one studies reviewed, Kachel and her team identified a positive correlation between classroom-library collaboration for instruction and increased student achievement. With the instructional partner role represented by only 6.69 percent of all conference sessions, support for developing this role was lacking at 2010–2011 state conferences.

Limitations of this Study and Suggestions for Further Research

This study has several limitations. Conference program publications are not uniform. Not all conference programs in this random sample included the presenters’ positions in education so that information was not a determining factor in categorizing any sessions. The researchers relied solely on the conference sessions’ titles and descriptions to categorize sessions on the domain matrix. Of course, attending the presentation sessions would have provided the researchers with a definitive domain matrix category determination. Since attending all sessions was not feasible, the researchers did not apply any firsthand information they may have had about any sessions, even if they had attended them. Relying solely on the published titles and descriptions limited the data at the disposal of the researchers.

Professional development via library conferences is limited by program offerings. If conference planners do not perceive that certain types of keynote addresses, workshops, or session topics will draw participants, planners may reject proposals that fail to align with their perceptions about what is needed to attract an audience. The researchers had access to only the program sessions that were selected by the conference program committees and published in the conference programs. Late additions to the offerings may not have been included. Some program committees could have included few or no school librarians and, therefore, when selecting
proposals, may not have considered AASL’s roles. Reviewing all submitted program proposals would have expanded the scope of this study and would have assisted in establishing a broader view of potential professional development opportunities at state-level conferences.

While this study categorized sessions by role domain, the researchers made no attempt to determine the quality of sessions or their impact on participants’ learning. Without session exit interviews, there is no way to determine if participants considered the session a pathway to mastery in one or more of the four roles and if they thought they could apply their new knowledge to develop their leader roles in their school communities. As a result, the researchers did not attempt to evaluate sessions for their potential to help participants achieve mastery in any of the five roles.

This study focused on only preconference sessions, keynote addresses, concurrent sessions, and workshops and did not address the other professional development avenues conferences offer participants. State-level conferences offer other leadership opportunities. Networking, participating on the conference-planning committee, introducing speakers, and serving in association leadership positions that facilitate business meetings or other aspects of a library association’s annual conference were beyond the scope of this study.

Further research in the area of professional development provided at state-level conferences could include interviews to ask what types of professional development attendees seek through their conference experiences. In addition, studies that include interviews with conference-program committees and organizers, presenters, and attendees could provide access to their insiders’ perspectives on the quality of sessions offered and on the types of professional development provided by networking and serving in leadership positions.

Field-testing the domain matrix with program committees, conference presenters, and participants could further validate this instrument and determine its usefulness to those groups. It might be useful to apply the domain matrix developed for this study to previous years’ conference programs to see how support for the various roles has changed longitudinally.

Finally, a comparison between state-level and national conference offerings would also be fruitful.

**Conclusion**

The researchers, who are current and future educators of school librarians, studied these conferences to understand the kinds of learning experiences school librarian candidates could access through state conferences. In the past, the researchers have provided candidates with university course assignment “credit” for attending and reporting on their state conference participation. After conducting this study, the researchers will provide candidates with more guidance in thoughtfully selecting conference sessions to meet specific professional development needs.

The domain matrix created to analyze the conference program sessions provided an effective tool for the researchers. Before preservice school librarians attend a state conference in the future, the researchers/educators of school librarians will ask them to use the matrix as they study their state conference programs and determine a focus for their assignment of reporting on their conference attendance. Candidates will be asked to think specifically in terms of the roles for school librarians as defined in *Empowering Learners: Guidelines for School Library Programs* and set
professional development goals for themselves related to the subtopics in each role where they feel they could use the most growth.

The researchers hope that the domain matrix developed for this study will prove to be a useful tool for planning committees of state-level conferences. Committees can analyze the content of their previous conferences and select or solicit specific types of conference programs to address all roles. Planners can also determine a strategy for considering how the “leader” role is addressed through their conference offerings.

Conference presenters can also use this matrix to categorize their own proposals and include relevant keywords in their session descriptions to clarify the alignment of their proposals with national guidelines.

It is useful for all readers of this study to think about which of the roles have the most potential to strengthen the work of preservice librarians as well as practitioners in the field. Which role or roles are most critical to preserving the profession? Which role or roles have the greatest potential to enlist advocates for the work of school librarians? If we emphasize one or more roles over the others, why do we do so and how does that emphasis affect learning in the field? If we neglect one or more of the roles, are we doing the profession a service or a disservice? While library-conference sessions do not present the sum total of formal professional development available to school librarians, conference sessions indicate the exemplars we showcase and the opportunities we provide to improve our profession. They may also be important indicators of the values we hold.

Works Cited


Cite This Article


School Library Research (ISSN: 2165-1019) is an official journal of the American Association of School Librarians. It is the successor to School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the SLR website for more information.

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