THE EFFECT OF COLLABORATION BETWEEN LIBRARY MEDIA SPECIALIST AND TEACHERS ON STUDENTS ACHIEVEMENT WHEN INCORPORATING TECHNOLOGY

by

Wendy White
This review of literature was designed to examine the effects of teacher and librarian collaboration, utilizing technology, on student achievement. While studies have been conducted on the impact of libraries, collaboration, and technology on student achievement individually, this study focuses on the impact made when all three are combined. Research for this review of literature was collected primarily from online databases. No research was conducted in conjunction with this review of literature. This research indicated that the combination of teacher and librarian collaboration, while utilizing technology, often has an impact on student academic achievement as well as on other factors, including a deeper sense of student investment, a higher level of rigor, and a decrease in disciplinary issues.
THE EFFECT OF COLLABORATION BETWEEN LIBRARY MEDIA SPECIALIST AND TEACHERS ON STUDENTS ACHIEVEMENT WHEN INCORPORATING TECHNOLOGY

by

Wendy White

APPROVED:

Advisor: Dr. Jennifer Robins

Committee Member: Dr. Patricia Antrim

A Research Paper
presented in partial fulfillment
of the requirements for the degree of
Master of Science in Library Science and Information Services
in the Department of Educational Leadership and Human Development
University of Central Missouri

August, 2014
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER 1: INTRODUCTION</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Statement of Problem</td>
<td>2</td>
</tr>
<tr>
<td>Purpose of Study</td>
<td>2</td>
</tr>
<tr>
<td>Questions Guiding the Study</td>
<td>2</td>
</tr>
<tr>
<td>Limitations</td>
<td>3</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>3</td>
</tr>
<tr>
<td>Design of Study</td>
<td>4</td>
</tr>
<tr>
<td>Conclusion</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER 2: REVIEW OF LITERATURE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>6</td>
</tr>
<tr>
<td>Impact of Libraries on Student Achievement</td>
<td>7</td>
</tr>
<tr>
<td>Characteristics of an Effective School Library</td>
<td>7</td>
</tr>
<tr>
<td>Teacher and Administrator Cooperation</td>
<td>8</td>
</tr>
<tr>
<td>Library Staffing</td>
<td>9</td>
</tr>
<tr>
<td>Impact of Academic Achievement and Student’s Perceptions</td>
<td>10</td>
</tr>
<tr>
<td>Student’s Perceptions of Library’s Impact</td>
<td>11</td>
</tr>
<tr>
<td>Collaboration</td>
<td>12</td>
</tr>
<tr>
<td>Benefits of Librarian as Co-Teachers</td>
<td>13</td>
</tr>
<tr>
<td>Obstacles to Teacher and Librarian Collaboration</td>
<td>15</td>
</tr>
<tr>
<td>Impact of Technology on Student Achievement</td>
<td>15</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

Introduction

Due to budget cuts and limited funding, many school libraries and library positions are at risk of being eliminated for the sake of saving money. Many people tend to picture the school librarian as a stereotypical individual who simply checks books out to patrons and then organizes the returned materials on the shelves. In schools today, the librarian is so much more than this. The school librarian is a dynamic educator who not only provides his or her patrons with quality resources and research skills, but also collaborates with teachers to design quality lessons for students and serves as an educational technology expert.

However, not everyone can see the benefits of having a highly qualified full-time librarian within the school. Many teachers do not seek out the assistance of the librarian unless encouraged to do so by an administrator (Parr 22). Although some teachers may be reluctant to work closely with the school librarian, studies illustrate the positive results that come from having a highly qualified librarian within the school and having that librarian work closely with teachers and students. For example, Parr states that schools averaged better test results when teachers, as well as principals, saw librarians as curriculum leaders and welcomed their involvement in the planning, instruction, and assessment of lessons (21). This research illustrates that the school librarian, through the provision of a quality program and collaboration, can directly impact students test scores.

There are three main ways that a school librarian can impact student achievement: by having a high quality library program and staff, by collaborating with teachers to plan lessons that meet current academic and technology standards, and by encouraging teachers to incorporate the latest technology into their lessons and classrooms.
Statement of Problem

While school libraries have been shown to have a positive effect on student academic achievement, few studies have analyzed the combined impact of a quality library program, teacher and librarian collaboration, and the incorporation of technology on student achievement. While each of these components has been shown to have positive effects on student achievement individually, few studies have analyzed the impact of student achievement when all three are combined. This distinction is important because it helps teachers and librarians see the difference in student achievement gains when these components are analyzed separately compared to student achievement gains when all three factors are combined.

Purpose of Study

The purpose of this study is to review the literature on the combined effects of teacher and librarian collaboration while utilizing technology and its impacts on student achievement. While studies have been conducted on the impact of a quality school library and staff, teacher and librarian collaboration, and the incorporation of technology into lessons on student achievement individually, very few studies have analyzed the impact of all three of these components combined. This study of the literature sought to determine if the effects of all three of these criteria combined had a greater impact on student achievement compared to when they are all incorporated individually.

Questions Guiding the Study

Several questions drove the focus of this study. These questions revolved around the impact of a quality library program, collaboration and technology usage within the classroom, and their relations to student academic achievement. The questions are as follows:
1. What kinds of effects does collaboration between the librarian and teacher have on student achievement?

2. How does the incorporation of technology into lessons impact student achievement?

3. What kinds of effects do teacher and librarian collaboration and utilization of technology have on student academic achievement?

Limitations

The limitations of this study include that this study is based on existing literature and the limited availability of actual case studies conducted focusing on the impact of a quality library program, collaboration and technology usage on student achievement. Also, some studies were conducted with gifted or advanced students, making it difficult to determine a statistically significant gain in academic achievement as a result of these components. Other limitations include the difficulty in determining a direct correlation between these components and student academic achievement without influence from outside factors.

Definition of Terms

Academic achievement: the performance or outcome of student work or scores from standardized testing in the areas of math, science, language arts, social studies, as well as other classes.

Blog: a personal webpage on which an individual records thoughts, events, and similar material for public consumption.

Collaboration: the process of working with another individual with the purpose of achieving a common goal.

Common Core State Standards (CCSS): a set of academic expectations designed to align curriculum goals across the country.
Co-teaching: when two equally qualified individuals work together to develop and deliver content to students.

Edmodo: an educational website that functions much like a social network for the purpose of connecting students.

Endorsed librarian or endorsed library staffing: a person or people who meet the state standards for working in a school library setting.

High gain schools: schools that determined that the impact on student achievement was statistically significant.

Low gain schools: schools that determined that the impact on student achievement was not statistically significant.

Podcast: a digital audio file that is available on the Internet

Skype: a program that allows for a real time face to face conversation between two individuals using computers and webcams.

Smartboard: an interactive educational presentation tool that allows the user to directly interact with the presentation with touch screen technology instead of having to work with a mouse or a clicker.

Wiki: a website that allows for collaboration among multiple individuals.

**Design of the Study**

This research study collected a majority of its information from previously published peer reviewed articles from databases pertaining to library programs, collaboration, technology, and student achievement. No research was conducted. Instead existing literature and case studies were utilized for the purpose of this study. There was no intent to create new research or utilize existing content that would require necessary permissions.
Articles were retrieved from the following databases: ERIC, MasterFILE Premier, Library, Information Science & Technology Abstracts with Full Text, Academic Search Premier, and Education Research Complete. Search terms included “school library program,” “collaboration,” “co-teaching,” “academic achievement,” “technology incorporation,” and “case studies.”

Conclusion

This study includes three chapters focusing on the impact of a quality library program, collaboration, and technology usage on student achievement. Chapter two is the review of literature and addresses the impact on student achievement of each of these components individually, and then addresses the impact of the combination of all three components on student achievement. Chapter three reviews the research questions in this study that were posed in chapter one and provides answers to these questions.
CHAPTER 2
REVIEW OF LITERATURE

Introduction

For years, school libraries have been an essential component in the school setting. School libraries provide access to quality resources, both print and digital, as well as access to an information specialist, also known as the school librarian. This information specialist impacts students’ and teachers’ access to resources, curriculum and instruction within the classroom, and even student motivation. Pletsch explains, “A knowledgeable librarian has the opportunity to enhance instruction in the classroom by offering a rich array of reading materials in many formats for students at all grade levels” (10). As a result, many studies show that a quality school library has a significant impact on student achievement and student motivation.

However, a librarian’s influence over what is going on in the classroom is not restricted to what takes place in the library. Librarians are responsible for actively collaborating with classroom teachers to help them design lessons and plan activities. Because of their knowledge as an information specialist, librarians have unique qualifications for working with classroom teachers to facilitate students’ learning and to enhance achievement. Research indicates that students will become more motivated to be effective users of ideas and information when the school librarian collaborates with the classroom teacher to plan and teach lessons and to assess instruction and learning (Gavigan 76). But a quality library program and a librarian that actively collaborates with the classroom teacher may not have as high of an impact on student achievement and motivation as it possibly could. The incorporation of technology into this mix could push the effectiveness of the library media program to the next level. The widespread use of technology in students’ everyday lives is requiring schools to move toward more extensive and innovative applications of technology within the classroom and with classroom instruction
The Effects of Collaboration 7

(Shapley, et al. 299). All three of these components individually have been shown to have a positive effect on student achievement and motivation, but few studies address the effect on student achievement when all three aspects are working together. Therefore, the purpose of this review of literature is to determine the effects of teacher and librarian collaboration on student achievement when incorporating technology.

Impact of Libraries on Student Achievement

A high quality school library has been shown to have a positive impact on student achievement when isolated from other factors. Numerous studies illustrate this positive correlation and, as a result, educators and administrators view the school library as being essential to teaching and learning (Chan 15). Chan states that most studies show the benefits of school libraries by contrasting the test results of schools with strong library programs to schools with weak or non-existent library programs. The results of these types of studies have been replicated multiple times, giving credibility to the impact of school libraries (16). Several factors contribute to the results that these studies have found.

Characteristics of an Effective School Library

Katharine Parr identified four components that most directly impact the link between the school library and student achievement. The first component dealt with the school librarian. Parr indicated that for the library to have the expected impact on student achievement, the librarian had to be certified, capable of promoting informational literacy and addressing the standards, trained in technology skills, have teaching skills, and be willing to extend hours of operation to accommodate students (19). The second component Parr identified was administrative support. Librarians need the support of administrators who understand the value of the library program and its services, and work with the librarian to continue developing the program (19). The third
component focused on teacher participation. Parr stated that for libraries to be effective, the teaching staff had to be willing to work with the library staff during the teaching process and promote the library to the students (19). The fourth component is more practical. An effective library program must have adequate funding for library initiatives, hiring support staff, acquiring computer hardware and software, and purchasing other resources to enhance the curriculum (Parr 19). These are factors that influence the impact a library can have on student achievement. Some of them are beyond the librarian’s control, but it is up to the school librarian to advocate for the library program to ensure the needs of students are met.

**Teacher and Administrator Cooperation**

As Parr identified, two of the main components in an effective library program are administrative support and teacher participation and cooperation. Chan identifies a lack of collaboration between teachers and librarians as a strong factor that impacts students’ test scores (17). Parr states that schools averaged better test results when teachers and principals saw librarians as curriculum leaders and welcomed their involvement in planning, instruction, and assessment (21). Parr summarizes the importance of teacher support in the effectiveness of the library program when she explained that if a librarian has the support of the onsite administrator, then teachers are more likely to view the librarian in a positive light and work collaboratively with him or her. A definite relationship has been identified between the principal’s opinion of the importance of the school library and the way that the teachers view the school librarian’s worth to the success of their students as a whole (22). If teachers see the school library as an essential component in increasing student achievement, they will be more open to collaborating with librarians, and therefore positively impact student achievement.
When librarians have teachers’ cooperation, it ensures that librarians have a chance to confirm that informational literacy and Common Core State Standards are being addressed within the classroom (Lance and Kachel 8). If librarians can illustrate how their input and collaboration with the teaching staff ensures the teaching of the standards, then teachers’ perception of librarians within the school is improved. Data from Lance and Kachel’s survey indicated that a correlation exists between the librarian’s ability to teach or co-teach the standards and the value administrators place on the library program (10). Thus, the more administrators value the program, the more willing teachers are to work with the librarians; and the more librarians are able to work with teachers to address informational literacy and CCSS standards, the greater the positive impact on student achievement will be.

**Library Staffing**

Another essential component that Parr identified as having a strong impact on student achievement was the quality of the library staff. A library program will not have the desired effect on student achievement if it does not possess a certified and high quality staff. This is supported by a study conducted under the supervision of Lance and Hofschire. Their results showed that a positive and statistically significant relationship exists between student achievement and endorsed library staffing. For the purpose of this review of literature, an endorsed librarian or an endorsed library staff is a person or people who meet the state standards for working in a school library setting. Schools that either maintained or hired an endorsed librarian tended to have more students scoring advanced in reading assessments, averaging about 47%, and schools that did not have or lost their endorsed librarian only had about 31% of their students scoring in this range (17).
In addition, Parr identified common elements in the most effective school. One of the common elements was the presence of a professionally trained and credentialed library media specialist (18). In another survey conducted among administrators, Lance and Kachel found that administrators who indicated their school possessed a high quality and certified librarian tended to have students who were consistently more likely to score advanced and less likely to score below basic on reading and writing tests (12). A highly qualified librarian is essential in order for school to expect the program to positively impact student achievement.

**Impact of Academic Achievement and Student’s Perceptions of Importance of Library**

For over 30 years studies have been conducted analyzing the impact that quality school libraries have on student achievement. But despite the overwhelming amount of data supporting this conclusion, some still view libraries as nonessential or as luxuries to the school setting (Chan 15). This portion of the review of literature will focus more on the specific studies that have been conducted and the results from those studies.

Small and Snyder compiled study results from over 6 states in relation to statewide assessment scores and the quality of the library program. They explained, “Aggregating the results from more than ten previous studies reveals a positive correlation between higher standardized achievement test scores and a number of library characteristics” ("Research Instruments For Measuring" 62). They summarized the library characteristics that had the greatest impact on the results. These include the size of the library staff, how often students visit the library, the presence of a trained librarian, and whether or not that librarian works directly with the teaching staff ("Research Instruments For Measuring The Impact Of School Libraries On Student Achievement And Motivation" 62-63). This clearly supports the importance of a quality library program that was addressed previously in this review of literature.
Bailey and Paul also conducted a research study focusing on this same correlation in Montgomery County Public Schools in Maryland. Their study found that information literacy skills taught with the help of a highly qualified librarian strongly influenced reading achievement (46), and higher scores in reading achievement led into higher scores in overall academic achievement. In this study, students who had more advanced literacy skills had higher overall academic achievement, and a statistically significant relationship existed between testing results and the library media program (48). Lance and Hofschire found similar results but also added the conclusion that regardless of how rich or poor the school district or community was, student achievement was higher when the library program was run by a highly qualified librarian and had the other necessary components to affect student achievement (19).

Chan described a study that took place in Alaska. This study found that nine out of ten schools that possessed a highly qualified, full time librarian had students perform at average or above average on standardized tests, whereas only five of ten schools that did not have a librarian or a qualified librarian met this level of achievement (15). This study was replicated in Illinois with similar results.

**Student’s Perceptions of Library’s Impact**

Standardized test scores are not the only data that illustrate the importance of library programs when analyzing student achievement. Another component is the student’s perception of the role of the library in their academic success. Small and Snyder describe how schools with effective library programs had two-thirds of students indicating that they visited their school library at least once a week on their own time (“The Impact of New York’s School Libraries”
This pattern indicates that the students themselves also see the importance of the library in their education and actively seek it out.

However, the most compelling evidence comes from Todd’s Ohio study. Students from thirty-nine schools that were identified as having outstanding library programs were surveyed about their perceptions of the school library and its role in their learning. The results were as follows:

It was found that 52.5 percent of students rated the library as most helpful or quite helpful in getting better grades in projects and assignments. Only 11.5 percent said that the library did not help them at all in this regard. This suggests that the students themselves endorse the idea that good school libraries have an impact on their academic achievement. Such results complement the findings of studies that correlate test scores with library services (Chan 16).

Based on these findings, it is evident that students themselves indicate that the library program at their school had a positive impact on their learning and achievement, which is just as important as the data collected from test scores when proving the positive impact of the school library.

Collaboration

The second component for this review of literature focuses on the impact of teacher and librarian collaboration on student achievement. Countless research studies have addressed the benefits of collaboration for teachers and students, and this remains true for librarians who collaborate with teachers as well. Moreillon, Hunt, and Ewing describe collaboration as an interactive and dynamic process among partners to establish instructional goals for the purpose of improving student achievement (45). Many different forms of occur in schools, but for the purpose of this review of literature, co-teaching will be the focus when addressing collaboration.
Whereas collaboration is the process of planning a lesson or unit of instruction, co-teaching suggests a much deeper level of collaboration—one in which both the teacher and librarian are working together as they co-deliver content to a class while maintaining their respective areas of expertise (Cameron, Butcher, and Haight 29).

In our current technology focused society, it is more important than ever to ensure that informational literacy skills are interwoven into the curriculum and that the library media specialist plays a role in teaching these skills (Medaille & Shannon 132). Therefore, an ideal way to achieve this goal is for librarians to work together with teachers to form co-teaching teams as the need arises. “The most effective collaborative relationships honor the library media specialist as a technologist, information intermediary, and instructional leader, and the teacher as a content and classroom management expert” (Johnson 22).

Medaille and Shannon identify three main divisions of content and roles for an effect co-taught classroom or lesson. First, teachers and librarians divide the content by topic and then take turns presenting it. Secondly, teachers and librarians discuss different approaches to teaching the content. Finally, teachers and librarians use information and collaboration to move toward synthesis in what is taught and how it should be taught (135-136). By working with teachers as part of a co-teaching team, librarians prepare students for their life after high school by ensuring they have the informational literacy skills needed to be successful. As Gavigan argued, this type of collaboration ensures the 21st century literacy skills, dispositions, and responsibilities are addressed in all areas of the curriculum (75).

Benefits of Librarian as Co-Teachers.

A variety of benefits exist for teachers and librarians when working together as co-teachers. To begin, co-teaching as a form of collaboration allows teachers and librarians to
improve their instructional strategies and to investigate and develop more innovative teaching strategies by working as part of a team (Medaille and Shannon 132). This is increasingly important to librarians, as most studies show that teaching or instructional focus is not a big part of librarian preparatory programs. In fact, when questioned, the majority of library media specialists do not classify themselves as teachers (Moreillon, Hunt, and Ewing 46). Therefore, when having librarians function as teachers as well, co-teaching is a way to improve instructional strategies for librarians who do not have this training or who may be a little out touch with the latest teaching strategies.

Furthermore, a case study conducted by Partridge and Hallam identified other benefits of collaboration between teachers and librarians. First of all, in a survey that was conducted at the end of the study, ninety-four percent of students surveyed indicated that they preferred the co-taught class or lesson to the traditional form (105). A variety of reasons exist for this preference, but the most highlighted reason is that students found this structure “fundamentally more interesting and challenging” (105). Another benefit of the co-taught classroom between a teacher and a librarian is the opportunity to leverage the different skills of each member of the co-teaching team. This means individuals who are experts in different areas can combine their skills and knowledge to create a unique classroom experience (Medaille and Shannon 138). Finally, co-taught classrooms of any kind increase the opportunities for individual or small group learning for struggling students (Moreillon, Hunt, and Ewing 46). This lowers the student to teacher ratio and provides students with the attention they need. Co-teaching, especially with a librarian as part of the team, has positive impacts on student achievement and students’ perceptions on learning.
Obstacles to Teacher and Librarian Collaboration.

Although the co-taught classroom provides multiple benefits with the help of the librarian, obstacles must be overcome to make this a reality. Moreillon, Hunt, and Ewing point out that co-teaching requires more careful planning, a respect for each educator’s style, willingness to experiment, and a shared belief that the strategy is beneficial to the students (47). Some educators have a hard time rationalizing the amount of time and effort required to make this style of teaching successful. Co-teaching is often cited as being too time consuming for the teachers and too confusing for the students. Survey results indicate that students are unsure about who to ask so instead, they just keep their questions to themselves (Medaille and Shannon 135). Other problems classroom teachers have cited with co-teaching include loss of autonomy, losing control over their own teaching practice, and being pushed outside of their comfort zone (Partridge and Hallam 105). Teachers and librarians who work toward collaboration keep in mind that it should not be done for its own sake, but in order to reach the desired outcome, which in this case should be an increase in student achievement (Cooper and Bray 53). These obstacles are not easily overcome as they require the willing participation of the classroom teacher to make this teaching style a reality. However, the possible benefits of the collaboration between the librarian and the classroom teacher to create a co-taught experience cannot be overlooked.

Impact of Technology on Student Achievement

The third and final component that is the focus for this review of literature is the impact technology can have on student achievement when incorporated in a meaningful way into the classroom. Campbell observes that many teachers assume that students are technologically savvy just because they are competent with social networking sites, search engines, or blogs. But a big difference exists between this type of technical expertise and being “research savvy” (30). This is
where the librarian’s role is pivotal in improving students’ use of technology from an academic standpoint.

Furthermore, using technology just for the sake of using technology does not result in improved academic achievement. Technology must be included purposefully. In fact, most educators will only expend the effort to incorporate new technology in their instruction if they are convinced there will a positive impact on student learning outcomes (Means 287). This means it is more important than ever that librarians work directly with teachers to ensure the meaningful use of current technology into classrooms and lessons. Puente stated that understanding and promoting new technology is a key aspect of the role of librarians in the 21st century (40). Therefore, it is vitally important for librarians to have up-to-date technology skills and to collaborate with teachers using technology to achieve the most significant gains in learning outcomes.

In a study conducted among thirteen high schools, the impact of teacher collaboration among colleagues using technology on student achievement was assessed. Seven of the high schools were identified as high gain schools and six as low gain. High gain schools were identified by an analysis of student achievement data: technology produced a statistically significant difference on the impact on student achievement. Hulbert and McBride reported collaboration from teachers and librarians utilizing technology was an important factor in increased learning gains. The six low-gain schools reported having this type of collaboration with technology in their school but in an inconsistent manner (29). This illustrates the importance of having technology and collaboration together on a consistent basis to achieve the best results.
Academic Achievement

The impact of meaningful technology usage within the classroom cannot be overlooked. In a study conducted by Shapley, 21 middle schools participated in a technology immersion program to see if there was a positive effect on technology proficiency or on academic achievement. Shapley found that this technology immersion program increased technology proficiency significantly, improved school engagement, and was linked, although not as strongly, to academic achievement (Shapley et al. 301). Although the gains in academic achievement were, overall, not statistically significant, the greatest gains in the technology immersion program occurred in the area of writing. Students in technology immersion classes with daily access to laptops outscored students who were not part of the program on standardized test that measured writing skills (Shapley, et al. 302). Similar results were found in a study conducted by Delen and Bulut among 15-year-old students. Delen and Bulut found that that the amount of time students spent using a computer had a direct and positive correlation with science knowledge (316). They also found that having a home computer reduced the achievement gap in mathematics (316).

However, having access to a computer or having a computer in the home is not the only way technology can have an impact on student achievement. Digital books that can be accessed on devices such as e-readers or kindles can also have a positive impact. Puente described a pilot program in Charleston County School District, which required the purchase of 206 digital books. By the end of the school year, those 206 digital books had been used by students over 101,000 times all over the district (39). With the size of the library collection being one of the important elements that impact student achievement, digital books seem to be an easy and highly effective way to make resources more accessible to students. The more students read, the greater the gains.
The effects of collaboration in academic achievement will be (Puente 39). The digital reading programs also offered an interactive experience for more reluctant readers with engaging activities and animated characters. Puente stated that the digital reading program with its audio features was especially helpful to special education students (43-44).

Other Benefits of Incorporating Technology

While gains in academic achievement are one of the goals of incorporating meaningful technology into the curriculum, other positive benefits occur as well. Students who participated in the technology immersion study indicated that they found school and learning more interesting when meaningful technology was incorporated. The main reason for this may be that technology rich lessons tend to be more student-centered versus the more traditional teacher centered structure (Shapley et. al 301-302).

Other research also indicates that using meaningful technology can have an impact on student behavior. A study of middle schools in Florida found decreased disciplinary issues when technology was interwoven throughout the curriculum, specifically there was a decrease in referrals and detentions (Shapley et al. 302). Students are more engaged in the more student-centered structure that technology immersion allows, which may account for the decrease in negative behaviors.

Impact of Technology and Collaboration

Few actual case studies have focused on the impact of an effective collaboration between the librarian and teacher, along with the incorporation of technology, in the classroom on student achievement. Multiple studies have analyzed the impact of each on student achievement, but few have combined all three components into a single study. That does not mean that the importance of all three of these components has not been recognized. Debra Martin and Heather Morin, two
The effects of collaboration

A media specialist from Georgia designed professional development for school librarians for this exact purpose. This training is for both librarians and teachers and covers technology training in areas such as wikis, podcasts, blogs, videos, video editing software, and Smartboard technologies (Dees et al. 10-11). This training does not just focus on using technology; it also addresses the importance of collaboration between the librarian and the teacher and its positive effects on students. One of the main points of emphasis in the training highlights how teachers often do not have time in their schedules to explore the variety of online and digital tools available to them. This is why having an endorsed librarian available is beneficial. The librarian can be responsible for discovering and mastering new technology while the teacher manages the responsibilities of the classroom. Then the combined efforts of both the teacher and the librarian can result in high quality lessons that have a significant impact on student achievement and motivation (Dees et. al 12). Although there has not been a significant number of case studies completed analyzing the impact these three components have on student achievement, the four studies that follow have focused on the incorporation of all three elements and the positive results yielded.

Case Study #1

The first study was conducted by Russo, Luhtala, and Sapienza in a small community in Connecticut. In 2005, the high school health teachers collaborated with the librarian to design and implement a project-based activity for their students using technology such as wikis, spreadsheets, Moodle, and Google Sites (58). The librarian and teachers worked together on this unit over sixteen weeks and used a blended approach to instruction. The school librarian helped integrate, teach, and assess learning of the research process, critical reading strategies, evaluation of resources, and the modeling of ethical use of information. The librarian acted as a technology expert within the field (Russo, Luhtala, and Sapienza 60). This active participation of the
librarian in classroom instruction not only improved the quality of the project, but it also ensured that the informational literacy and NETS (National Educational Technology Standards) standards were being met among students.

At the conclusion of this sixteen week study, Russo, Juhtala, and Sapienza found that 80% of students had improved in their academic achievement with over 99% of students meeting the goals outlined in the rubric that was created collaboratively between the teachers and the librarian (59). But once again, academic gains were not the only benefit to this class structure. Close to 90% of students who participated in the program responded positively about the class structure overall and felt that it helped improve their knowledge of personal wellness as well as their research and literacy skills (59).

Case Study #2

Elizabeth Kahn, a librarian, and Lisa Valence, a middle school English teacher from a school district in Jefferson, Louisiana conducted a study to discover the impact of a co-created and co-taught inquiry-based lesson on 6th and 7th grade students’ research and writing skills. While Valence introduced the lesson to her students, Kahn provided in-depth lessons on the library online catalog, databases, and a few high quality websites. Kahn also introduced the students to easybib.com an online service that provided assistance in creating their citations (41). In addition, Kahn developed pathfinders to help guide students through various types of research materials and created online tutorials to help students review concepts they may have needed to review. A wiki was also created jointly by Kahn and Valence to walk the students through the entire process (41- 42). At the conclusion of the study, Kahn and Valence found significant improvement in the quality of the students’ research papers.
Case Study #3

A third case study was conducted by Judi Moreillon on how, through collaboration with the library media specialist, advanced placement 8th grade students’ academic achievement was impacted when using wikis to support literature circles. The hope was that this type of technology integration and collaboration with the librarian would strengthen students’ literacy skills and deepen their engagement with the literature as well as the quality of their analysis (2). The librarian and the classroom teacher co-planned, co-taught, and co-assessed the final products of the students’ wiki work. The students’ responsibilities included coming to a consensus on the book they read, setting a reading schedule, setting project deadlines, and creating self-assessments. Students used wiki forums for many of their conversations. These were designed to sharpen their writing skills and utilize technology to reach an authentic audience (Moreillon 3).

The teacher and librarian structured the work so students who were reading print text could create hypertext documents using wiki technology. Moreillon explained, “Linking print text and digital production was at the heart of our teaching and learning goals as a means to boost student motivation and engagement and deepen their comprehension and responses to the literature” (Moreillon 4).

At the conclusion of the study, Moreillon found that the students began to experience the powerful benefits of an online collaborative learning environment and began preparing themselves for being successful in a participatory culture (7). Although no statistically significant improvement in academic achievement resulted from this inquiry based unit, other benefits occurred, such as student direct learning facilitated with teachable moments and a higher level of student engagement (Moreillon 5). One of the reasons cited for the possible lack of
statistically significant improvement was the lack of use of Web 2.0 creativity tools by students. These were introduced and were designed to enhance students’ ability to express their knowledge of the story elements in their literature circle books (Moreillon 6). On the other hand, the lack of statistically significant results could be because the Advanced Placement students traditionally score high on initial testing, making it difficult to determine statistically significant results.

Case Study #4

Another study analyzed the impact of collaboration between two schools, focusing on the two libraries and a classroom from each school. Again the goal was to increase student achievement. This study was conducted over 16 weeks and focused on an inquiry-based learning project for third graders that was designed to encourage self-directed learning based on a self-selected topic relating to the environment (Winner and Gick 39). This project was created collaboratively between the teachers and librarians from the two different schools working together. Students were assessed on a variety of core standards including the NETS standards.

Over the course of this study, the teachers and librarians from the two different schools utilized a variety of technological tools both to collaborate and to enhance student learning. Such tools included Skype, Edmodo, and TodaysMeet (Winner and Gick 39). This allowed the teachers and librarians to collaborate with each other to create an engaging inquiry-based lesson and to implement meaningful technology into the lesson to enhance learning. Students had to use the above resources as well as the print and digital resources provided by the library in order to complete their inquiry-based project and synthesize the information in order to make a formal presentation. At the conclusion of the sixteen week study, Winner and Gick found that although
there was no statistically significant gain in academic achievement, there was a significant increase in student buy-in and motivation (39).

**Conclusion**

To conclude, the school librarian is more than just a keeper of books in a static library. The librarian is a dynamic force within education to support, enhance, and, on occasion, teach the curriculum for the benefit of the students. Librarians in the 21st century are to be technology specialists as well as information specialists. Therefore, the school librarian is uniquely suited to directly impact student achievement both on an academic and motivational level. “When the school librarian is part of the planning and teaching team, focusing on information literacy skills, research indicates students perform better academically (Frazier 34). Through a high quality school library, active collaboration between teachers, and the integration of technology in a meaningful way, significant improvements in education and learning can be made. This is a step in the right direction to prepare students for their futures.
CHAPTER 3
CONCLUSION

Introduction

Multiple studies have cited the importance of the role of the librarian in the success and development of students, specifically in their academic achievement. This review of literature took an in-depth look at the impact the librarian can have on student achievement. This review of literature seeks to answer the following questions: What kinds of effects does collaboration between the librarian and teacher have on student achievement? How does the incorporation of technology into lessons impact student achievement? What kinds of effects do teacher and librarian collaboration and utilization of technology have on student academic achievement? While the impact of libraries on student achievement, the positive benefits of collaboration, and the positive outcomes of utilizing technology in the classroom have all been addressed in numerous studies, few studies have analyzed how all three of the these components can impact student achievement when they are all working together. That was the purpose of this review of literature.

Effects of Collaboration

The benefits of collaboration appear for both the collaborators and the students. Medaille and Shannon stated that co-teaching, as a form of collaboration, allows teachers and librarians to improve their instructional strategies and to investigate and develop more innovative teaching strategies by working as part of a team (132). This allows both the teachers and the librarians to improve their teaching strategies through collaborative methods and strategies. Furthermore, the librarian and the teacher each bring specific skill sets to the table when collaborating, which strengthens the outcomes of the collaboration. “The most effective collaborative relationships
honor the library media specialist as a technologist, information intermediary, and instructional leader, and the teacher as a content and classroom management expert” (Johnson 22).

However, also noted are the effects of this type of collaboration on students. According to Partridge and Hallam, the majority of students who participate in this type of classroom find it to be fundamentally more challenging and engaging than the traditional classroom (105). This means that students are challenged academically and are more intrinsically motivated as a result of a higher level of engagement. Also, co-taught classrooms increase the opportunities for individual or small group learning for struggling students (Moreillon, Hunt, and Ewing 46). This may result in a greater positive impact on student achievement, especially for struggling students, as a result of this type of collaboration.

**Impacts of Technology**

The incorporation of technology into the classroom has been shown to have positive impacts on student achievement as well. However, many teachers will not bother to incorporate new technology into a particular lesson unless they were convinced there would be a positive impact (Means 287). This is one reason why it is so important for the librarian to promote quality technology for the classroom. Puente stated that understanding and promoting new technology is a key aspect of the role of librarians in the 21st century (40).

In a study conducted by Shapley, 21 middle schools participated in a technology immersion program to see if there was a positive effect on technology proficiency or on academic achievement. Shapley found that this technology immersion program increased technology proficiency significantly, improved school engagement, and was linked, although not as strongly, to academic achievement (Shapley, et al. 301). Furthermore, similar results were found in a study conducted by Delen and Bulut among 15-year-old students. Delen and Bulut
found that the amount of time students spent using a computer had a direct and positive correlation with science knowledge (316). They also found that having a home computer reduced the achievement gap in mathematics (316). This illustrates how incorporating technology into the classroom can have a positive impact on students’ technology skills and academic achievement.

**Combining the Library, Collaboration, and Technology**

Although few studies have been published analyzing data on the effects of teacher and librarian collaboration while utilizing technology, the studies that have been conducted have yielded very positive results. Many students who participated in these studies indicated a higher level of engagement and motivation as a result of the combination of teacher and librarian collaboration and the incorporation of technology. Studies also report data indicating positive correlation between these elements and student academic achievement.

For example, in 2005 a high school health teacher and a librarian collaborated over the course of 16 weeks to create a project-based unit that focused on technologies such as wikis, spreadsheets, Moodle, and Google Sites (Russo, Luhtala, and Sapienza 58). At the conclusion of this study, it was found that 80% of students had improved in their academic achievement with over 99% of students meeting the goals outlined in the rubric that was created collaboratively between the teachers and the librarian (59). This is just one example of the benefits of the librarian collaborating with the classroom teacher while incorporating technology, but the positive outcomes of such teaching strategies are clear. This implies that this combination warrants further study.
WORKS CITED


