Collaborative Portfolio's Effect on Library Usage

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Abstract

Library resources are expensive and it is the library media specialist's responsibility to ensure that use of the library's resources is maximized to support the School Strategic Plan (SSP). This library usage study examined data on the scheduling of high school classes for research-based assignments, related to content area curriculum standards, as well as the level of thinking skills applied by students engaged in the activities. Study results indicated a relative increase in library usage resulted from the introduction of a collaborative library portfolio. Yet, there was no statistically significant difference in data compared from fall 2009 to fall 2010. Teachers surveyed consistently reported that students applied higher-order critical thinking skills while working on research-based assignments, which supported the SSP.

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Chapter 1

The Problem

Collaborative Portfolio's Effect on Library Usage

The role of the library media specialist has been changing as new technologies have been introduced and as government regulations have had a growing influence on the operations of public schools. Today's library media specialists must place a greater emphasis on teaching collaboratively with content area instructors. This study was developed to examine the effectiveness of a collaborative library portfolio in increasing the use of library resources for research assignments. Assignments involving research tend to require students to apply higher-order critical thinking skills. Teachers who brought classes to the library for research assignments were surveyed regarding the level of thinking skills that their students employed to complete the assignments. The study focused on collaboration between library media specialists and teachers at a diverse suburban high school with nearly 2,000 students and approximately 120 teachers.

Problem Statement

Library resources are expensive, yet these resources are not used to the fullest extent possible. *School Library Journal's* 2009-2010 spending survey reports $12,485 as the mean annual budget for library resources in a high school with an average enrollment of 1269 students (Farmer, 2011). The majority of school librarians plan collaboratively with 20 percent or fewer of classroom teachers, according to Farmer, who explains that, depending on level, 3 to 10 percent of school librarians do no planning with classroom teachers. Studies indicate that increased library usage, especially related to group visits for information literacy instruction, leads to higher student achievement on standardized tests (Lance, Rodney, & Hamilton-Pennell, 2005; Quantitative Resources, LLC, 2003). Promotional efforts must be made by library media specialists in order to increase the number of class visits to the library for standards-based

collaboratively planned lessons. Collaboratively planned library lessons should incorporate information literacy skills and engage students in critical thinking. Continued focus on the development of students' critical thinking skills is a goal of the study high school's School Strategic Plan (SSP). Increased usage of existing library resources will not increase costs, but can increase academic achievement of students and assist the school in continuing to meet AYP goals required by NCLB. It is the responsibility of the library media specialist to inspire classroom teachers to work collaboratively with the library media specialist in the planning of standards-based lessons. Library media specialists collaborating with classroom teachers develop lessons which take full advantage of available library resources to advance students' critical thinking and information literacy skills.

While flexible scheduling is considered to be the best practice for the most effective use of library resources (Wheelock, 1999), openings may be found on a library's calendar in which classes are not scheduled to visit. It should be a goal of a school's library media specialist to maximize usage of library resources including books, online databases, and the instructional services of the library media specialist. In order to attain this goal, it is important for the library media specialist to actively suggest ideas to classroom teachers for applying library resources to curriculum standards. The library media specialist must collaborate with classroom teachers to create standards-based lessons that will engage students in the use of higher-order critical thinking skills and provide opportunities for authentic assessment. Finding time for collaboration between the library media specialist and the classroom teacher can be a challenge when both professionals have a busy schedule. The library media specialist may have many ideas to share that would advance student achievement toward meeting curriculum standards, yet they may have difficulty finding opportunities to present the ideas to classroom teachers. An

online portfolio of standards-based collaboratively developed plans, and samples of student work, was developed for this study. The portfolio was intended to assist with communication between library media specialists and teachers at the high school studied. The collaborative library portfolio was introduced to the high school's faculty members in the fall of 2010. The purpose of the study was to investigate what effect the online collaborative instruction portfolio had on library usage. Additionally, the study included a brief survey to determine whether the high school teachers whose classes visited the library recognized research activities as requiring students to apply higher-order critical thinking skills.

Research Questions

This practical action research study was designed to answer the following questions:

1. What effect did introduction of the collaborative library portfolio have on the number of classes scheduled per week to visit the school's library for research instruction?

2. What effect did introduction of the collaborative library portfolio have on the percent of faculty members who scheduled their classes to visit the school's library for research instruction, during a semester?

3. According to teachers, what parts of the lesson and activities in which students participated during their time in the library required the students to apply higher-order critical thinking skills?

Hypotheses

The following hypotheses were proposed related to the quantitative data that were obtained for this study:

1. Introducing a collaborative library portfolio will increase the number of classes scheduled per week to visit the school's library for research instruction.

2. Introducing a collaborative library portfolio will increase the percent of faculty members who schedule their classes to visit the school's library for research instruction, during a semester.

Basic Assumptions

The following basic assumptions were premises for the success of this study:

1. Teachers viewed the collaborative library portfolio to generate ideas for incorporating research assignments into their lesson plans.

2. During the fall 2009 and fall 2010 semesters, there would be a consistent number of school days and similar scheduling issues, such as days devoted to testing.

3. Teachers who brought classes to the library for research assignments would take time from their busy schedules to complete the online survey to collect qualitative data for the study.

Limitations

This study was conducted under the following limitations, which may have had impact on the results:

1. Data were compared for only two fall semesters.

2. Only one high school was involved in the study.

3. Per district requirements for research the Web address for the online survey was given to teachers on a slip of paper. E-mailing a link to the survey may have increased the response rate.

Definition of Terms

The following definitions are to introduce the reader to terms or acronyms that are specific to current educational practice or this study:

1. School Strategic Plan (SSP): A document which identifies the school's specific goals for continued success in student achievement and building community relationships.

2. Collaborative library portfolio: A portfolio developed by the researcher, containing standards-based research assignments, including teachers' instructional handouts, library resources used, and samples of student work.

3. No Child Left Behind (NCLB): "NCLB is the most recent authorization of the federal Elementary and Secondary Education Act" (South Carolina Education, 2010).

4. Adequate Yearly Progress (AYP): AYP is a requirement of the NCLB Act of 2002, defining the minimum level of performance that school districts and schools must achieve each year (South Carolina Education, 2010).

5. Higher-order critical thinking skills: For the purposes of this study, the top three tiers of Bloom's Taxonomy (Salkind, 2008), revised from nouns to verbs (Anderson et al., 2001) – analyzing, evaluating, and creating.

Chapter 2

Review of Related Literature

Review of Related Literature

Since a Colorado study published in 1994 indicated that performance of an instructional role by library media specialists tended to lead to higher average test scores for students (Lance), many other studies have attempted to replicate and expand on the original study (Lance, 2002). Based on the findings of the Colorado study, school library media specialists have been encouraged to redesign the focus of their programs to emphasize their role as an instructional partner. In *Information Power: Building Partnerships for Learning*, the American Association of School Librarians [AASL] and Association for Educational Communications and Technology [AECT] (1998) have called school library media specialists to create a community of lifelong, independent learners, and ensure that information literacy permeates student's learning, enabling students to develop a personal construction of meaning. Today's library media specialist through leadership, collaboration and technology, should encourage collaborative teaching and learning to create a student-centered program with emphasis on teaching information literacy skills along with curricular objectives (AASL & AECT, 1998). Research indicates, "Greater teacher-librarian collaboration has been linked to higher student achievement…" (Lance, Rodney, & Schwarz, 2009, p. 1).

A library media specialist working with teachers to integrate information literacy into the approaches taken to meet curricula standards has been noted among the characteristics of programs found to contribute to higher levels of academic achievement (Lance, Rodney, & Hamilton-Pennell, 2000, p. 35). In a 2001 study of library media programs in Oregon, Lance, Rodney, and Hamilton-Pennell found that the staff of a strong library media program had collegial, collaborative relationships with teachers. The Oregon study describes a successful library media specialist as:

...one who works with a classroom teacher to identify materials that best support and

enrich an instructional unit, is a teacher of essential information literacy skills to students,

and, indeed, is a provider of in-service training opportunities to classroom teachers.

Students succeed where the LMS is a consultant to, a colleague with, and a teacher of

other teachers. (Lance, Rodney, & Hamilton-Pennell, 2001, p.3)

In a 2004 study, Smalley examined the success rates of high school graduates from three

California school districts that enrolled in a local community college information research

course. Only one of the three school districts had school librarians and library instruction

programs. Smalley's research found that the group of students from the school district that had

librarians performed significantly higher at all checkpoints in the college's information research

course, as compared to the groups of students who had attended school districts that did not have

librarians. As cited by Smalley, Harris suggests that:

Like critical thinking skills, information literacy skills must be taught and practiced in

multiple ways and in a variety of settings over time. Because of the complexity of

information in today's world and the variability of information problems students

encounter, information literacy must be learned as a tool of strategy rather than a tool of

procedure. (2003, p. 218)

Among other findings from six studies completed with colleagues, Lance points out

"...the importance of school librarians playing a strong instructional role" (2002, School Library

Development, para. 3). According to Lance's research studies, school librarians should

participate in collaborative activities such as:

• identifying useful materials and information for teachers,

• planning instruction cooperatively with teachers,

• providing in-service training to teachers, and

• teaching students both with classroom teachers and independently.

It is these types of collaboration between librarians and teachers that are linked directly

with higher reading scores. (2002, Collaboration & Information Literacy, para. 2)

Immroth and Lukenbill's findings indicated that collaboration between library media

specialists and teachers required an investment of time and resources, as well as the development

of trust in the library media specialist, in order to "...promote the collaborative process as a

socially and professionally rewarding activity" (2007, para. 2). Schultz-Jones (2009) suggested

that a high level of collaboration between a library media specialist and teachers does not depend

on frequent interaction; it is more likely to result from seeking teachers who are receptive to

collaboration. "As a way to build a culture of collaboration, cultivating a network of willing

participants may be a better strategy than focusing on a subject area as a strategic group"

(Schultz-Jones, 2009, p. 24). Crispin (2009) discussed potential barriers to collaboration,

focusing on scheduling difficulties and turnover; yet she acknowledges that developing

relationships with teachers that enable the library media specialist to understand the teachers'

needs is one key to developing collaborative partnerships.

Library media specialists perceive that the support of teachers and administrators is

important in helping to expand their roles, yet many library media specialists feel that they are

"...prevented from taking a more active role in instruction because of the perceptions and

expectations of teachers and principals" (McCracken, 2001, Expectations of Principals and

Teachers, para. 1). Johnson (2004) recommended that library media specialists be proactive and

reflective, they should "Master and use teaching techniques, methods and resources that the

classroom teacher doesn't know" (Recognize your vital areas of expertise, para. 1), and "Keep

track of past successes and communicate those success[es] to others on the staff" (Recognize your vital areas of expertise, para. 6). Johnson also suggests that library media specialists recognize teachers' varying styles and prepare to collaborate with both early adopters and traditionalists. He also recommends that the library media specialist focus on working with new teachers early and serve as a mentor to them. Participants in the Schultz-Jones study observed that teachers are willing to collaborate when they recognize the benefit from the process (2009). In a 2009 Idaho school library impact study, Lance, Rodney, and Schwarz found that "When collaborating with their librarians, teachers were almost three times as likely to rate their ICT [Information, Communication and Technology] literacy teaching as excellent, compared to when they taught it alone" (p. vi).

Lance, Rodney, and Schwarz suggested that:

To encourage collaboration between librarians, teachers, and administrators:

- Administrators should set the stage for effective collaborations by making it known that they expect it to be the norm.

- Administrators should meet regularly with their librarians.

- Administrators should address the librarian's role with prospective new teachers during hiring interviews.

- Teachers should turn to librarians as fellow instructors, especially for technology integration.

- Librarians should be receptive to teacher-initiated collaboration, especially invitations to teach or co-teach in classrooms. (2009, p. ix)

Fitzgerald and Waldrip (2004) stressed the importance of library media specialists documenting accomplishments, while they acknowledge the added work that this requires they

note that documentation demonstrates the progress that has been made in a learning community. Documentation aids in evaluating the progress of a library media program, and both documentation and evaluation should be ongoing (Fitzgerald & Waldrip). "Where administrators value strong library programs and can see them doing their part for student success, students are more likely to thrive academically" (Lance, Rodney, & Schwarz, 2009, p. viii). Evidence from the Idaho study "…suggests that schools with a strong cooperative atmosphere have teachers willing to include the librarian in collaborative efforts" (Lance, Rodney, & Schwarz, 2009, p. 1). As noted by Harvey (2008, p. 22), "Library media specialists have to be the initial instigators of collaboration. But, once the seeds are sown and the instruction is a success, teachers will want to come back for more and more."

Chapter 3

Methodology

Methodology

Through the analysis of both quantitative and qualitative data, this study explored how introduction, development, and promotion of an online collaborative library portfolio affected library usage. The collaborative library portfolio presents standards based collaboratively developed plans, lists of library resources used for each lesson, and samples of student work, as pictured in *Figure 1*. The purpose of the portfolio is to provide teachers with examples of a variety of research-based lessons and assignments that engage students in higher-order critical thinking skills through the use of library resources.

Figure 1. JPEG image of the *Collaborative Portfolio* research assignments web page. The online portfolio provides links to instructional handouts, and samples of student work.

Creation of the Collaborative Library Portfolio – the Independent Variable

While serving as a high school library media specialist, I created the online collaborative library portfolio during the spring 2010 semester. Teachers with whom I routinely collaborated were asked to contribute their instructional handouts and to select samples of student work to be included in the portfolio. I identified the *Georgia Performance Standards* (2010) and library resources that were used for each of the collaborative research assignments. With the assistance of teachers and students, I collected district required "Permission to Display" forms with parental signatures for the work of all students under eighteen years of age. Students over eighteen signed their own consent forms.

To organize and present the portfolio, I selected Google Sites, a free online application for creating and hosting websites. Google Sites was designed as a "…knowledge management and collaborative publishing tool…" (Kenney, 2008, p.64). This online format allows multiple viewers to access content simultaneously anywhere Internet access is available. When possible instructional handouts and samples of student work were collected digitally, otherwise hard copies were scanned to create a digital file to upload to the portfolio website. A majority of the materials collected were converted to PDF files to preserve all formatting when viewed on the Web, regardless of the software on the user's computer, creating multi-platform compatibility (Nesher, 2006). PowerPoint® files and webpages are linked to the portfolio in their original format, so that they will retain features such as transition effects and active hyperlinks.

Participant Description and Selection

Participants for the study were faculty members of a suburban high school during the 2009-2010 and 2010-2011 school years. At the beginning of the fall 2010 semester an in-service training session was required for all new teachers, to provide an introduction of the services

available through the school's library media center. The collaborative library portfolio was first introduced at the fall 2010 new teacher in-service training. Existing high school faculty members were introduced to the library's new collaborative portfolio through an all staff e-mail and by attending an optional in-service training session during the teacher's planning period.

Sources of Data

Quantitative data were obtained from the library's instructional calendars for the fall semesters of 2009 and 2010. The total number of classes that were scheduled to use library resources for research-based assignments during each week of the 2009 and 2010 fall semesters was tallied and recorded. Additional quantitative data were gathered from faculty lists for the fall 2009 and 2010 semesters. Faculty lists for each semester were compared to the library's instructional calendars to determine the percent of teachers who scheduled their classes for library visits during the fall semesters of 2009 and 2010.
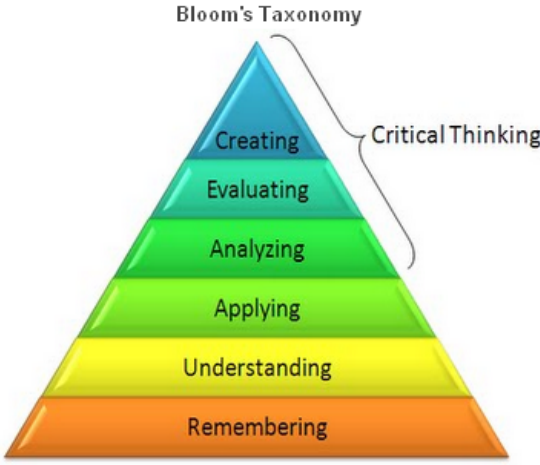
Qualitative data were gathered following class visits for library research during the fall semester of 2010. Each teacher who scheduled a class for library research was asked to complete a brief online survey following the class visit. Introductory information was provided at the top of the survey webpage, as displayed in *Figure 2*, to provide teachers with the verbiage of Bloom's Taxonomy as revised by Anderson et al. (2001), and the SSP goal that applied to the study. The first question on the *Collaborative Instruction Survey* gathered comments from teachers regarding how the students in their class applied higher-order critical thinking skills by having participated in the lesson and activities introduced during their library research time. One of the key goals stated in the SSP is to increase student achievement by focusing on development of the students' critical thinking skills (Chiprany, Student Performance Action Plan, B251). The second question on the *Collaborative Instruction Survey* asked teachers if they felt that the class

time which their students spent working on research in the library was used effectively in terms

of supporting the SSP goal of increasing students' critical thinking skills.

The *Collaborative Instruction Survey* used to collect qualitative data for this study was

created using Google Docs™. Google Documents™ is a free application which functions in "the

cloud;" the program runs over the Internet rather than locally on a user's computer (Young,

2008), allowing data to be collected and viewed from any Internet accessible computer. Data

collected through the Google Docs form were automatically entered into a Google Docs

spreadsheet, which facilitated analysis of the responses.

Figure 2. JPEG image from the *Collaborative Instruction Survey* introduction.

Chapter 4

Results

Results

School systems are working under increasingly tighter budgets and must examine the effectiveness of all programs. Library resources are expensive and it is the library media specialist's responsibility to ensure that use of the school library's resources is maximized, in a manner that supports the school's mission and strategic plan. Following the introduction of a new collaborative library portfolio, this study was developed to determine the effects of the portfolio on library usage. Additionally qualitative data were collected through a survey of teachers who scheduled their classes for library research sessions, to determine the teachers' perception of the level of higher-order critical thinking skills that students applied to complete their research-based assignments.

Findings

Using quantitative data obtained from the library's instructional calendars the number of classes scheduled to use library resources for research-based assignments during each week of the 2009 fall semester and 2010 fall semester were compared using a t test to determine if the two means were significantly different at $\alpha = .05$. The t test on the ratios of weekly classes scheduled per days in week for the data listed in Table 1 produced a value of 0.67. No significant difference

Table 1

Number of Classes Scheduled Fall 2009 and Fall 2010

Week #	Number of Classes Scheduled Fall Semester 2009	2010
1	11	*6*
2	14	18
3	13	16
4	17	11
5	*13*	19
6	22	*22*
7	18	16
8	30	15
9	20	20
10	27	19
11	20	24
12	19	16
13	*10*	*20*
14	21	20
15	17	20
16	23	20
17	17	24
18	**4**	**10**
Total Classes	316	316
Total Days in Semester	88	85
Average Daily Visits	3.59	3.72

Note. No. of classes listed in boldface italic represents only two days of class for the week. No. of classes listed in italic represents four days of class for the week. No. of classes listed in boldface represents week of final exams.

appeared in the number of classes scheduled for library research during the 2009 fall semester
compared to the 2010 fall semester, thus the null hypothesis cannot be rejected.

During the 2009 fall semester, 32.5% of
teachers in the group studied scheduled their classes
for library visits as compared to 34.2% during the
2010 fall semester. The percent of change for the
data displayed in Table 2 indicates a 5% increase in
the percentage of faculty members who scheduled
classes for library visits, from fall 2009 to fall 2010.

All of the teachers who responded to the
online survey described their students as engaged in
activities that applied higher-order critical thinking
skills from the top three levels of Bloom's

Table 2

Number of Teachers Scheduling Class Visits by Subject Area

| | Fall Semester | |
Subject	2009	2010
Career/Tech	2	5
English	12	12
ESOL/IEL	8	7
Fine Arts	1	2
Foreign Language	4	4
Math	0	3
Physical Education	0	0
Science	5	2
Social Studies	7	4
Total Scheduled	39	39
Total Teachers	120	114
% of Faculty	32.5%	34.2%

Taxonomy. Each teacher referred to at least one of the following: creating, evaluating or
analyzing, with 54% of responding teachers, mentioning more than one higher-order critical
thinking skill that students used to complete their research-based assignment. All teachers
responding to the online survey indicated that students were working towards supporting the SSP
while participating in activities or completing assignments introduced in the library.

Discussion

Further analysis of the data gathered from the library's instructional calendars revealed a
3.5% increase in the mean number of classes scheduled to use library resources for research-
based assignments on a daily basis, when comparing fall 2009 data to fall 2010. The mean
number of classes scheduled for library usage in the fall of 2009 was 3.59, this mean increased to

3.72 for the fall of 2010. Given the design of the library observed in this study and the school's schedule, the target number of classes that can be scheduled on a daily basis for research in the library is four. Making progress towards approaching the desired target of four classes scheduled per day becomes more difficult as the mean number of classes scheduled for daily library usage becomes closer to the target level. The dates and periods on the library's calendar that go unused may be related to school-wide issues such as beginning or end of semester procedures, or standardized testing. Some teachers attempt to schedule their classes for library usage, but find the times they desire already scheduled for another teacher's class and they choose not to adjust their plans to fit in with the remaining openings on the library's calendar.

During the fall 2010 semester, further scheduling complications arose from a new school practice of providing a common planning period for all teachers in a department. English teachers, the group that most frequently scheduled classes for library research, had first period planning during the fall of 2010, which was the period that had the most unused positions on the library's calendar. Had classes for every department been scheduled during every period for the fall 2010 semester, as in past semesters, it is expected that a greater total number of classes would have been scheduled in the library for research.

A comparison by subject area of the number of teachers scheduling classes for library research during the fall 2009 semester compared to the fall 2010 semester, displayed in Figure 3, shows consistent usage of library resources by English and ESOL teachers for the time periods studied. Examination of the departments displaying a change in the number of teachers bringing classes to the library for research yielded an equal number of subject areas with increasing numbers compared to the number of subject areas showing a decrease. Again, difficulty in accommodating the desired scheduling for classes of teachers who arrive to find a relatively full

library calendar during the times they would choose for their own class visits may have resulted

in the relative balance in the number of teachers actually scheduled each semester.
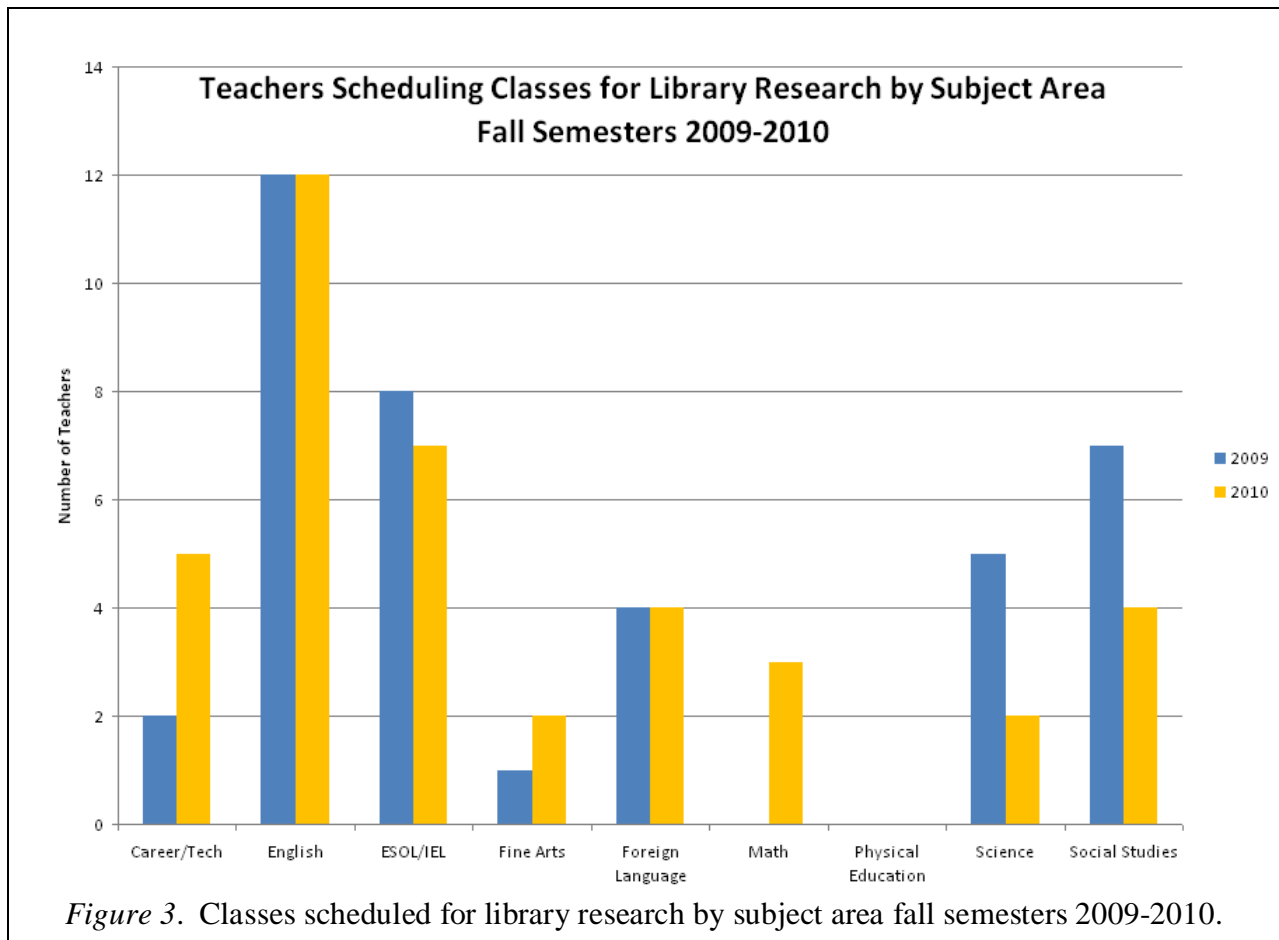

Figure 3. Classes scheduled for library research by subject area fall semesters 2009-2010.

The school examined in this study encountered notable, unexpected changes from the fall

2009 to the fall 2010 semester, which may also have affected the results of the study. Due to

financial difficulties, the number of school days was reduced from one school year to the next

and there was a reduction in force resulting in larger than usual turnover of faculty, as well as a

drop in the total number of faculty. The fall 2009 semester had 88 days, while there were only

85 days in the fall 2010 semester. The total number of faculty members included in the fall 2009

study data was 120 compared to 114 faculty members for the data collected in the fall of 2010.

While the number of faculty members dropped from fall 2009 to fall 2010, class sizes were

increased. This study did not collect data to observe the change in the overall number of students scheduled as part of a class to use the library for research; however based on increasing class sizes had such data been examined, it may have been another indicator of increase in library usage.

Conclusions

As indicated by a review of the numerous studies related to the effect of school library media programs on student achievement, collaborative efforts of the library media specialist are a crucial component of successful school library programs. The collaborative library portfolio used in this study as a means of facilitating collaboration between the library media specialist and teachers may be an effective tool for increasing library usage. While, data gathered in this study did not result in a statistically significant difference for the number of classes scheduled for library research during the periods studied, further examination of the data indicated an increase in library usage. Percents of change for both the mean number of daily class visits and percent of teachers scheduling visits displayed a relative increase in library usage, despite a fewer number of days in the semester for fall 2010 compared to fall 2009 and a reduction in faculty. Another positive result of the study was the finding that teachers responding to a survey consistently recognized that students were involved in higher-order critical thinking skills while participating in activities or completing assignments introduced in the library. This indicates that the activities and assignments which students worked on supported one of the school's key SSP goals for student achievement.

Applications

Based on the data examined in this study, the researcher recommends that library media specialists seeking to increase collaboration and library usage in their school develop and

promote an online collaborative portfolio. The act of inviting teachers to share digital copies of

instructional handouts, and samples of student work, for use as examples to others, strengthens

the collegial, collaborative relationship between library media specialist and content area

teachers currently using library resources. New collaborative relationships grow when the

successful outcomes of one class' library research experience are presented to other teachers who

may use the same or similar lesson plans and assignments. Using an online format for the

collaborative library portfolio makes the lessons developed through the collaboration of library

media specialist and teacher easily accessible to all. The library media specialist may further

fulfill the role of instructional leader by actively promoting use of the standards-based lessons in

the collaborative library portfolio, during in-service training or through professional

communications including emails or newsletters. As a media specialist works on building a

collaborative library portfolio for the school, he or she may also find opportunities to provide

leadership in advancing collaboration between content area teachers at the school. As the

number of teachers in a school who recognize the benefits to students of research-based activities

involving higher-order critical thinking skills increases, library usage may increase until the

approach of the library's maximum capacity.

In order to expand the repertoire of collaborative ideas that they have to share with

teachers, library media specialists from schools with similar curricula and resources should share

the collaborative library portfolios that they developed at their schools. Devoting time during

library media specialist in-service training sessions to sharing ideas from the collaborative library

portfolios of similar schools may inspire additional collaboration in each school that may further

increase library usage. However, library media specialists must make sure they fully understand

the processes and resources used with any lessons or project ideas that they adopt from their

library media specialist colleagues to introduce to teachers at their own school, otherwise frustrations may arise resulting in a negative effect on library usage.

As increasing emphasis is placed on assessing educators' effectiveness in improving student achievement, library media specialists will need to find means to demonstrate the contributions that they make to facilitate student mastery of content area standards. Documentation is an essential step in the evaluation process. Library media specialists who create a collaborative library portfolio will be well prepared with documentation to demonstrate the effectiveness of their library media programs in engaging students in lessons and activities that develop higher-order critical thinking skills that enhance student achievement in all areas. Developing and expanding a collaborative library portfolio will keep a library media specialist focused on the importance of making continued concerted efforts to collaborate with content area teachers on standards based lessons and may, thereby, increase library usage and the number of students who are raised to higher levels of achievement through the school's library media program.

Suggestions for Further Research

Time constraints limited both the length and scope of this study to the comparison of two semesters at one high school. To obtain results that are more conclusive, further research should examine data for a two-year period, at multiple schools that introduce an online collaborative portfolio at the beginning of the second year of the study. Additional library usage data may also be examined in future related studies, including statistics on use of the library's electronic databases, and circulation statistics. Class sizes could be included along with the data on classes scheduled for library research to compare the number of students served by information literacy instruction prior to and following introduction of the library's online collaborative portfolio.

Related studies may include surveys on the collaborative practices of library media specialists. Data analysis of advanced studies may focus on the effect of introducing an online collaborative library portfolio at schools revealing initially low levels of collaboration. Further research may include surveys to gain insight into the collaborative practices and attitudes of teachers and library media specialists before and after development of a collaborative library portfolio.

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