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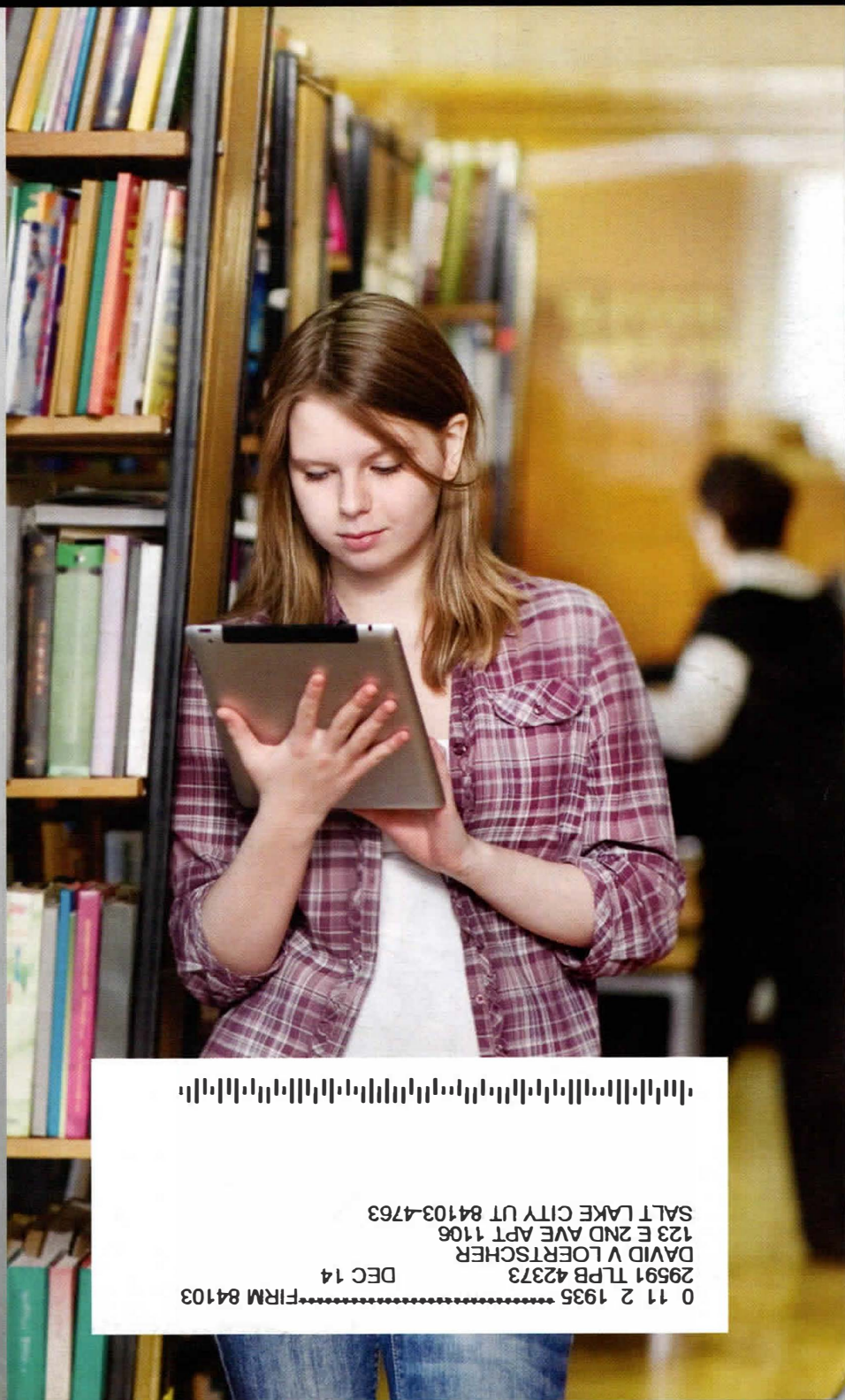
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**Collaboration and
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Deep Learning
New Media**



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COLLABORATION AND COTEACHING: A NEW MEASURE OF IMPACT

David V. Loertscher reports the findings of his Baber Research project investigating the efficacy of coteaching. A fascinating study which asked four questions: What happens to learning when the classroom teacher and the teacher librarian coteach? If coteaching has a positive effect on learning, what are the implications for the ubiquitous model of isolated teaching? Could an unobtrusive tool measure the impact of coteaching that would have direct meaning for administrators, parents, and policy makers? Could a measure be developed and easily replicated in any school to provide more avenues to measure success rather than relying solely on standardized testing? Loertscher's findings are important.

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PRACTICAL IMPLEMENTATION OF AN EDUCATIONAL MAKERSPACE: PART 3 OF MAKING AN EDUCATIONAL MAKERSPACE

Laura Fleming, R. Steven Kurti, and Debby L. Kurti conclude their three-article series on makerspaces. The first installment of this three-part series discussed the philosophy of educational makerspaces. The second installment explored the look and feel of the physical space and the selection of tools to inspire tinkering, creating, and inventing. This final part of the series exposes a real-life case study of a makerspace in an average school in an average district, with results that are anything but average.

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THE EVOLUTION OF A TRADITIONAL LIBRARY TO A LEARNING COMMONS

Joan Ackroyd describes her successful effort to transform a traditional library at the Monticello High School (Charlottesville, VA) into a vibrant and heavily used learning commons. Ackroyd provides insights and tips others can use as they aspire to creating their own learning commons.

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THE MILITARY LIFE OF JOSHUA H. BATES: A CAMP LEWIS SOLDIER—ANALYZING PRIMARY SOURCES THROUGH INQUIRY LEARNING, A HISTORY MYSTERY LESSON

Joan Enders provides a detailed account of a program she developed partially in response to Washington State's mandate that social studies and certain other classes would be tested through classroom-based assessments (CBAs). The guidelines for social studies stressed instruction in cause-and-effect research, problem-solution synthesis, and digging deeper in research for writing essays germane to the course. Enders details an inquiry learning approach that includes or touches upon collaboration, research, primary source documents, local and national history, and so many other important topics. This is a great example that should inspire many colleagues.

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MOVING EDUCATION FROM NOUNS TO VERBS

David D. Thornburg explores the use of such technology as 3D printing to exploit some recent changes in teaching and learning, moving from content to processes—to have students learn to think and solve problems in the manner used by practitioners in a field of study. He argues we are moving away from a noun-based curriculum to one that focuses more on verbs. Thornburg uses the example of 3D printing as a vehicle for pursuing such change.

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INANIMATE ALICE: "BORN-DIGITAL"

Amanda Hovious describes the development and use of a digital novel and transmedia storytelling project called *Inanimate Alice*. Using this title, Hovious shows the educational and developmental benefits which can derive from such new forms of content and expression. No doubt, transmedia will play a growing role in teaching and learning.

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Notebook

David V. Loertscher and Elizabeth "Betty" Marcoux

As teacher librarians, we are always talking about the issues of collaboration—among ourselves, students, peers and colleagues, and many others.

This reinforces the work we do and why it is so important to do it. This issue also explores some of our biggest challenges and gives us strong reason to persevere.

The Baber research project by Dr. Loertscher confirms that what we do with collaboration matters. In this project, based on four questions, the work we do is articulated and measured for effectiveness. Don't miss this important research—use it to advance your work. The center poster reflects Loertscher's conclusions, giving ten reasons to coteach. It is one to use with both faculty and students (in addition to Loertscher's column, which provides a sample learning module demonstrating an exemplary unit of instruction based on the topic of immigration).

Also in this issue is the third and final installment of the article series on makerspaces by Kurti, Kurti, and Fleming. Use their case study to model one in your own situation. If you missed the first two articles, we recommend strongly that you go back and read them.

Ackroyd talks about the challenges she has had moving from a more traditional school library setting to a learning commons, which is based completely in the philosophy of collaboration.

Thornburg looks at technology that involves 3D printing, seeing it as a way to advance teaching and learning, as well as process over content learning. He notes that we are moving away from the concept of product to the concept of process.

Enders takes the mandates of a state educational system and uses them to develop creative and engaging programming that includes things like inquiry, primary source discovery work, collaboration, and other interesting aspects of learning. Her development of a strong package for learning that involves using both the best of the state and the best of learning processes is a great example of what can be done to embrace both at the same time.

Hovious talks about digitally developing storytelling. She shows the pro-



"Be a powerful voice in adopting robust technologies that allow great learning experiences to flourish."

Collaboration and Coteaching

A New Measure of Impact

DAVID V. LOERTSCHER

BACKGROUND

The idea of a library in the high school has been a part of American education for over a century, and in elementary schools for half that time. In 1963, Dr. Mary Gaver testified before Congress about her research in elementary schools that linked achievement to the existence of an elementary school library and a full-time certified librarian. Congress voted in favor of funding to encourage the development of such libraries across the nation, and the idea became ubiquitous.

However, during the past decade of financial exigency across the United States, many school districts have eliminated the professional teacher librarian, and this has spread more recently to both middle and high school positions. The move was not just a financial decision but also stemmed from a growing sentiment that somehow the Internet and Google Search had replaced a tired concept. This stance was taken in spite of a great deal of research done by two excellent scholars.

Dr. Keith Curry Lance and Dr. Ross Todd have conducted more than twenty correlational and qualitative studies over the past decade in various states that link the existence of quality libraries staffed by full-time professionals to achievement using various large data assessments. These state-by-state studies have been circulated widely by librarians in the hope that the burden of proof would not only stop the decline of the idea of libraries but would expand it. Although these studies provided librarians with authoritative evidence of their contributions and developed considerable awareness of the potential of school libraries—internationally as well as nationally—it seems that in this time of test-driven assessment, the contributions of the librarian are getting lost.¹

With this powerful push to achieve the almighty test score as a do or die, the attraction of direct teaching, coverage of material, and the concentration on standards has pushed all other concerns aside. So what could a library or learning commons contribute to that paradigm?

If a school loses a professional librarian or has one spread among several schools, or if this happens to other professionals, such as tech integration specialists; counselors; gifted and talented, art, or music teachers, is their contribution like turning off a water valve? Do scores immediately plummet? Likewise, does the ramping up of direct instructional techniques across the faculty automatically open that spigot? The answer to the first question is probably no since the impact likely dies slowly. The answer to the second is happening under the watchful eyes of the nation. Are test scores improving exponentially in your school, district, and state? The problem may lie in the one-dimensional measurement tools rather than the contribution of any specialist.

Over the past seven years, my Canadian colleague Carol Koechlin and I have been writing and presenting widely about strategies to push the library learning commons into the center of teaching and learning in the school. When we could conduct workshops encouraging classroom teachers and teacher librarians to coteach rather than attempting separate experiences, we began to hear feedback that such an approach was beginning to work. While gratifying, we were not tracking the impact in a systematic way. In late 2013, a notice crossed my desk calling for research proposals for the Baber Research Project of the American Library Association. I applied and was successful; the following research report is the result.

School libraries face a challenge

Research links libraries to achievement

What impact do specialists have on achievement?

THE CONCEPTUAL FRAMEWORK OF THE RESEARCH

Millions of dollars have been spent to improve the skills of the isolated classroom teacher in an attempt to raise achievement scores. Has that effort succeeded? To me, that is a teacher-by-teacher question being hammered out every school day by administrators and professional developers. Unimpressed by national data, I began to wonder if a different approach might produce more informative results.

Four Questions

1. What happens to learning when the classroom teacher and the teacher librarian coteach?
2. If coteaching has a positive effect on learning, what are the implications for the ubiquitous model of isolated teaching?
3. Could an unobtrusive tool measure the impact of coteaching that would have direct meaning for administrators, parents, and policy makers?
4. Could a measure be developed and easily replicated in any school to provide more avenues to measure success rather than relying solely on standardized testing?

In order to participate in the research, I needed teacher librarians who understood and practiced coteaching. This was defined as classroom teachers and teacher librarians who planned, taught, and assessed learning experiences together using standard assessments. Thus both adults would have a mark on the learning experience, ranging from content to inquiry skills, wide reading, and the use of technology. Theoretically, the combination of both classroom teacher objectives and those of the teacher librarians would be embedded in a learning experience. Such a practice would be different than either adult teaching alone or a parallel experience where the teacher would teach the content alone in the classroom and rely on the teacher librarian to teach his or her part alone in the library.

Historically, teacher librarians have been taught the principles of collaboration and coteaching during their professional education or in professional development or at conferences. However, many have reported the difficult task of creating an actual partnership of equals. Numerous reasons for this have been covered widely in the literature; they range from difficulties with school schedules, the preferences of teachers to have their own kingdom of the classroom, the pressure of “covering” material from the classroom perspective, and the pressure of testing that pushed inquiry and collaboration aside. In spite of these barriers, enough librarians seemed to be rising to the challenge that Lance and Todd’s correlational and qualitative studies showed positive results.

For this research, it seemed wise to change the unit of analysis from individual students on large-scale tests to actual learning experiences, one by one, to check the impact of the full power of two adults and their expertise.

THE METHODOLOGY

Originally, the plan called for just six schools—two elementary, two middle, and two high—but after reaching out across social networks, sixteen schools volunteered from various locations across the United States. Several additional volunteers dropped out of the study for one reason or another.

Each volunteer librarian was asked to conduct two phases of the research described below, for which they would receive a small stipend. Most importantly, they needed to practice the concept of coteaching and ask their teaching partners for assistance with the research.

Short questionnaires via a Google form were used to gather data, and the results came automatically into a spreadsheet for analysis and synthesis. Each learning experience with one or more teachers became the unit of analysis, so a random sample was not considered meaningful. Plain and simple percentages were used, and the results included all the learners in a particular learning experience.

This unit of analysis has a number of advantages. An actual learning experience is real. It is what really happened. It is like one brick in a wall—an example of what two adults did when they planned, taught, and assessed learning together. As a researcher, a certain amount of trust was placed in the expertise of the two adults. In order to look beyond a single experience, one would start looking for patterns and trends but would also respect unique results. The only stipulation made by the researcher was that both the teacher and the teacher librarian express verbally that they possessed the skills necessary to coteach and had some experience doing so.

The methodology was purposely kept simple and unobtrusive so that very little time was required for teacher

*The
Research
Framework*

*Questions
about the
impact of
coteaching*

*Definition of
coteaching*

*Coteaching
is often a
challenge*

*Cotaught
units of
instruction
we studied*

Methodology

*16 schools
participated*

*Teacher
librarians
had
experience
with
coteaching*

*A simple
design to
replicate
anywhere*

and teacher librarian partners to respond. Secondly, the hope was that the research could be duplicated very easily in any school at any level.

*Phase 1:
Isolated
teaching*

PHASE 1: THE ISOLATED TEACHER IN THE ISOLATED CLASSROOM

With such emphasis across all of education targeting the classroom teacher as *the* person where the buck stops, it begs the question of how successful individual teachers felt they were in their classrooms. In order to establish some sort of baseline success rate, teacher librarians were asked to select five to ten teachers who taught alone in their classrooms to answer five questions in a Google form. (See Appendix 1 for the actual questions.)

Thinking of a recent topical unit, the teachers were asked the number of students who participated and the number who met or exceeded their highest expectations.

Here are the results.

Teachers Who Teach Alone: How Many Students Meet or Exceed Your Highest Expectations for a Learning Experience?

Elementary Teachers	32%
Middle School Teachers	47%
High School Teachers	59%
Average (across 2,310 Students)	48%

*About
half of the
students
meet or
exceed
expectations*

It is fascinating that as the grade level increases, the teachers report a higher rate of success. That in and of itself is an interesting question for further research, but in summary, we set the baseline of teachers teaching a unit alone in the classroom at about 50%. We accepted the teacher report based on their own assessment measures, not one that we imposed, assuming that they measure and award grades according to normal and acceptable school expectations set by principals, school boards, and standard practice.

For any school wishing to replicate this study locally, we would suggest creating your own baseline using our questions or those more appropriate for your classroom teachers. You might have better language about the assessment used, and you will want to consider whether you want the questionnaire to be anonymous.

*Local
assessment
measures
used*

PHASE 2: THE IMPACT OF COTEACHING ON ACHIEVEMENT

With the baseline of about 50% success rate in the isolated classroom, we asked the teacher librarians to query one or two teachers with whom they had cotaught. From the sixteen schools, we received responses for nineteen different learning experiences. The eighteen questions asked of each partner are listed in Appendix 2. Again, the main measurement concerned how many students were in the learning experience and how many met or exceeded the pair's highest expectations. The results were as follows.

Teachers Who Coteach with the Teacher Librarian: How Many Students Meet or Exceed Your Highest Expectations for a Learning Experience?

Elementary Schools	71-100%
Middle Schools	74-100%
High Schools	70-100%

*Phase 2:
cotaught
units*

*Percent of
students
meeting
both adult's
expectations*

70-100 %

The increase by 20–50% success rate was huge!

Carol Koechlin looked at the comments about these results from both teachers and teacher librarians and compiled the following comments (more can be read in Appendix 3):

- “Students have the benefit of the right resource at the right time because there is a teacher librarian there to differentiate and a teacher there to help understand the special learning needs of each child in her/his class.”
- “I felt we were able to get to more students.”
- “I see my strengths and my coteacher’s strengths come together and benefitting the students because they learn content and technology together and how the two can be incorporated into the real world.”
- “It is nice to model collaboration.”
- “We each have expertise and can help students with different types of questions.”
- “The great advantage of two adults is the varying perspectives they bring to the task of working with individual students.”
- “Each adult brings his/her skills and talents to the project, and the learning is exponentially increased.”
- “Students see how the library is at the center of their learning.”

When these same classroom teachers were asked about a learning experience they had previously taught without the teacher librarian, their answers ranged from a 17% success rate to 100%, with an average of 54%. While the average was similar to the baseline teachers, the wide range would indicate that these teachers are different in some way, something not determined by this researcher. The few who did comment about teaching alone provided a few clues:

- “I am almost never alone in my teaching. Tech integrators and librarians are involved in almost every project/experience in Global History I, and I team teach on American Studies with an English teacher.” (comment from a teacher who marked “n/a” on a unit taught alone)
- “Not as many as the collaborative project with the teaching librarian.”
- “Most. However, it was a different set of expectations. There is no way I would have had the success I did on our book trailers (or even known about Animoto.com) if we didn’t collaborate. He also had pulled a lot of great books I don’t have in my classroom library to help kids find something they could connect with.”

When teacher librarians teach alone in the library, they report a range of success between 10 and 83%, with an average of 52% of the students meeting their expectations. Like teachers, they feel that they are less effective alone than when they coteach.

THERE ARE OUTLIERS

When coteaching occurs, it is not all roses or automatic. For three learning experiences in two schools, the success rate was very low. In these cases, the researcher telephoned the teacher librarians to find out why. In one elementary school case, general school disruption of schedules, pull-out classes, and other matters “ruined” the collaborative unit. For the two learning experiences in the same high school, the expectations of both the teachers and the teacher librarians were so high that few students could even begin to satisfy the adults. In this case, the adults were asking sophomores to produce college-level term papers as their first research experience of high school.

THERE ARE ALSO COMPLAINTS

Teachers who experience the benefits of collaboration often complain that they do not have enough opportunity to coteach either because there is not enough time or the teacher librarian is in so much demand. These comments can be read in full in Appendix 4.

THINKING ABOUT COTEACHING, COLLABORATION, AND EMBEDDED ACADEMICS

Within the teacher librarian profession, the conversation about coteaching and its older term of *collaboration* is longstanding.² The idea of collaboration historically meant the planning, teaching, and assessment by the teacher and the teacher librarian in concert, but over the years, it has become more connected with cooperation than true collaboration. A teacher librarian interested in teaching information literacy and inquiry might “go it alone” in the library but try to tie into topics being studied in the curriculum. The researcher would term that *parallel teaching*,

*Reasons
for major
success rate*

*Experienced
coteachers
don't fare as
well when
teaching
alone*

Outliers

*Challenges
for
coteachers*

*Complaints
coteachers
have*

*The theory of
coteaching*

*Parallel
teaching
about the
same impact
as isolated
teaching*

with both adults teaching in isolation. In this research, one would not predict that either the classroom teacher or the librarian would succeed above the expected 50% success rate.

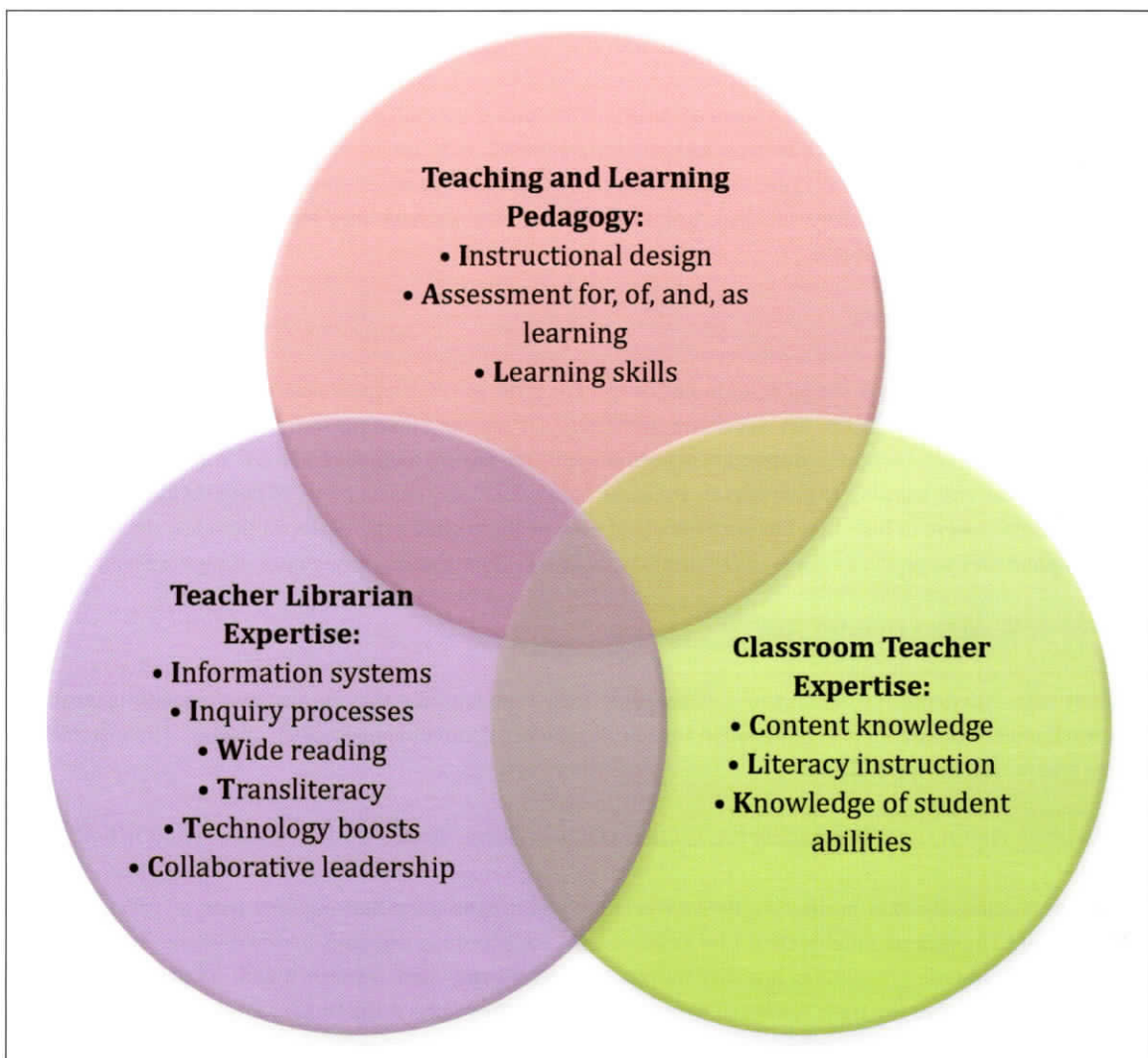
Scheduling and other complications often limit coteaching even when the expected result would be significantly better than any other alternative. Some years ago, the author and Carol Koechlin conducted an international campaign to eliminate “bird units” from the school library. These were low-level reports, mostly cut and paste on worksheets, that encouraged kids to simply copy answers out of books. Perhaps it is time to argue for the elimination of parallel or isolated teaching of information literacy or inquiry curriculums that are the mission of the library program.

More recently, we have been introduced to the idea of embedded academics.³ Popular in technical education schools,⁴ the idea is to mesh a language arts teacher with a welding class, a tech integration specialist with a drafting class, a math class with building trades. In courses like these, two teachers are coteaching and often see the same kind of success rates emerge as this research has discovered. The idea of “just in time” meshing of skill and content knowledge is much superior to separate curricular approaches.⁵

In the embedded academics model, two teachers of complementary expertise teach together all day long and across the school year or semester.⁶ Teacher librarians do not have such luxury because they have a warehouse to keep going and serve 50–100 teachers in a building. However, any time they could devote to coteaching would be like sticking a finger into a half-full glass of water. The water level (result) would rise. In a classroom teacher’s experience, they could not have the teacher librarian for every unit, but they might engage with other specialists of the school in like fashion to maximize the number of

Embedded coteaching in tech education popular

A repertoire of coteaching is evidence of impact



units benefitting from coteaching. For the teacher librarian or other specialist, a repertoire of such cotaught units would become the paramount evidence of impact on teaching and learning.⁷

From the classroom teacher's perspective, when faced with a year's curriculum, one might try to involve a specialist in places where the complementary expertise might make the most difference.⁸ Thus the teacher might "hire" expertise to maximize results. The Venn diagram on page 12, created by Carol Koechlin and the author, suggests the usual combined expertise, what one would expect the teacher to exhibit, and the types of expertise a teacher librarian might contribute.

Whatever specialists the school was fortunate to have, and depending on their ability to coteach, a teacher would have a choice in order to maximize the impact of learning experiences over time. And as the repertoire of such experiences develops, coteachers learn more about the expertise of their partners, so that when isolated teaching must happen, some of the shared expertise rubs off. Further, because the world of information, technology, and content knowledge continues to grow, what one partner contributes today keeps getting better and better.

Thus one can expect in any successful cotaught or embedded academic experience that the sum is greater than the separate parts or

$$1 + 1 = 3$$

ASSESSMENT IN COTAUGHT LEARNING EXPERIENCES

While specific assessment practices were not monitored or recommended in this study, the possibilities for both formative and summative assessment with complementary expertise looms large. When both partners select goals and objectives that mesh together well, there is a good possibility that attention to one will enhance the other.

When the expertise of the teacher librarian comes into play, assessment strategies might include

- the use of knowledge-building strategies to enhance deep understanding
- attention to the building of personal expertise, cooperative group working relationships, and the growth of collaborative intelligence as students put ideas together in the creation of products, positions, and new thinking
- emphasis on the usefulness of technology to boost actual learning alongside efficiency, creativity, and other benefits of particular tech tools
- the systematic use of inquiry as investigation and project-based learning unfolds
- the recognition that a number of learners may exceed adult expectations and need to be recognized for their work

One such example rubric based loosely on the Robert Marzano assessment strategy is presented in Appendix 5, where students have been asked to take a position on a controversial topic.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research was to develop a simple measure of the impact of coteaching when classroom teachers and teacher librarians partnered and to create a proof-of-concept test of the measure. This method worked very well in the sixteen participating schools and could be replicated in most schools.

In this study, when teachers taught alone in the classroom, about 50% of the students were likely to meet or exceed that teacher's highest expectations. When coteaching occurred, 70–100% of the students were likely to meet or exceed the pair's expectations using normal assessment measures.

For schools seeking to cut both the expense and the frequency of standardized testing, it would seem a repertoire of successful learning experiences could be used as another indicator of success rather than a one-dimensional view of education from the big-data sources.

Rather than require all teachers to cover the same content in the same way, this measure allows for a lot of experimentation—trial, success, failure, and certainly more local control of the expertise of a given faculty and administration. Major attention can be given to such factors as culture, languages, socioeconomics, background, entry-level skills and interests, and any other unique characteristics of a particular group of learners.

The researcher suspects that classroom teachers who prefer to teach alone are different in some ways than those who welcome coteaching. Even teacher librarians who experience both coteaching and isolated teaching admit that they are less effective when teaching alone.

Complimentary expertise of adults is key

Expertise teacher librarians bring

Classroom teachers select partners based on expertise needed

The whole is greater than the sum of its parts

Combined assessment strategies point to success

Conclusions

Coteaching makes a major impact on learning

Coteaching allows for experimentation

Advice for administrators

IMPLICATIONS OF THE RESEARCH FOR ADMINISTRATORS

Administrators are encouraged to replicate this study in their schools. The data can easily be gathered using acceptable assessment measures already in place.

Judge the impact of coteaching for yourself

If walk-throughs are a normal part of the administrator's agenda, then any time a true coteaching experience is happening, include these units in your visits. At the end of such experiences, dismiss the teaching adults and talk with the students about what and how they learned and ask about their comparison of this experience with others they have in the school.

Make coteaching happen

If teachers and/or teacher librarians are reluctant to coteach, provide professional development that helps them learn how to be effective partners. Also, when hiring new teachers, teacher librarians, or other school specialists, inquire about their experience in coteaching and their success rate in doing so.

Document the impact

Pave the way for coteaching to happen as a regular part of the school day. Often schedules, planning periods, or other factors are antithetical to the coteaching concept. Use creative solutions to facilitate this participatory strategy.

Ask teacher librarians and other specialists in the school to shoot for at least 50% of their time in the school to be devoted to coteaching, and ask them to document these experiences and their success, failure, or improvements needed. A full repertoire of these experiences will provide not only a unique set of data but also stories of exemplary learning. The number of such experiences will vary, of course, with the size of the library learning commons staff. What is possible with a half-time teacher librarian? A full-time person? Two full-time professionals? Provide sufficient paraprofessional support staff to handle clerical staff so that the professional can devote more time to making a major difference alongside the faculty.

Consider housing all the specialists in the library learning commons, where they can organize themselves as coteachers to maximize their impact.

Advice for teachers

IMPLICATIONS OF THE RESEARCH FOR CLASSROOM TEACHERS

In this study, teachers appreciated having a professional partner with complementary and unique expertise to join them in a teaching experience. Seek out teacher librarians and other specialists in the school or district who know how to partner with you in these collaborative strategies. The results are most often markedly successful when compared to learning experiences taught in isolation.

True partnering means that both participants will want to contribute goals and objectives and think through joint assessment measures. A successful experience is not just that there are two adults in the room but the expertise that both bring.

Take a chance coteaching

Often teacher librarians are looking for teachers to partner with because they feel that coteaching is part of their role. Take a risk. Partner in good faith. If the results don't meet expectations, keep trying.

If you have repeated opportunities to coteach with the teacher librarian or other specialists, then you can increase your expectations of the students from one learning experience to the next. The sophistication over time will be something worth noting and reporting.

Get your share

With teacher librarians or other specialists spreading their influence across the school, it might be difficult to get them to coteach because they will be in great demand. In this case, it is worth the competition to maximize the number of learning experiences they can do with you. Don't be timid in your requests.

Advice for teacher librarians

IMPLICATIONS OF THE RESEARCH FOR TEACHER LIBRARIANS

The teacher librarians in this study all knew how to coteach and had a track record of doing so. Gaining that expertise is worth the effort because it pushes your role in the school closer and closer to the center of teaching and learning.

Over the years, various effectiveness measures have been used by teacher librarians in their monthly and annual reports. A repertoire of coteaching experiences and their impact on teaching and learning should be at the top of the list in these reports. One by one, each experience adds up to a major impact throughout the school.

Build a virtual learning commons as a digital space where participatory experiences are planned, made available to the students 24/7, and after completion, become a part of a museum of such examples across the school.

By participating in every aspect of a learning experience, you not only bring to that experience your expertise in reading, information, and technology, but you experience the impact on student learning. It is a very different

Become an expert coteacher and track the impact

experience to discover the effect on learning rather than just report time spent teaching.

Turn the traditional library physical space into a vibrant and active library learning commons where individuals, small groups, and large groups are at work throughout the school day and virtually at all times. There are more and more examples of these spaces popping up across the United States and Canada. Many are documented in articles in *Teacher Librarian*, where you can discover ideas and contact the article writers for more information.

In schools where the library is scheduled throughout the school day, look for simultaneous scheduled and flexible cotaught experiences. While the cotaught learning experience always receives preference on the calendar, creative use of scheduled time can also be helpful for students, particularly if making and choice are encouraged. When you are coteaching and a scheduled class is also present, the latter can be engaged in independent and self-directed activities as individuals, small groups, or as an entire class with a minimum of supervision.

No matter how much time you have in a school, spend at least half your time coteaching rather than keeping the warehouse operating. Even if you have just one day a week in a school, spend half of it coteaching. You will be able to participate virtually throughout a learning experience if you have it posted and available online. Such experiences can cross schools and grade levels and extend beyond the school using the best of the best technologies. Be a leader in this outreach.

Be a powerful voice in adopting robust technologies that allow great learning experiences to flourish. Anywhere, anytime, on any device, learning is growing exponentially around the world, and your school, its teachers, and your students deserve the best. Luckily, in today's tech environment, some of the best tools are still free or inexpensive.⁹

As you work alongside a particular teacher, reflect with the students after each experience about what went right and what went wrong and what the group can do better the next time. Then track the sophistication level with subsequent coteaching experiences.¹⁰

FINAL THOUGHTS

The researcher would like to thank the American Library Association for the Baber Research Award. It allowed him to think through a nagging problem that most teacher librarians face every day: how to measure the impact of the library learning commons services on teaching and learning throughout the school. While a constant stream of coteaching experiences is a challenge for teacher librarians everywhere, the effort seems to produce spectacular results. The school library learning commons consumes major resources of a typical school budget. Transforming those resources and technology into results—learning experience by learning experience—is a demonstration of wise use of the investment. Making the impact and results explicit rather than assumed argues for continued sustainability amid conflicting priorities. It is a bottom line worth shouting about.

Appendix 1

TEACHERS TEACHING ALONE QUESTIONNAIRE

1. Topic of the teaching unit. This could be a unit that took several days or several weeks to complete with your class.
2. Grade level.
3. Total number of students in this learning experience.
4. How many students met or exceeded your highest expectations for the unit? This might have been the highest level on a rubric or the more traditional A-level work.
5. Was this result typical? Why or why not?

Create a learning commons

Fixed/flex: create a both/and approach

Spend half your time coteaching

Conduct metacognitive Big Thinks

Move to the center of teaching and learning

COTAUGHT LEARNING EXPERIENCE QUESTIONNAIRE

(This one for teachers, a mirror image for teacher librarians)

1. Your Name: This will not be used in any research report, but you can use the results any way you wish at your school.
2. School name
3. Your e-mail
4. Title of cotaught learning experience you did with your teacher librarian
5. Grade levels in the school

Elementary, Middle School, High School, Other

6. List one or two of the highest expectations you had as coteachers for this unit. These might include both content understanding and the skills needed to learn it (such as inquiry skills).
7. How many students participated in this unit of instruction?
8. Considering the assessments used for the entire unit, how many students met or exceeded your highest expectations? This might have been the highest level on a rubric, or the more traditional A-level work.
9. How many learners made more progress because there were two adults helping instead of one?
10. Optional question to ask of students: Compared to other learning experiences we have done in this class, how much did you learn? Less, about the same, more? Take two minutes to ask the students their honest opinions. You might follow up with asking them how that learning experience could have been better. Record the response here as such: 3 said less; 10 said about the same; 5 said more.
11. What would you change in this unit if given a chance to teach together again?
12. What advantages do you see for the students when collaborating with two adults on a learning experience of this type?
13. What challenges do you see in partnering with the teacher librarian in the school?
14. Finally, think back to a recent and typical learning experience you taught alone in the classroom. What was the topic you were teaching?
15. How many learners did you have in that learning experience?
16. Thinking again of your highest expectations, how many of those learners met or exceeded your expectations?
17. Any final comments?

Appendix 3

Comments by Teachers about the Experience of Coteaching

WHAT ADVANTAGES DO YOU SEE FOR THE STUDENTS WHEN COLLABORATING WITH TWO ADULTS ON A LEARNING EXPERIENCE OF THIS TYPE?
Two teachers combined with group work means students had regular, seemingly constant access to help/assistance.
They have more feedback from adults. They also benefit from different feedback.
They benefit from having two teachers to mentor and support students during the research process, answer questions, and clarify expectations. They also benefit from having two teachers collaborating during the planning to make the lesson the strongest it can be.
There are multiple communication styles, hours of availability, and areas of expertise.
Each adult brings his or her skills and talents to the project, and the learning is exponentially increased. Our teaching librarian is also a history buff, so his subject matter knowledge filled in where I had gaps.
Better education results because of the different skill sets that teachers have. We can't all be good in everything.
We were able to move around more easily from station to station in the library, supervising, guiding, and answering questions, than if one of us had tried to navigate all of the stations at once with several requiring assistance at the same time.
The students get two different perspectives and personalities. There is a shorter wait time for individual help. The lesson is more dynamic.
More assistance is available.
All teachers have different styles of presenting content. Utilizing two teachers within a unit allows the key concepts to be presented in multiple styles to reach more students. Also, utilizing two teachers makes online research and digital projects easier to facilitate by quickly addressing students' questions/problems.
Particularly when the other adult is an expert in media/research skills, it is invaluable. However, I always gravitate toward collaborating planning.
Much more thorough understanding of all facets of the material is involved. More one-on-one time and options for individualized instruction using their own work are also available.
It allowed for small groups and two teaching styles to ensure all students were engaged and learning.
More adults are available to help.
With more individualized attention for all students, students are less frustrated. Time is better utilized, and more objectives are met through small-group instruction.
There is more individual attention, and questions are answered more easily. Students are less frustrated. Learning is increased. Time is better utilized, and more objectives are met through small-group instruction.[Q: very similar to quote above]
There were so many advantages. When planning, it was very nice to have another thinking partner. Additionally, I felt we were able to get to more students. I was able to work with some groups closely, as was the teacher librarian.
I see my strengths and my coteacher's strengths come together and benefitting the students because they learn content and technology together and how the two can be incorporated into the real world.
There are different areas of expertise and more access to ask questions.
We bring different expertise, and there are two teachers to answer questions, help find resources, and monitor that students are on task.
We each have expertise and can help students with different types of questions. There were fourteen different landforms, which makes it nearly impossible for one teacher to meet and help each group find the necessary resources.
Each adult brings his or her own expertise to the class. When I was unsure about potential resources, I could direct the students to the librarian. For students with very specific learning needs, I was able to help them because I know them better.
Our PMS teacher librarians are highly skilled in assisting students in pursuing multiple paths in the research process, helping students refine their questions and develop new ways of considering an issue.
Each adult has his or her own expertise in areas of the project, so students definitely benefit from that. Students can get help finding resources and evaluating their credibility and usefulness when there are more adults to help.
There is more one on one and different vantage points.
There is now a familiar face for them that they can ask for help when they are in the media center. The collaboration makes them more connected and comfortable with another staff member.
Students can have their questions answered right away. The teacher librarian has a greater depth of knowledge about the different African cultures and the resources available.

Appendix 4

Challenges That Teachers Face When Wanting to Coteach

WHAT CHALLENGES DO YOU SEE IN PARTNERING WITH THE TEACHER LIBRARIAN IN THE SCHOOL?

Availability is the only one in our school. They are in demand, especially on a project like this involving ten or more sections of students at the same time of the year.

There is no time for collaboration.

None!

He ends up doing a lot of work, and since he's good, our sister school has started asking for his help, so we ran into some scheduling problems when he was there, but they were manageable.

Everyone wants to work with him! He needs a clone or two.

Time, scheduling, negotiating for library time are challenging.

The only challenge was in making the time to intentionally collaborate and reflect because we're normally very busy and don't regularly encounter each other unless we are that intentional and mutually goal oriented.

There is a little more advanced planning.

None.

The most challenging aspect with partnering with the media specialist is scheduling available times that coordinate with four sections of third grade and the media specialist. This requires advanced planning and frequent communication between everyone involved.

Time to plan together is always a challenge, but I would also say that I would love to know what other units I can incorporate her expertise into.

Timing. They are incredibly busy supporting the entire faculty. This is a work-intensive project for everyone involved, so scheduling can get tricky.

One challenge beyond the teacher librarian's control is not enough time to engage in more collaborative projects.

Scheduling is a challenge.

Finding common planning time with the librarian is always a challenge.

Overall the experience was amazing. The only challenge I found was the amount of time we had to collaborate. I wish we had more time to sit and plan with one another.

Availability of the teacher librarian to collaborate with is challenging because he is highly needed by staff in our building and busy helping with many people on any given day (as well as students).

We need more time to collaborate.

Scheduling the necessary library time to coincide with a particular unit is difficult.

The library is popular, and many teachers want to bring their classes. In science, we have a specific progression of our units, and sometimes have difficulty fitting the library unit in at the correct time.

I really do not see challenges other than finding time on the library calendar. Our library is used so frequently that it is not always easy to schedule time in the library.

Mostly time constraints are involved because we have large classes and every student needs help.

It's not always possible to schedule as much time in the library as I would like, and it's challenging to find the time to plan and debrief.

Time and availability are challenges.

Our biggest challenge was scheduling a time to meet because other teachers wanted to collaborate with him as well.

Scheduling can be tricky, as there are so many departments who want to complete library research projects.

NOTES

(Endnotes)

- 1 Some of these studies can be accessed on Keith Curry Lance's website (<http://goo.gl/X3bM17>) or at the Colorado Library Research Service (<http://goo.gl/8vVSu7>). For Ross Todd's research, consult the Rutgers University CISL site (<http://cissl.rutgers.edu/>).
- 2 A recent article about collaboration between science teachers and school librarians is particularly helpful: Rawson, Casey H. (2014, January 1). "Every Flower in the Garden: Collaboration between School Librarians and Science Teachers," *School Libraries Worldwide*, vol. 20, no., 20–29. A second article discusses the extent to which school library preparation programs teach prospective teacher librarians the instructional partnership role: Moreillon, Judi, Sue Kimmel, and Karen Gavigan. (2014). "Educating Pre-Service School Librarians for the Instructional Partner Role: An Exploration into University Curricula," *School Library Research*, vol. 17. Available at <http://goo.gl/5INIP8>.
- 3 Schakat, Amy, and Sheila Grimm. (2014, February). "Literacy: Learners to Leaders: Our Journey," *Techniques*, 10–11.
- 4 Stone, James R., III. (2014). "More Than Just One Way: The Case for High-Quality CTE," *American Educator* (Fall), 4–11, 39.
- 5 A helpful paper on embedded academics in high schools published in 2008 is available at <http://goo.gl/Mbcq9o>.
- 6 Such was the pattern when the author recently visited Dundalk High School in Baltimore, Maryland. With over thirty languages spoken in the high school and with few students passing any state test, the administration paired a language arts teacher or a special ed teacher with a social studies or science teacher for the entire school year. The rate of passing state tests jumped, and students whom the author interviewed verified the effectiveness of such an arrangement.
- 7 Henry, Robin. (2013, January/February). "The Embedded Librarian for K–12 Schools," *Library Media Connection*, 22–23.
- 8 Several hundred ideas for the contribution of school librarians to Common Core or other national or state standards are available in *Implementing Common Core Standards: The Role of the School Librarian*. AASL and Achieve, 2014. Available at: <http://goo.gl/asnfFa>.
- 9 I still recommend that every school and district have the Google Apps for Education suite of tools as long as access to all the tools is open to the adults and students of any age.
- 10 Interweaving of learning is a technique that works across time and various learning experiences that helps retention. See <http://goo.gl/FTG616>.