



“Macro data coming into schools from various standardized tests, while interesting and sometimes very useful, give us a one-dimensional view of student learning.”

Coteaching Revisited

The Replication Study

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The question keeps arising: Do a school library and a credentialed school librarian make a difference to teaching and learning in the school?

Numerous research studies across 60 years have pointed to a variety of benefits that accrue when credentialed librarians staff the school library. However, the 2008 downturn in the U.S. economy and its effect on school budgets caused many districts to eliminate all special personnel from the school except for a single professional teacher for each classroom. Art, music, gifted/talented, counseling, and library positions all took a hit, and while improved economic conditions have helped revive specialist hiring, the school librarian still remains an endangered species.

Given the opportunity to restore any specialist where resources allow, a larger question looms: Which kind of specialist will bring the largest return on the investment? Given that the stereotype of a library is a dusty collection of books with an ancient librarian to guard them, the answer is not: a teacher librarian. This is particularly the case in the charter school community. When Kodak invented digital photography, corporate decision makers felt that the general public would never adopt such a disruptive idea and that business as usual was worth preserving. Wrong—it was a disastrous and fatal solution.

A decade ago, the world of information exploded, and the Google search engine seemed to be the silver bullet. It appeared to be the death knell of the library. That, coupled with high tech in the palm of the hand and the massive change in young people’s social media presence, made it apparent that the concept of the library must be reinvented. Both the library as a place and the librarian position required total rethinking. Loertscher, Koechlin, and Zwaan (2008) proposed that the library should be transformed into a learning commons: a physical and virtual space where the creation of knowledge alongside the con-

sumption of knowledge might offer a breath of fresh air that would be worth the investment.

Loertscher et al. (2008) suggested that the centerpiece of the library learning commons would be its merger with classrooms during a number of learning experiences over the school year. During these special learning experiences, the physical and virtual resources, plus the adult expertise, would be combined.

Disruption is a hard sell, and the calls for evidence of impact rose immediately. The first library learning commons opened in January 2009 at Chelmsford High School in Chelmsford, MA, under the direction of Valery Diggs. That and the article “Flip This Library” in *School Library Journal* (Loertscher, 2008) encouraged many librarians to report their creative directions in *Teacher Librarian*. Yet the call for evidence continued.

Much of the excitement centered on the response of children and teens in their new, flexible physical spaces. Loertscher and coauthors (2008) also

noticed that it was this idea of coteaching and the merger of library with classroom that was having the largest impact. In an effort to capture this impact, the most effective research approach seemed to be the idea of micro documentation, rather than macro documentation, which had been the usual pattern of research.

Micro documentation of results is a research technique that examines the results of a classroom teacher and a librarian coteaching a single unit of instruction. It is a tiny case study—unit by unit, teacher by teacher, school by school—examining any patterns that emerge across cases that might be worth further investigation.

THE FIRST RESEARCH STUDY

The first micro documentation research was published in *Teacher Librarian* in 2014. With a small grant from the ALA Baber Award, Loertscher (2014) asked for volunteers and was able to look at coteaching in 12 schools throughout the United States, across all grade levels. In order to establish a baseline, the librarians were asked to reach out to 5 to 10 classroom teachers. There were 100 responses across the grade levels, and as they reflected on a recent learning experience, they estimated that about 50% of their students met or exceeded their expectations for that unit of instruction.

In these same schools, the researcher asked the librarian to select a recent unit of instruction that was cotaught by the classroom teacher and the librarian. Then, in a simple analysis, each partner was asked to identify the topic of the learning experience, the number of students in that experience, and the number of

students who met or exceeded *both* adults' expectations using their normal assessments. The results across grade levels ranged from 70–100%. This success rate was judged as extremely significant in comparison with the 50% success rate when classroom teachers taught alone.

For the study, the term *coteaching* was defined as a classroom teacher and teacher librarian partnering on the creation of goals and objectives, assessments, and teaching activities. Each member was also asked to reflect on the partnered experience. In the words of the conclusion:

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

$$1 + 1 = 3$$

THE CURRENT REPLICATION AND METHODOLOGY

During a sabbatical semester granted by San Jose State University, the author and his graduate assistant conducted a replication of the original study. Data collection occurred during the fall semester of 2017 and continued through May 2018 to capture cotaught learning experiences in both fall and spring semesters. Invitations for volunteers were issued through social media, while the Future Ready Librarians organization helped publicize the study. No monetary rewards were granted, as had been true in the previous study; only generous gratitude and anonymity were awarded.

As a baseline of success, we held the results from the first study—classroom teachers who taught alone—as the 50% success rate for students who either met or exceeded expectations.

Also, from the first study, we used the baseline of a 70–100% success rate when the unit was cotaught.

Both professional partners were asked to fill out a Google form that asked about the cotaught learning experience, the number of students in the class, and the number of students who met or exceeded both adults' expectations. Finally, each partner was asked to reflect on the experience as a cotaught strategy. Our assumption was that both adults, as professional educators, possessed the knowledge and ability to assess the learning and make the judgment of success or failure. Since the entire class participated in the learning experience, simple percentages sufficed as authentic measurement for that single experience. Thus, the micro documentation measured each experience as a single mini case study that we then used during our analysis. If only one partner answered the questionnaire by the deadline, that case was eliminated from the research.

Table 1 shows the success rate by elementary, middle, and high school participants.

The librarians were encouraged to report more than one cotaught learning experience, which resulted in eight additional learning experiences on record. Across all schools, a total of 2,107 students were cotaught in this study. If these same students had been taught by a single adult, using the baseline of 50% success rate, we would have anticipated that 888 students would have met or exceeded that teacher's expectations. However, when we totaled up the number of students who met both adults' expectations in this study, the success rate was 84%, or 1,776 students. The phrase that two heads are

Level	# of schools	# of units cotaught	# within 70–100 % range
Elementary school	6	7	6
Middle school	8	10	9
High school	11	16	13
Total	25	33	28

Table 1. Success rates.

better than one is powerfully evident.

Of course, we realized that in the real world, coteaching will not always succeed. Reasons given for failure to reach the 70–100% success rate included lack of time to plan, interruptions, teachers’ personal problems, transfer of knowledge due to the difficulty of the concept being covered, scheduling, teaching method, problems accepting technology, and behavioral challenges.

CONCLUSIONS OF THE SECOND STUDY

This study of coteaching in 25 schools across the United States replicated the findings of the first study. Thus, the message remains exactly the same: If a classroom teacher teaches a unit of instruction alone in the classroom, one can foresee about half of the students to meet or exceed the teacher’s expectations. However, if the classroom teacher coteaches a unit of instruction alongside the teacher librarian, 70–100% of the students can be anticipated to meet or exceed both adults’ expectations. In research language, the practical significance of coteaching far surpasses what a single adult teaching a typical classroom can achieve. This result is not automatic just because there are two adults present, but by and large, the normal outcome is spectacular.

A simple example might help. If a classroom teacher taught 30 students alone in the classroom, then 15 would be expected to meet or exceed the objectives. If cotaught, an additional 6 or more students would meet those same expectations. One could postulate that the 15 original students would also have benefitted, since they would have had to meet higher expectations than if taught alone. One also wonders how much better the less successful students did even though they did not quite muster the higher expectations. The power of two heads instead of one is replicated in this study...” has become annoying redundant. Replace paragraph with: “This study demonstrates once again that 1 + 1 does equal 3.

WHAT THE PARTNERS SAY ABOUT COTEACHING

It is very instructive to any researcher in such mini case studies to read carefully the comments about the various learning experiences. We have summarized the most pithy of the comments here, eliminating duplicates but trying to capture a full range of the experiences. In the following three sections, we quote from elementary, middle, and high school classroom teachers and teacher librarians.

LEARNING EXPERIENCES IN THE ELEMENTARY SCHOOLS

Six elementary schools participated with seven reports of learning units. Six of the experiences reported 85–100% student success, while one report was at a low of 66%. Topics included language arts, science, and social studies.

In all cases, inquiry skills were merged into content learning. As a result, content learning increased:

- “Two teachers are always better in a classroom when young students are learning and researching. . . . They will be able to use these newly acquired research skills for the rest of their lives” (classroom teacher).
- “Within this unit, both teacher librarian and classroom teacher were creating scaffolds that would build on each other throughout the unit. Learning could not progress without each teacher doing their part and communicating about students’ needs, interests, and progress” (classroom teacher).
- “Students who see teachers working collaboratively have the opportunity to watch adults interacting to serve a common purpose. Students were able to work on their research in social studies class, as well as during library time, so they had additional time, resources, and instructors to aid them. Students can more easily recognize that learning takes place across multiple areas” (classroom teacher).
- “This was a good experience and introduced students to new skills they will continue to use in high school and college, rather than simply doing a Google search” (teacher librarian).

The use of technology had an impact on what was learned:

- “Students loved being exposed to new technology such as Google Earth” (teacher librarian).

The advantages of two adults were evident:

- “This was a fantastic experience! The teachers made the TL feel valued and appreciated!” (teacher librarian).
- “Learning becomes multifaceted because it’s not just limited to classroom teacher; lessons became a grade level focus and all kids could see other students’ experience mirrored in their own; it was easy for them to have conversations across their classrooms” (teacher librarian).

But along the way, challenges needed to be overcome:

- “Due to behavior issues, some classes did not have such deep understanding as others did” (teacher librarian).
- “The only challenge that I see is the need to plan together, and to make sure that the timing of the instruction in both areas dovetails. With flexibility on the part of both teachers, those challenges are usually fairly easy to overcome” (teacher librarian).

LEARNING EXPERIENCES IN THE MIDDLE SCHOOLS

Eight middle schools participated with 10 reports of learning units. Nine of the experiences reported 88–100% of student success, while one report was at a low of 50%. Topics included language arts, science, social studies, foreign language, and multidisciplinary.

“Two heads are always better than one. I think that this was a much better, more thorough, and more creative lesson because of my colleague’s input” (teacher librarian).

The quality of the learning experience is often the most recognized benefit of coteaching:

- “More support, especially for our English language learners. More success, diverse ways of thinking, designing, examples. I have the tools and she had the classroom time each day to have the students write. While in the library, we looked carefully at picture books for older readers as we designed our own. Three pairs of students took prizes in the citywide competition, including two who were brand new to English!” (teacher librarian).
- “It would be amazing to be able to offer these kinds of experiences more often, so students can take a more multidisciplinary perspective of the things they are learning. More adults in the room means that more time is spent actually working instead of waiting for help” (teacher librarian).
- “I can’t wait to continue working with this teacher next year and create our Hot Cheetos garden (middle schoolers’ favorite snack). Students are connecting their body systems (similarities and differences) to the body systems of the worms and gaining confidence in being courageous to handle them and take care of another species that they never had access to prior to this collaboration” (teacher librarian).

The advantages of two adults were evident:

- “Collaborating with the teacher librarian on this project was essential. She had the knowledge and materials to lead students through the book-making process and the time outside of regular class meetings to provide students with a space to complete their projects” (classroom teacher).
- “Both teachers have different expectations and students rise to meet them” (teacher librarian).
- “Two heads are always better than one. I think that this was a much better, more thorough, and more creative lesson because of my colleague’s input” (teacher librarian).
- “Collaborating with fellow teachers is better for students, better for teachers. During a positive collaboration, the teacher and librarian can become sounding boards for themselves, trying things out, and being a little freer and braver in their ideas than they might be if they were working on their own” (teacher librarian).
- “I think both adults can bring their expertise to the project. In this case, my collaborator brought a wealth of resources and gave the project an artistic element that I would have never considered” (classroom teacher).
- “It’s always best to collaborate; the students get more individualized attention and support” (classroom teacher).

But along the way, challenges needed to be overcome:

- “This type of collaboration needs to be known to principals, so they don’t schedule us as reading teachers, do mundane yard duties; if they only knew the bang for the buck!!!!” (teacher librarian).
- “This was an amazing experience. I am amazed at the diversity of ideas and originality of each scholar. Unfortunately the library is very far away physically, so this took up precious minutes. Also SBAC testing took place during the final weeks of our project, which we had not planned for. In general I feel like this was an amazing experience for everyone involved. I am especially excited about our publishing party tomorrow night!” (classroom teacher).

LEARNING EXPERIENCES IN THE HIGH SCHOOLS

Eleven high schools participated with 16 reports of learning units. Thirteen of the experiences reported 71–100% student success, while three reports were at a low of 50–68%. Topics included language arts, science, social studies, business, careers, health, foreign language, family studies, and multidisciplinary.

The advantages accrued by coteaching:

- “I love being able to collaborate with my teachers. It helps to get to know the students, the teachers, and their needs, so we can make our library program more effective” (teacher librarian).
- “I really appreciate the hard work the librarians do” (classroom teacher).
- “My students enjoy the library experience and will use the skills throughout the school year. The collaborative nature of planning the content gives

students options for growth and confidence with their studies” (classroom teacher).

- “More relevant materials are purchased due to increased communication and teacher input. Students revisit the library for further reading. Improved facilitation of learning for individuals and in small groups. Extension of curriculum resources beyond textbook including books, ebooks, Internet, and databases” (teacher librarian).
- “I think having two adults in the room, especially ones who get along as well as the teacher librarian and I do, makes students stay on task even more than just with one adult. We are aligned in our beliefs and teaching styles, but I could imagine a huge problem arising if two adults who had different ideas and styles, worked together as this would create confusion and a lack of stability for students. I plan to do this unit again this year” (classroom teacher).
- “The connections and relationships between students, teachers, and librarians are fundamentally important in the school environment. Without this support in my classes, students’ overall academic performance would be lacking. I am so thankful for the kindness, patience, and professionalism of each librarian I have had the pleasure to work with at this high school” (classroom teacher).
- “Working with the teacher librarians at our high school is the most amazing experience. The teacher librarians are full of a wealth of knowledge that they are so anxious to share with each and every student. I would be lost without them” (classroom teacher).

- “I can’t wait to incorporate this assignment again next year! This assignment was very planning heavy and some trial and error was required this first time around, but will be much smoother next year” (classroom teacher).
- “By collaborating, we each brought our strengths to the teaching/planning. I (library media) brought children’s literature and technology and read-aloud expertise, and the subject area teacher brought knowledge of the subject area (childhood/family development) and her required curriculum, along with personal knowledge about the students in the class she teaches. She also brought knowledge of grading criteria. Collaboration enriches the possible lesson experience for students and it keeps me fresh and full of ideas when I brainstorm ideas with collaborating teachers” (teacher librarian).
- “I could see how coteaching could require extra out-of-school planning time, but in this particular instance the librarian and I did most of our planning on a shared Google Doc and were flexible and willing to adapt practices to support our coteaching goals. We were also both well versed in coteaching and were able to step up and lead when needed and then step out of the way and let the other lead, too” (classroom teacher).

What happens to content exploration?

- “Collaboration can be a good model for students to learn about working together” (teacher librarian).
- “It is very valuable for students to see teachers using the library and all its resources; that we model what we teach. It was valuable for me to

go through the process as well and experience the same challenges and frustrations that they experienced when researching. Also, we each brought a unique perspective on the content itself. In addition, it is valuable for students to be open to being assessed by someone other than their teacher” (classroom teacher).

- “I, too, am guilty of relying solely on the internet to do all my research, and it was a good reminder of the valuable tools in the library and databases that actually help students streamline their research to credible, academic sources. I plan to continue to bring the students to the library on other projects, too” (classroom teacher).
- “The students see teacher and T-L bouncing ideas off each other, adding ideas that the other one might not have. They see/hear the thought processes one needs to go through to analyze and evaluate” (teacher librarian).
- “I was so impressed with the students’ outcomes” (classroom teacher).
- “The open-endedness of the project was at first a bit intimidating for many of the students. They were frustrated by not having a clear direction given to them by the teacher. However, once they realized that we were serious—we really did mean they could research and learn about anything they wanted to—they got really excited and ended up learning about very interesting and diverse topics, including student activism, rocket science (literally!), what it means to be a hero, environmental justice, virtual economies, how the brain learns, etc. It was AMAZING!!!” (classroom teacher).
- “The greatest challenge was to help

the students ‘unlearn’ some of the research practices they had been using in their other educational experiences—citations (in-text and bibliographic), resource evaluation, and digital/graphic media use in presentations” (teacher librarian).

What technologies helped?

- “I see an advantage for students and the teachers, because both are gaining new knowledge and information on the technology side, which is in the forefront of education” (classroom teacher).
- “When subject area teachers are not comfortable with tech, working with a teacher librarian can fill in the gaps or help answer questions the students have that they might not know or feel comfortable answering. I also took this project to another level this year, encouraging students to take and upload a picture that corresponds with their blog post” (teacher librarian).

WHY COTEACHING SOMETIMES ENCOUNTERS CHALLENGES

One of the premises of this research was that two heads are better than one. Would this pattern emerge across many micro documentations of joint learning experiences? In the first research, we uncovered three factors that might affect success:

- The original expectations were set too high.
- School environmental factor—such as fire drills, snow days, etc.—interrupted the experience
- Time, time, time.

In this replication, a few other problems came to light:

- The two adults do not agree on vari-

ous strategies and cause confusion among the students.

- A partner is absent, because he or she is called away for some reason.
- The technology is not robust enough to handle the loads being placed on it.
- The teacher and teacher librarian are not on the same page about assignment details.

Sometimes, there was no explanation.

However, we did notice that when this joint experience was a first-time trial, the partners resolved to get better the next time. Such is the value of a “Big Think” reflection after the experience is over (see Loertscher, Koechlin, & Zwaan, 2009). It would prove to be even more powerful if this reflection included student voices.

What is most reassuring is the number of times a high success rate is experienced when both partners are rolling up their sleeves and working their hearts out.

If there is a just one strategy that achieves the success rates of this research study, we have not encountered it. The entire focus of this methodology is on results, event after event after event.

A LOOK AT MEASUREMENT

This replication and micro documentation, as compared with macro, suggests that a variety of perspectives of any problem or issue has merit. Recalling the old story of the blind men and the elephant, a combination of “views” provides a much more reliable picture of what an elephant really is like rather than just examining the elephant’s trunk to make generalizations. Because education is as much art as science, Lo-

ertscher proposed in the book *We Boost Teaching and Learning* (2018), that a triangulation of assessments is beneficial to measure the impact of a library learning commons on teaching and learning. In that book, the proposed triangulation looks at organizational level measures, teaching level measures, and learner level measures to get an accurate view of impact. Assessment via standardized testing has only one dimension that looks at one skill possessed by individual learners. While business and industry leaders look for the ability of groups to cooperate and build collaborative intelligence through problem solving, critical thinking, and design thinking, the standardized tests give us limited information. How can we then fund education based on a single view?

The idea that funding a library and a professional to staff it will automatically make a significant difference on standardized tests is in question. Such a statistic may well be correct, but without other corroboration, we are still left hoping and guessing. By looking at a single learning experience and its impact on the actual students in that experience, we can clearly see the difference that two adults make in that one instance. Multiplied over mini case studies, we begin to see patterns that attract our attention. While one experience in an entire school that has been cotaught is very unlikely to show up on any standardized test, one could postulate that raising the frequency of such experiences across the school would start to show up on macro measures.

THE UMBRELLA CONCEPT OF THE LIBRARY LEARNING COMMONS

For any teacher who successfully coteaches with the professional teacher

librarian, this research demonstrates that the classroom and library learning commons begin to merge just as if the umbrella of the learning commons now extends into that one classroom. It is an enlarged learning space where multiple adults rather than a single person are teaching and learning together with a group of students. If two classroom teachers join in, followed by two more, and then more, the library learning commons umbrella keeps expanding until the entire school is a library learning commons—a physical and virtual learning community.

MUSINGS ABOUT COTEACHING

Admittedly, teacher librarians are just one of the specialists in any school that might make a similar difference in a learning experience. Suppose every specialist in the school cotaught one learning experience with a classroom teacher once a month. An administrator, instructional coach, art teacher, counselor, and PE teacher might add their expertise to units in social studies, science, and language arts. Brainstorming the possibilities can emerge very quickly. The counselor adds social and emotional learning to a design-thinking project in social studies. The art teacher merges the study of political cartoons in a study of the U.S. Civil War, both in the North and the South. The PE teacher adds movement as a technique of increasing attention, motivation, and persistence. The instructional coach participates rather than just observing and giving advice. The administrator has an opportunity to work with some problem students on a real design-thinking problem rather than just disciplining. It would be fascinating to study the

culture shift in a school where such cross-disciplinary efforts were put into the mix of everything else going on.

Such specialists, and perhaps even department heads, might hold a joint appointment on the learning commons staff alongside their grade level or specialty assignment. Just for fun, let's do the math. Suppose there was the teacher librarian and three other specialists in the school who cotaught once a month and did this with 30 students per class. That would add up to 400 cotaught units affecting 12,000 students in the school. Taught alone, 6,000 would be expected to meet or exceed expectations. Cotaught, 8,400–12,000 would meet or exceed both adults' expectations. It would be difficult to find another initiative in the school that would produce those kinds of results!

Furthermore, if the school has 500 students, each student might experience these high-level learning experiences 24 times during the school year. Now take a look with macro measurements using standardized test scores. What happens? But, you say, how much would this cost the school? Do the math. Suppose you hired one additional staff member to take up the slack when specialists were coteaching. Then compare that with the cost of any other major professional development intervention. Perhaps an investigation in your school might be worthwhile.

FINAL ADVICE TO STAKEHOLDERS

Macro data coming into schools from various standardized tests, while interesting and sometimes very useful, give us a one-dimensional view of student learning. Many test-wise students blow

off or refuse to take such tests, so the results are muddled. This research suggests that a different view might help in the judgment of learning outcomes. The micro documentation here recommends that the proof of the pudding is in the eating rather than in admiring the package or examining statistics about how many snack packs are present. Rather, for every stakeholder in education, we suggest that the outsider becomes an insider: a person who rolls up their sleeves and participates in an actual learning experience rather than just observing and offering advice.

The traditional notion that all we need in education is a single teacher teaching in the front of the room is not enough. Throwing money at “fixing” their teaching practices has been expensive, yet it has not produced the major gains in public education that this country expects. The idea that what was good enough for me when I was in school is good enough for my kid or that throwing money at education does nothing to improve it cannot solve any of the myriad problems connected to education. Again, we advise all stakeholders to get down in the trenches for a view of reality. Then we might all get a clearer picture of what is really happening and why. We just might encounter what one school substitute teacher recently told this researcher: “I asked a student why he was not doing any work and he replied: ‘Lady, I don’t do any work for my teacher. Why would I do anything for you?’”

This research also points to a very different role that the library has had in many schools. No longer can just a collection of books managed by either a professional or classified person in charge suffice. Both the traditional idea of the library and the librarian

must change if we expect young people to invent their ways out of the major problems we have created.

Finally, a bit of advice to specific stakeholder groups:

Administrators. Hire a librarian who has a track record of coteaching. Or find a successful coteacher in your building and help that person become a credentialed librarian. Then encourage faculty members to take advantage of this additional support. Finally, every month or so, adopt one cotaught learning experience, roll up your sleeves, and coteach alongside the teacher and librarian. It will open your eyes.

Librarians. Build a track record of your coteaching experiences and tuck them in a part of the library website/virtual learning commons. If the practice of full coteaching is not a part of your repertoire, build your expertise. There is much help out there. If you fail, pick up the pieces and try again.

Classroom teachers. Reaching out to partner with the librarian in your school is not admitting any kind of weakness or lack of expertise. Reread the various comments by teachers in this research, and you begin to understand that a full partnership with a second expert produces spectacular results.

School board members. At least once a month, visit a cotaught learning experience somewhere in the district. When you arrive, get a 2-minute briefing about the topic under consideration, the goals, and what is happening right now. Then roll up your sleeves and work with random individuals or groups. Ask the students questions, offer advice, help out. If there is time, confer with the coteachers about the experience. Finally, ask the two coteachers to send you a couple of sum-

mary paragraphs when the experience is over. Even better, attend any special event these students create as a culminating experience.

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