Using Heuristics to Guide Collaboration: A Classroom Teacher and University Faculty Members Teach Together

By: David Mattingly
Lawrence Central High School, MSD of Lawrence Township
Dr. Sharor Daley
Indiana University
Dr. Jenny Conner-Zachocki
Indiana University-Purdue University at Columbus

People tend to play in their comfort zone, so the best things are achieved in a state of surprise, actually.

-Brian Eno, Brian Eno: Oblique Music, 2016

Begin anywhere.

-John Cage, Backpack Literature, 2007

Introduction

University faculty and K-12 teachers collaborate in many ways and for many purposes. Some of these partnerships focus on university faculty providing K-12 teachers with professional development such as university faculty providing classroom teachers with content-specific knowledge (Smith, Kindall, Carter & Beachner, 2016; Juarez-Dappe, 2011), while other partnerships focus on increasing access to higher education for students (Domina & Ruzek, 2012). These and other programs identify collaboration as an important part of their programs’ successes. In this article we discuss the idea of university-K12 collaboration in a different light. Our intent was to experience collaboration through co-teaching. Villa, Thousand, and Nevin (2008) defined co-teaching as, “...two or more people sharing responsibility for teaching some or all of the students assigned to a classroom” (p. 5). Villa, et al. focus their work on co-teaching involving K-12 teachers teaching together. One small difference in our co-teaching than that described by Villa, et al. (2008) is that our co-teaching situation included a high school English teacher, Davide, and two university faculty members, Sharon and Jenny, instead of all co-teachers being employed by the same K-12 school system.
In our experience, collaboration is a superior way of delivering instruction. In our collaboration, we were practicing heuristics. The term heuristic comes from the Greek word heuriskin, which means “to discover.” In our work together, heuristic means, discovering conclusions obtained by exploration of possibilities rather than by following a set of strict rules. For our purposes, we define collaboration as using multiple voices (in this case three, one high school teacher and two university faculty members) as a complex heuristic device to guide in the discovery of higher levels of teaching and learning.

In the scope of collaboration, heuristics is flexible, intuitive, and improvisational, involves critical thinking, and welcomes uncertainty. Heuristics is neither “winging it” nor abandoning a learning objective or lesson plan. Employing a heuristic model allowed us to have a strategy for dealing with the inevitable reality of the unexpected event.

In this article, we tell the reader about the heuristic device upon which we based our collaboration, how that cycle looked in our work, what we gained from the collaboration, and what we learned from our collaboration that might be meaningful to other teachers, both in K-12 schools and in universities. In an effort to illuminate our experiences we also detail recommendations we have for others wishing to collaborate in similar ways.

Context of Our Collaboration

Our collaboration made possible a series of lessons focusing on teaching high school students in a remedial English class how to understand the audience and purpose of different texts, how to change and create texts to persuade specific audiences and purposes, that might not have happened had we not all worked together. We each brought strengths and resources to these lessons that we would not have had access to if any of us had tried to teach them on our own. Below, we describe an overview of the project, the heuristics cycle we followed, and how our collaboration worked during its implementation.

Audience and Purpose Unit of Study

Like many teaching experiments this unit of study was a work in progress throughout the semester. Our main goal was to engage the ninth grade students in different types of response activities, our interim goals were adjusted as we worked according to our reflection on each lesson. As our teaching moved forward, we began to identify some student outcomes:

- Students will be able to identify audience and purpose of various texts.
- Students will be able to create a multi-modal text for a specific audience and purpose.
- Students will be able to describe ways in which modalities such as color, font, images and text impact the consumer’s understanding of purpose and audience.

Heuristic Cycle

As stated above, we approached collaboration as a complex heuristic device for teaching. We chose the Deming wheel (Moen & Norman, 2010) as our model. The Deming wheel is intended to be used when implementing change (Moen & Norman). The Deming wheel begins with planning which includes stating a premise, making predictions, and planning. When following this heuristic device, a premise is created by stating the objective of the cycle, then participants in the cycle make predictions or speculate about the outcomes, and then develop a plan to carry out the cycle. Following the planning stage, the cycle then leads users to carry out the “test” by
implementing the plan while also documenting any problems and unexpected observations, as well as beginning to analyze the data collected. The study stage of the cycle involves completing the analysis of the data, comparing data to the predictions, and summarizing what was learned through both expected and unexpected outcomes. As a cycle, this model does not end, however, before beginning to plan again, the model moves to an action stage. In this stage, the participants decide what changes should be made and what will be the next cycle.

**Our Work Using the Deming Wheel**

![Deming Wheel Diagram]

**Planning Stage**

Our planning stage began by discussing which of David’s classes we would collaborate in. In considering David’s classes, we took into account the context of the high school which is a large, urban high school comprised of grades 9-12 and includes a career center. There are more than 2,300 students enrolled in grades 9-12. Just over 50% of the students are identified as Black, 26% of the students are identified as White, while nearly 15% of the students are identified as Hispanic. The remainder of the student body is identified as either Asian or Multiracial. Nearly 62% of the students qualify for Free or Reduced priced meals. In 2014-2015, 65% of the students passed the End-of-Course Assessments (ECAs) for English 10 and Algebra I.

**“Daily 9” students.** From our first meeting, David insisted we focus our work on his most struggling students. Despite the school’s alternate day, block scheduling, David worked with these students every day. These freshman were identified as being significantly behind their peers in reading as measured by the school’s universal screening assessment tool. In our post-interviews, it seemed the students were aware of how others viewed them, but disagreed with the characterizations of themselves as struggling learners. One student stated, “People say we are dumb, but we’re not. Because I know all the kids in there and we learn in a different way.” Another student echoed these same thoughts. He stated, “[This class is for students] ...who have a little bit of trouble with reading comprehension. They don’t focus. It’s not that they’re not smart or anything. It’s just that they have struggles. There’s lots of people who are smart. They have so many talents in there. I have lots of talents.” Author 1 shared these same thoughts about his “Daily 9” students. David passionately defended these students, stating he thought they were often shuffled aside by others in the school.

David’s insistence on having us collaborate in his “Daily 9” class presented challenges. One challenge was the poor attendance. During the ten class sessions we collaborated in, there was never a day when all the enrolled students were present. Additionally, students were often absent several weeks at a time, sometimes for disciplinary reasons. Also, these students were often disengaged from instruction for many reasons, one being that many of them had experienced little academic success over the course of their school career. One other hindrance was the fact that this class was scheduled at the end of the school day, resulting in several students sleeping through part or all of the class.
In following the Deming wheel, we created a premise. Our premise was that in David’s class these students rarely responded positively to instruction that seemed typical to the type of instruction they had experienced in previous years. So, we predicted they might respond positively to a co-teaching situation that would allow the three of us to support them differently and engage them in lessons we created collaboratively and co-taught. In particular, we predicted we could mitigate students’ struggles with text by implementing visual components into our instruction including art, advertisements, and other posters.

With this premise and prediction, we began to create lessons that would allow the students to learn to distinguish an author’s intended audience and purpose in texts, how they could make changes to the text and message in order to achieve those purposes for other audiences, and to create their own message with text and visual components for a specific, self-selected audience and purpose.

Do, Study, Act

As with any cycle, we moved through the Deming wheel multiple times during our collaboration. With our plan created, we designed and co-taught several lessons across approximately ten class sessions, studied the results of our collaboration and then acted on what we learned. While the focus of this article is not to provide a detailed picture of the unit of study, we will include highlights of several lessons/class sessions in order to illuminate how we used the Deming wheel to guide our collaboration.

Two sets of lessons, in particular, highlight our work to collaborate and to move students closer to understanding how to use text and visuals for specific audiences for specific purposes. One lesson involved students working with magazine advertisements. For this lesson, students were guided to identify the audience for the advertisement and infer the creators’ purposes for the advertisements. Additionally, small groups of students worked with David, Sharon, and Jenny to discuss how the advertisements could be changed if the intended audience was changed. The students indicated they understood the focus for this particular lesson by explaining the purpose of the magazine advertisement. One student commented on the use of magazine advertisements to help students understand the importance of audience. The student stated, “We did this magazine thing where we had to say who it [the advertisement] would really be for.” This same student indicated that learning about audience impacted his own writing stating, “After I learned about audience I got to spread my writing farther. I never really thought about audience [when I wrote] until then.”

In a similar lesson, the students examined animal shelter flyers created by fourth graders and were first asked to identify the intended audience and purpose for the flyers and then to work in pairs to make changes to the flyers that would more effectively address the purpose. Pairs of students sketched new versions of the flyers, and based on other lessons, took font, graphics, color, and photographs into consideration based on the purpose of persuading a person to make a donation to the animal shelter.

Following those two lessons the students were then asked to consider a piece of art and a poem in terms of the creators’ intended audience and purpose. We incorporated “The Wounded Deer” (1946) by Farida Kahlo and “Golf Links” (1916) by Sarah Norcliffe Cleghorn into these lessons. Our lesson using “The Wounded Deer” focused on how to determine the audience and purpose for a piece of art both when you were able to incorporate background knowledge about art and the artist and when you
did not have much background knowledge upon which you could draw. First, Sharon used a think aloud technique to demonstrate to the students how a novice could still draw meaning from and infer the intended audience for the piece of art. Sharon had limited background knowledge about Kahlo to draw on when attempting to consider the artist’s purpose for creating a painting of a deer, bearing the artist’s own face, struck by many arrows and standing in a forest clearing. While the attempt was unsophisticated, she was able to make sense of some of the artist’s messages to the audience.

Following that attempt, David, who is knowledgeable about Kahlo’s life story and “The Wounded Deer” (1946) in particular, used the same think aloud technique to share his own interpretation of the painting. David was also able to draw on his extensive knowledge of and experience with art and art history. Students were then asked to respond to both Sharon and David’s thoughts while including information about how each person’s experiences and knowledge aided their explanation of the painting. Following this discussion, students were invited to conduct their own think alouds about the painting, with the support of David and Sharon’s modeled think alouds. Several students agreed to attempt to interpret the painting and seemed pleased with their own attempts.

In a subsequent lesson, the students were presented with “Golf Links” (Cleghorn, 1916). This four line poem was selected because of the opportunity it provided for readers to infer about the author’s purpose in writing it and incorporate background knowledge with an accessible text for these reluctant and/or struggling readers. After working in small groups to interpret the author’s purpose and audience, David then conducted another think aloud, similar to the lesson involving “The Wounded Deer” (Kahlo, 1946). The intent here, again, was to model for the students how they could make attempts to identify the audience and purpose with or without background knowledge but that the interpretations were richer with background knowledge. The underlying purpose of this lesson led up to the culminating project of this unit.

In the culminating project, the students chose a topic, an audience, and a purpose for a flyer they would create to persuade their chosen audience to engage in the behavior or thought processes the flyer would support. Students were guided through a planning process by David, Sharon, and Jenny as they created graphic organizers to identify their topic, audience, and purpose. Once students had conferred with one of the three teachers, they then used PowerPoint to create a flyer that demonstrated their understanding of how to effectively use font, graphics, color, and other visual elements to communicate their message. While not the focus of this article, we have included one student’s flyer focusing on encouraging girls to read (Figure 1) and another student’s flyer which attempted to persuade the reader to support gay marriage (Figure 2) as examples of what the students created.

![Figure 1: Girls should read: Student poster encouraging girls to read](image-url)
Recommendations and Roadblocks

What could three experienced teachers learn together about collaborating and co-teaching despite the fact that all three of us learned to teach and spent the greatest amount of time in autonomous classroom teaching situations? We were eager to find out.

Looking back, one thing we learned is we have recommendations for others wishing to collaborate in the way we did, with a K-12 teacher and two university faculty, with the “tough” students, and using a heuristic device as our guide.

Choose Your Partners Wisely

The first thing we recommend you understand is that a bad partnership in the classroom can cause more problems and discomfort than it is worth. Do not let anyone talk you into collaborating with someone you are not sure about or uncomfortable with. Our own personalities, teaching experiences, and expertise helped us create a successful co-teaching situation that allowed us to collaborate effectively. While we each identify ourselves as teachers, each of our careers look different than the others’ careers. We found the differences in our careers to be a strength in our collaboration.

David. I have been a high school English teacher for over 30 years. I have taught a variety of courses in several public school systems and have a two year stint as a teacher in a prison under my belt as well. I am an avid reader, a writer, and a visual artist. Learning and doing the process of creating has helped me with teaching. Art and art history are my passions and I love integrating them into my classes whenever the opportunity presents itself.

Sharon. After teaching in public elementary schools for nearly 20 years, I now teach pre-service teachers. I still read aloud every chance I get, but now my pre-service teachers and I talk about how they might use these books with students, in addition to predicting, making connections, asking questions, etc. The biggest change in my teaching responsibilities is the variety of teaching I get to do. As part of my work, I have the privilege of working in other’s classrooms. While I enjoy most aspects of my job, this is one of the parts I enjoy the most. One such opportunity came about as part of the collaboration described here.

Jenny. Like Sharon and David, I am a teacher. For the past twenty-six years I have been paid to “teach”. Twenty-five of those years have been in the college classroom (primarily working with pre-service teachers), with just one year in a high school classroom. I was much more comfortable with what it meant to be a teacher in my earlier years in the role than I am now; I’m quite certain that’s because I didn’t used to think about it too much. Over time and with experience working with students who have undoubtedly taught me
much more than I have taught them, I have come to understand that being a good teacher means, first and foremost, being a good learner. Having the opportunity to collaborate with two master teachers whose breadth and depth of experiences in K-12 classrooms far exceed my own put me in the position to learn from two of the very best.

**A Work in Progress**

We contend that involving collaboration in teaching allows teachers to be more effective and allows our students to have learning experiences that are different than they have experienced before. We recommend you consider your collaborative relationships and projects as works in progress and avoid excessive rigidity or predetermined outcomes, instead let the collaboration get messy. The creative process is often messy; it seldom ever works out the way it is planned.

**David’s perspective.** Having collaborated over the years, I am convinced that having teachers plan and teach together is a superior way of helping students learn. That said, we know what the barriers are in terms of allowing teachers to work with this format. Institutionalized resistance to the format of co-teaching (collaborating) is real and inhibiting.

However, I would like to make a case for collaboration, rather than dwell on the logistical and often short-sighted reasons why it cannot happen.

Let’s first accept that the act of collaborating is fundamentally better than the traditional way of teaching. Let’s accept that empowering teachers to collaborate with like-minded colleagues is a form of creative and psychological liberation. With that belief in mind, here are the benefits of collaboration for me, as a high school English teacher. Collaboration is more intellectually engaging and therefore, more fun.

**Professional development opportunities** most often center on using technology and trying to increase student engagement. Perhaps that should be the case. However, in my teaching experience professional development has seldom centered on teacher engagement. It is taken for granted that teachers will gladly carry any load they are given and do so enthusiastically. I disagree, and I can attest to having thousands of conversations with my colleagues over the years that indicate otherwise. Therefore, at least some of so-called professional development should center on things that excite teachers. For me, collaborating with a like-minded colleague fits that bill. It would be easy to take this idea and scoff at it, but that is a huge mistake. Research article after research article indicates that teacher burn-out is real and that teachers feel overwhelmed and buried under the weight of meaningless administrative tasks (Day, Sammons, Stobart, Kington, & Gu, 2007; Gu & Day, 2007; Montgomery & Rupp, 2005; Valli et al., 2007). Teaching and learning, before it is anything else, should at least be fun.

Additionally, collaborating with other teachers affords more possibilities for delivering instruction. Collaboration affords teachers to do things that cannot be done with only one teacher in the room. For example, while one teacher is doing a mini-lesson, the other could have a small group of readers in a circle in another part of the room doing a close reading. Another example is that when students are doing independent writing, both teachers can be active consultants in the room. I love to brainstorm with students when they are writing and having two voices doing this task is way more effective, especially if the class has 30 or more students.

**Sharon and Jenny’s perspectives.** As university faculty, we try hard to choose research activities and service opportunities that allow us to be in classrooms as much as possible. This
allows us to work as participatory researchers. The opportunity to work with David and his ninth-grade students filled many needs for us as teachers, also. The opportunity to collaborate with David allowed us to get to know his students, see them work hard to understand the ideas we were discussing and to exhibit that understanding in the projects they created.

We saw this as an opportunity to learn from the best – from an incredibly experienced teacher and from a classroom full of ninth-grade students, each of whom would bring with him or her a unique set of interests, passions, experiences, and exceptionalities. Talking with our pre-service students about the “realities” of K-12 public schools while sitting in a college classroom can feel disingenuous. We were eager to work with and learn from educators and students who understood the realities of schools and classrooms in ways that someone who is never seen in a K-12 school without a visitor’s pass stuck to her shirt could truly understand.

We were also eager to co-plan and co-teach with an educator we highly respected. Teacher collaboration, however, was not something any of the three of us could claim as an area of expertise. Even though we have nearly 80 years of teaching experience amongst us, we have relatively little experience co-planning and co-teaching. This is not surprising given that teacher autonomy seems to be the norm and not the exception (Inger, 1993) in the classroom. Strieker, Gillis, and Zong (2013) contend that it is not just that teachers don’t collaborate, but that they really are not equipped to do so, asserting that collaboration is “...one of the skills that classroom teachers often lack” (p. 160).

**Recognize the Power of the Group**

*Our students’ perspectives.* While the main focus of this work was to engage these students in lessons that would allow them to show the talents we all knew they had, we also wanted to share David’s teaching story with others. Therefore, Sharon and Jenny sought and received IRB permission from our institutions to collect data during the process. This included interviews with some of the students following the completion of the culminating project.

One area of interest for us in the interviews was to find out the students’ perspective of our collaborative teaching. We were interested to learn whether the students noticed a difference in their previous experiences in classes without collaborative teaching. One student stated, “We were more involved [when we had three teachers collaborating]... we had more to say.” This statement was interesting to us in relation to how we interacted with the students differently than if we had been in a classroom alone. At times, we were able to allow more involvement because while one of us was leading the whole group discussion or activity, the other two were able to observe students’ reactions and hear side comments that the “lead” teacher might not have heard. This allowed us to bring these comments and reactions to the whole group’s attention, therefore allowing more students to participate in the conversations.

A second student had similar impressions of the change that came with the collaboration between us. The student stated, “... more students participated including me...I started getting more involved. He [David] would want more different people to answer the questions. And not the same everyday people. He just suddenly called on different people.” This student’s comments support David’s contention that collaboration helps the teachers to differentiate instruction. Often times while one of us was leading the discussion or activity with the whole group another one of us would support other students who wanted to join the
support other students who wanted to join the conversation by encouraging them to share their thinking when they seemed tentative about doing so. After sharing their thinking with one of us, they seemed more willing to share with the whole group. It seemed to us, through observation and in the post-interviews, that students were engaging in whole group and small group activities and discussions in ways they had not before. This was evident when one student stated, "He [Mr. Mattingly] pushed us more. He pushed everyone in a way. You had to think more. Think outside the box."

Sharon and Jenny’s Perspective. In our opinion teachers spend far too little time modeling authentic complex problem-solving for their students. Not so during this collaboration, even though it was not entirely intentional. While co-teaching the three of us would often find ourselves clarifying plans with one another, suggesting new plans (in response to how an activity just went, for example), or even questioning why we had decided to do something the way we had. And yes, all this happened in front of the students. At first I remember thinking, "Oh my gosh. We’re supposed to look like we’ve got everything together, yet here we are making plans, changing plans, and pointing out problems with our plans right in front of the students". But while this struck us as problematic at first, we soon realized that these were really powerful teaching moments for the students. We noticed that many of them were intrigued by these conversations, which we often had while we stood on different sides of the classroom and thus were not private at all. (“Dr. Daley, should we have them in small groups during this activity? Mr. Mattingly, do you think it would be best to do this part as a large group?”) It occurred to us that modeling for students (albeit, unintentionally) the types of conversations and decision making that go on during collaborative efforts was a powerful outcome of co-teaching. When we teach alone we have these kinds of conversations in our heads ("That didn’t go well. I need to switch gears.") but since students are not privy to our thoughts, as far as our students know, what happens next is what we had planned all along. In our co-teaching situation these same reflective conversations had to occur in order for responsive teaching to happen, but when there is more than one teacher they have to happen out loud. Engaging in this kind of authentic, collaborative problem-solving in front of students provides them with a model for skills like turn-taking, good listening, how to disagree respectively, and how to come to a consensus. And, we learned, this is imperative for effective collaboration.

In some ways we communicated better on the spot (i.e., in the classroom while we were teaching) than we did during our planning sessions. As a trio we were very careful about not stepping on one another’s toes during our private planning meetings. We had a great deal of respect for one another, which was wonderful. However, from my perspective, the downside was that I don’t think we spent enough time pushing one another, asking questions, seeking clarification, disagreeing, etc. We wanted so much to respect and honor the ideas and suggestions that were being brought to the table that we did not always (or often enough) clarify larger goals, directions, plans, tactics, etc. However, in the heat of the moment when our primary goal was to meet the needs of each of the students in the room, we were a bit less cautious with one another. While always maintaining our professionalism, it was in the classroom (in front of the students) where we felt like we questioned and challenged one another in the ways that would have also benefited our planning meetings.
Conclusion
Here we have described our own experiences and made the case that collaboration is a superior way of delivering effective instruction; in the end, you will have to give it a try to see if it works for you. We suggest you seek support from your administration. This might be a department chairperson, grade level team leader, or principal. Letting others know you are working with colleagues outside the school community opens opportunities for others to support your efforts. We recommend that you have a plan before you begin the actual teaching. While our work did not move along a linear path, we at least knew where we were headed before we started working with students together. We believe that our agreement to be honest with each other from the beginning allowed us to truly collaborate, not simply teach at the same time with the same students. This honesty allowed us to question each other, share resources, and take risks. We also recommend that the classroom teacher should choose to focus on your toughest students. That is where you need the most support and encouragement, anyway.

References


