ENVISIONING EFFECTIVE DIGITAL INSTRUCTION

MOVING AWAY FROM JUST-IN-TIME INFORMATION LITERACY INSTRUCTION TO A MORE MEANINGFUL APPROACH

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One vivid memory I have of the pandemic centers on the weekly (and sometimes twice weekly) department meetings I would have with my middle school and lower school librarians to discuss our age 3 through grade-12 approach to managing instruction during spring 2020. Stress, worry, laughter, and exasperation all made the rounds while we discussed logistics and brainstormed ideas, but these sessions offered a chance to explore what we actually teach. Our rushed and infrequent department meetings during a regular school year centered on immediate concerns and would rarely include pedagogical discussions, much to our mutual frustration.

During the pandemic, we were looking closely at our scope and sequence and figuring out what we could teach in Zoomlandia while five-year-olds left their devices to bring their cat into the picture or disinterested teens insisted on the forehead-only level of engagement. As my online spring 2020 research roster had only a single 11th-grade class left that needed to do their U.S. History project, my yoga pants–clad self thought, "This is totally doable." I was wrong.

At first I thought the dozens of student requests for one-on-one meetings was a sign of pandemic panic, but when I compared my Google calendar data, I actually had roughly the same number of meetings as previous years, averaging three per student. The endless stream of Zoom meetings was not only exhausting but also helped me realize the constant bombardment I would experience at the desk during a regular school year. I had taught these wonderful students for five years and, while they were using new databases like JSTOR, the basics were not so dissimilar that everything should have inspired anxiety.

So why was every year—regardless of a pandemic—so fraught with research angst? And why was I just noticing this phenomenon?

Questioning Just-in-Time Information Literacy Instruction

My fellow school librarians and I dug deep and acknowledged that our information literacy instruction followed a just-in-time philosophy. Beginning in sixth grade we switch from a weekly library class (which is our junior Kindergarten to grade-5 model) to collaborative instruction as the vehicle to continue fulfilling our Library Scope and Sequence (Lewis, Spurlock, and Irving 2018). This progression largely relies on humanities projects where we come in for one or two classes and focus our instruction on information-seeking, awareness of plagiarism, and citation practice. Essentially, limited just-in-time information literacy instruction is like teaching a kid how to play soccer for seven days out of each year and expecting them to be a great player when they graduate.

My library department also acknowledged that our culture was one of praising students for what they were doing right and offering little feedback other than verbal redirection of what they did wrong. Students had little actual data on their strengths and weaknesses in information literacy skills, resulting in either an inflated sense of their ability or the need for constant reassurance they weren't making mistakes. My husband witnessed my self-flagellating rants deriding my previous delusions during our pandemic walks around the neighborhood. While after twenty-seven years of marriage he's mastered his impulse to solve my problems and instead empathized like a champion, he couldn't help but ask me what I was going to do about my dissatisfaction.

I knew I needed to do something but—complete vulnerability here—by August 2020 our school was opening for in-person instruction, renting trailers for classes, using miles of gaffer's tape to mark the floors so desks were six feet apart, and studying ever-evolving CDC guidelines like we were Anthony Fauci's interns. The school library had its comfortable furniture removed and 99 desks and chairs put in for study hall. Work related to my role as school librarian didn't take place until usually 3:30 p.m. when students went home and I could create instructional videos for the classes I couldn't go to because I had study hall duty when they met.

Checking What Students Think They Can Do versus What They Can Do

There wasn't a lot of mental space left to devote to solving a gigantic problem I had wrestled with my entire career. Face-planting on my bed at 7:30 at night and being asleep within an hour let me know my reserves were running low, but I didn't want to let go of this problem as my focus. Many research projects were cancelled in 2020–21, but one teacher felt her students needed the practice. Her two junior U.S. History sections comprised thirty students, and we partnered to do our typical progression: teaching the research model, having students do reflection videos during topic selection, creating an annotated bibliography, drafting a detailed outline, and having a draft and final version of a seven- to ten-page paper.

During the instruction for this project, I found myself paying more attention to my instruction, to student emotions, to the kinds of feedback I gave (mostly spoken

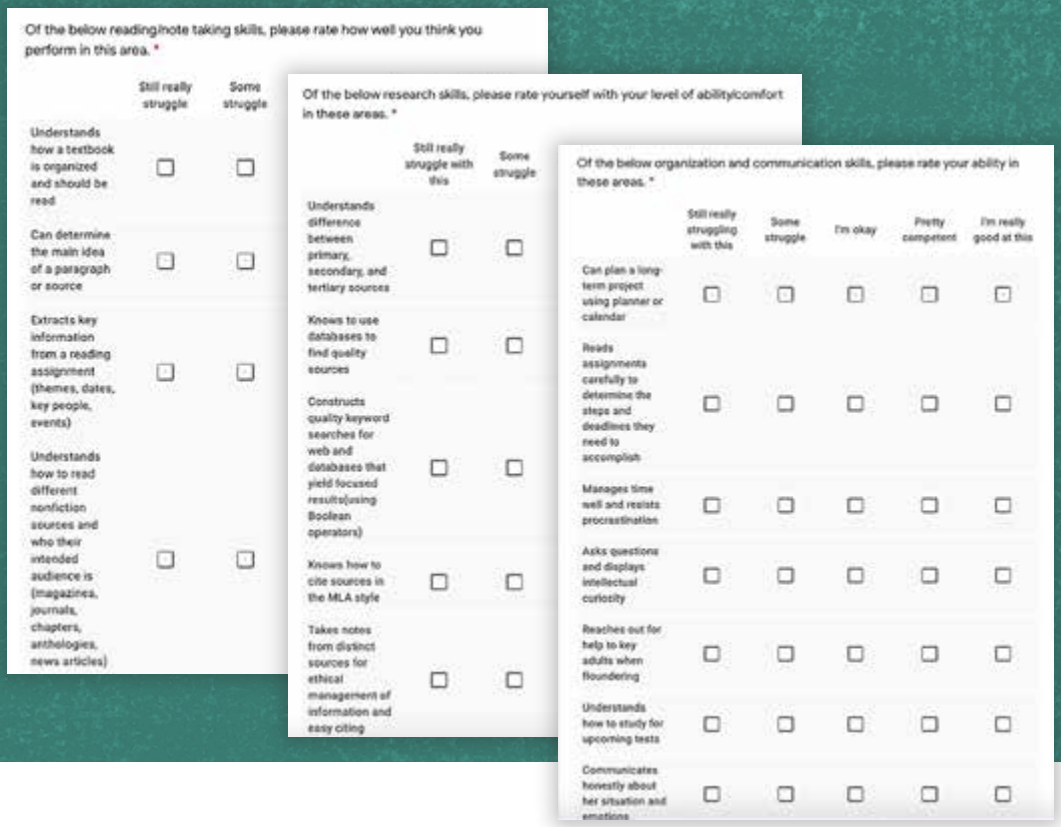

Figure 1. Notetaking, research skills, executive function self-assessment for students.

but also written on the bibliographies I graded for the annotated bibliography, outline, draft, and final paper). Roughly the same number of individual student meetings took place, and I praised and encouraged students who were hesitant about their research skills or who previously had experienced bad outcomes with research projects and approached this one with trepidation.

Despite recognizing the feedback problem, I did what I always do when confronted with panicky students. Rather than asking them what their keyword searches were, I brainstormed with them. I demonstrated how to use database filters to find exactly what they needed and printed the articles that they thought looked on point for their topic. Yes, it was similar to my instruction, but when presented with a student with limited time and unlimited research anxiety, my response was to demonstrate and solve their problem rather than have them practice until they were confident and doing the skill well.

At the end of the project, I conducted a survey to see if my instinct was accurate that the lack of data—in addition to the less-effective one-shot instruction model—affected students' understanding of their ability. Students were given the chance to take the survey after they handed in their final paper. I asked them to rate themselves on three sets of skills: reading/notetaking, research, and executive function (which I titled "Organization/Communication Skills") (Lewis 2021). Each skill in the category was listed in a matrix, and students could rate themselves on a scale of "Still really struggle," "Some struggle," "I'm okay," "Pretty competent," or "I'm really good at this." An additional open question allowed them to reflect on how we could help new upperschool students or those coming from our middle school to be better prepared. Eighty-six percent of students (25) completed the survey.

The results revealed students lacked a clear sense of their ability. Because I collected e-mail addresses, the teacher and I were able to look at each individual answer and rate them on the skills listed from our perspective. We thought about 23 percent of the students were accurately assessing their ability, but 77 percent were not, with around 30 percent overestimating their skill set. The skill that had the most accurate answer set was "Manages time well and resists procrastination," in which a third of students rated themselves in the struggling categories. "Understanding the difference between primary, secondary, and tertiary sources" received some honest feedback with more than 80 percent picking the neutral "I'm okay," while the teacher and I would have collectively rated the class slightly lower at "Some struggle."

BOYER OFFERS AN ERUDITE DISCUSSION OF THE BENEFIT OF ADDING BADGING TO HER MODULES. STUDENTS ARE INCENTIVIZED TO WORK THROUGH MODULES BY THE REWARD ASSOCIATED WITH EARNING A BADGE, AND THE SCHOOL LIBRARIAN AND TEACHERS ARE ABLE TO SEE STUDENT MASTERY OF CONCEPTS BEFORE ASSIGNING RESEARCH PROJECTS THAT REQUIRE THOSE SKILLS.

In contrast, two of the biggest areas of concern centered on student use and understanding of sources. "Understands how to read different nonfiction sources and who their intended audience is" had 88 percent of students responding they were "Pretty competent" or "I'm really good at this," when we felt that perhaps less than five of the thirty students understood our instruction on the different ways to approach sources. The second area of concern was "Can determine the main idea of a paragraph or source." My vague wording probably skewed these results since 73 percent indicated they were "Pretty competent" or "I'm really good at this"; while that may be true for a paragraph, the students struggled to determine the main message or thesis of primary source articles and secondary journal articles.

I had expected that the survey would reveal a minor inflation of ability, but I was startled by the degree of disconnect between student ability and their perception of themselves. While I'm sure our school culture of warmth and praise amplifies this misperception, the disconnect occurs because students do not understand what their actual knowledge is until they receive clear feedback, and that means offering up data amidst the encouragement.

The Need for an Asynchronous Digital Platform for Digital Literacy Instruction

Collecting real data that is easily accessed by librarians, teachers, and students to prove what they have learned is complicated. Back in the early 2000s, I got excited by San Jose State University's beta development of the iSkills test for the Educational Testing Service (Matoush n.d.). This product was used as a formative assessment, largely geared toward high school seniors or college students applying to engineering schools. The iSkills exam tested searching skills, data literacy, product creation, and other skills that fall under our information literacy umbrella via a contained proxy environment, which asked students to show their skills with situational questions rather than answer multiple-choice questions (Martin 2011).

My original idea was to use it as a pre- and post-test for my high school students to determine what they learned during their four years, but the testing required a large amount of time, PC computers (I was at a Mac school), and it was a test of ability rather than a learning platform. It was also prohibitively expensive.

Kent State's TRAILS assessments provided a better match to school librarian needs, but it was a test of skills rather than a self-paced teaching tool for students ("History of TRAILS" n.d.). Major pros were that it was free, didn't collect student data so privacy was protected, and had third-, sixth-, ninth-, and twelfth-grade tests available. Most importantly, its questions aligned to the AASL standards of the time, *Information Power*. There were teacher-level reports as well as student-level reports, but the feedback was more by category than by question, which was

Figure 2. Curriculum overview by badging areas.

great for school librarians looking to figure out what was working and what they needed to improve in instruction, but unhelpful for students wanting to know what they got wrong. Project SAILS was Kent State's college-level formative assessment that paralleled TRAILS and utilized the ACRL standards for its focus ("Project SAILS" n.d.).

With all the conversations about flipped classrooms and self-paced learning before the pandemic, why is information literacy instruction taking so long to adopt some of these methods? My immediate guess is that it's too time consuming for all of us to do individually, and just the idea of keeping up with our videos depicting ever-changing platform interfaces consumes most of our time. I also believe that school librarians are not on the educational technology business radar compared to math, English, and science teachers who are frequently targeted by marketers of textbooks.

Students need a self-paced platform they can use to learn basic concepts about information literacy ideas, particularly one that gives them feedback so they know what they haven't yet mastered (letting them practice again and again until they do). School librarians need a platform where student acquisition of foundational information literacy skills has data attached so we know where to focus our in-person instruction. If we could assign modules for homework, our in-person instruction would become far more meaningful. School librarians always complain that our time is limited with students, so why not maximize our efforts to emphasize more-complex conversations around information rather than spend time on the basics that can be actually learned better by students on their own?

If you haven't watched Brenda Boyer's archived AASL presentation "Research Ready? Prove It! Using Digital Badges to Measure Information Fluency," do so now, I'll wait. Boyer shares how she used her school's LMS interface to create self-paced information literacy modules with videos and questions that students could watch and then test themselves (Boyer 2017). One of my favorite takeaways was when she spoke about how if you don't like teaching a topic and kids don't like learning it, then it's a topic designed for online learning (MLA citation, anyone?). Boyer offers an erudite discussion of the benefit of adding badging to her modules. Students are incentivized to work through modules by the reward associated with earning a badge, and the school librarian and teachers are able to see student mastery of concepts before assigning research projects that require those skills.

What School Librarians Really Want in Online Information Literacy Instruction

In one of my pandemic support sessions with my fellow school librarians where we just let one another have a safe space, I brought up my wrestling with this issue. We all agreed on our frustrations with the shallowness of just-in-time instruction and brainstormed what we wanted in a self-paced platform:

- engaging video for foundational concepts;
- diverse representation in examples and the people depicted;
- embeddability of videos and question modules in LMS systems and LibGuides;
- accompanying lesson plans that align all modules to AASL/ACRL/ISTE standards and have suggestions for complimentary in-person instruction;
- digital badging/gamification to incentivize student engagement from a badging company that offers the ability for badges to travel with students so college librarians and employers can see students' information literacy skills (Boyer 2017);
- raw video files so individual school librarians can swap out pictures of their databases or library catalogs in relevant lessons;
- accessibility for introductory level lessons, which should work for middle-school ages but not be so young in focus as to be insulting or babyish for ninth-graders needing an introduction; and
- professional development modules for teachers with the same type of self-paced instruction that school librarians and administrators can access (think of the impact of a teacher copyright course your faculty would have to take…and pass).

I don't think there is any company that offers all these features for an educator to build a course, but some of them are attainable with some current platforms. On one of our pandemic walks around our neighborhood, I was again talking about this issue with my long-suffering husband, when he reminded me that the company he works for, which was founded to offer affordable, quality SAT/ACT prep in an online platform, was developing a new interface that would allow them to expand their offerings to other self-paced courses. He suggested I speak with one of his bosses to see if I could potentially use their platform.

The feedback I received was gracious and enthusiastic. I made a case for this type of digital product as meeting the needs of an untapped market. Having brainstormed with my department the types of classes we teach from grades 6 through 12, including the ones we wish we taught, I came up with the rough topics and subtopics detailed in figure 2. Most school librarians will recognize familiar topics such as Finding Quality Resources, Working with Sources, and Ethically Using Information, but many would also

Figure 3. Finding quality resources.

TEACHERS ARE HUNGRY FOR COLLABORATIVE INSTRUCTION IN THIS AREA, AND SEEING WHICH LESSONS A STUDENT SUCCESSFULLY COMPLETED ALLOWS FOR REASONABLE EXPECTATIONS OF THEIR KNOWLEDGE BASE.

agree that basic information on how learning takes place and best practices in creating products like papers and presentations also end up falling into our formal and informal work with students. The last few years have also seen a dramatic rise in media literacy instruction and the techniques taught cross over to other evaluative techniques so this inclusion felt important.

Taking each subtopic into account, I wanted to demonstrate how these units could be chunked into lessons that were aimed at various levels: introductory (grades 6–9), intermediate (grades 10–11), and advanced (grades 12–14) audiences (see figure 3). Talking about how we teach these topics, my fellow school librarians and I gained insight from discussing what we wish we taught because it highlighted the gaps we saw in student understanding. What could be more perfect for online asynchronous discussion than those core topics that no one thinks they have time to teach (but that every teacher complains about kids not knowing)?

Possible Implications and Next Steps

In looking at all the possible courses to begin creating, Ethically Using Information was the logical first course to create, because understanding plagiarism and citation are complex issues that affect all our grades, particularly 6 through 12. Teachers are hungry for collaborative instruction in this area, and seeing which lessons a student successfully completed allows for reasonable expectations of their knowledge base (and student accountability if they misstep). With a normal "avoiding plagiarism/citation" one-shot lesson, I worry I'm moving too quickly for some students; a self-paced lesson with a video a student can watch as much as they need offers a degree of differentiation. In the past, plagiarism cases appearing before our honor council also struggled with understanding a student's comprehension of plagiarism, but having actual evidence of lessons successfully completed would offer a clear indication of what they knew.

I have begun writing the video scripts and questions but find myself devoting time for Powtoon and Camtasia tutorials in order to learn better video production. Always willing to admit when I have a knowledge gap, I have enrolled in a Syracuse University Certificate of Advanced Study program in Designing Digital Instruction and am looking forward to taking a class each semester for the next couple of years to better understand foundational concepts and execution of this type of instruction.

Ethically Using Information will hopefully be completed by the end of this school year so I can actually start using it by 2022–23. My fellow librarians and I are eager to see the impact of a parallel digital curriculum that offers more depth and, most importantly, more data for students and teachers as we forge a path to move away from just-in-time information literacy instruction. While working through the pandemic has been brutal and exhausting, I will be forever grateful that it forced me to face the flaws in my information literacy instruction and envision a new and more powerful curriculum.

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