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Reading Guides Rediscovered

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No one can remember everything just as no one has heard of everything, and that may explain why some ideas and insights that have been around for a long time can pop up, seem fresh, and save the day in current teaching situations when we discover them. And it's also where teaching and learning centers shine: it's their job to remember all the accumulated pedagogical strategies that have proven themselves over the years, as well as staying on top of the new ones coming continually along.

For years research has shown that students have difficulty with textbook reading assignments. Indeed, students often simply do not do the reading. Perhaps they've come to believe the professor will cover what they need to know for the test in class, and so plowing through the often boring textbook isn't necessary. But as faculty attitudes toward teaching have steadily moved beyond a duty to convey essential information toward constructing classrooms focused on applying knowledge, demonstrating understanding and building mas-

tery, inducing students to do the reading and come prepared has become even more important.

Calling Words Isn't Reading

But what if students don't know how to read a textbook? What if they aren't practiced in identifying the main points and essential concepts? Putting in hours calling words isn't reading effectively. It's boring, unproductive and does not result in good grades. It's natural that students resist textbook assignments if this is all they know how to do.

When Trent Maurer, a professor of family science at Georgia Southern University encountered a magnified dose of this long-standing problem owing to suddenly mandated increased class size, he turned to the campus teaching and learning center for help. Judith Longfield, an Instructional Services Coordinator at GSU's Center for Teaching and Learning has one of those long, valuable memories, and she asked him if he'd heard of "reading guides." He had, but they hadn't seemed acutely relevant until now. Longfield pointed him toward what he describes as "some extraordinary resources" on "reading guides" (much of it

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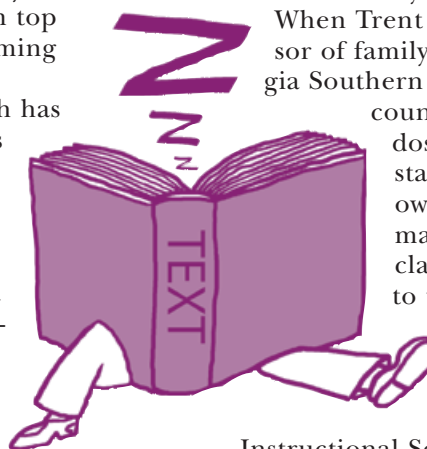
from the 1970s) and he was off like a rocket. By that I mean he threw himself into both the construction of reading guides for his course and careful documentation of their effectiveness with enormous energy. The result was not only significantly improved student performance, but also an exemplary bit of SOTL research which Maurer and Longfield presented last November at the ISSOTL conference in Raleigh, NC.

Maurer frames the problem this way:

"When [students] do the reading, they don't know what to do with it. The problem of course is first getting them to do the reading in the first place. We know from research that as little as 20–33% of the students do the reading. There is further research that indicates if you declare you are going to quiz students on the reading, they will do it, but because they aren't accustomed to doing reading, they don't get out of it what they should get out of it."

Indeed, according to Longfield, some studies show that students' reading compliance has declined from +80% to –20% in the past 30 years, and the National Survey of Student Engagement [NSSE] data indicate that +80% of seniors attend class without reading or other preparation. But as Maurer suggests the problem is at least two-fold: "If students are going to do the reading, you want them to get the most out of it. You want them to have the expectation that if they do the reading, they will learn the material. If they don't have that expectation, then even if they're motivated to learn [the material], they're not going to do [the reading] because they don't expect anything good is
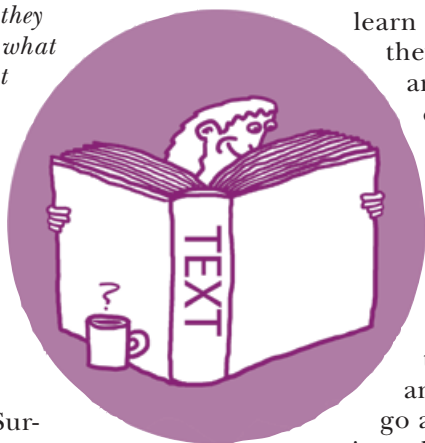
going to come from it." In short, if they believed doing the reading would actually help them, they'd do it. But the reason they don't believe stems from the fact that they don't know how to read the material, other than putting in time and calling words. Before they can be taught the material in the textbook, they need to be taught how to read it, and that's where reading guides (sometimes called "study guides") come in.

Look for Landmarks

"The logic behind the reading guides," Maurer explains, "is that as an expert, I read the textbook, and I say 'Okay, this is what they need to focus on.' I'm the expert and they are not; so they don't know what to focus on or how much to focus on because these are intro level students in intro level classes. So the idea is to kind of model how to select and what to focus on. It's this meta level of learning. If they learn the process then they can take it into any other class, any other course.

"It's almost like an assignment," Maurer continues, "You give them this set of pages to read and this set of questions to focus on and answer as they go along. The 20 questions they have confront them every single day with what they need to know to come to class prepared. It is their choice whether they do the reading or not, but if they don't, then they have to acknowledge that 'I am not prepared.'"

To explore the delicate dance between motivation to learn and learning, Maurer set up a somewhat complicated experiment design involving multiple sections of the course and a number of pedagogical variables. Since research already had shown that employing quizzes motivates

Editor's Note:

We've paid increasing attention to metacognition in these pages over the last year or so. Metacognition has undoubtedly been part of human thinking and learning for eons, but only recently has it risen to continuing attention in teaching and learning circles in higher education. One wonders why? Perhaps because a deeper understanding of learning has evolved in recent decades or at least provocative new hypotheses about learning have arisen? Perhaps because new technologies seem to have opened new ways of learning? Whatever the reason, faculty now feel an increasing obligation to help students become aware of their metacognitive powers and learn to use them. This issue's **DEVELOPER'S DIARY** column provides a trove of resources to faculty for exploring this new/old area of learning and its benefit to teaching.

The rediscovery and reinvention of things—insights—that have been around for a long time can often bring new life to a teaching situation and solve an old problem that's cropped up in a new way. **Trent Maurer**'s refashioning of what might once have been called "study questions" into a series of "reading guides" helped his failing students learn to read their textbooks. By that, I mean of course, learn to learn from their textbooks. Studies had shown that across the board today's students (more accustomed to social media and the Internet) weren't reading their textbooks and weren't getting much out of them when they did. Maurer's carefully constructed series of guides and quizzes show they can be taught this basic academic skill and that the Internet can help with the process.

Perhaps if this issue of the **FORUM** has a theme it's the interplay between the new and the old. For example, this issue's **CREATIVITY CAFÉ** considers the relationship between 'flipping' the classroom and 'disruptive innovation' (née 'disruptive technology'). The Kentucky trio contend that technology always outpaces pedagogy and that faculty aren't given much time or help in exploiting the new possibilities in the new tools for achieving the old aims of teaching and learning.

Is history old or new? Perhaps the answer lies in how it's used, how it's written. **Kathryn McDaniel** teaches history at Marietta College in Ohio. Though she's a specialist in early modern Britain, McDaniel has found a wealth of resources for teaching American History right in her backyard in southeastern Ohio. And it's not just McDaniel who's found value there. Looked at with fresh eyes, the area has offered engaging material for undergraduate research not only in history, but also in economics, agriculture and other areas as well. All of this material is old in some sense: it's been there as long as the people have been. It's also new in the ways it's being used to propel students toward the exciting edge of learning where everything is always new.

Finally, **Marilla Svinicki**'s **AD REM . . .** considers whether and if so how a new technology—namely the laptop computer—aids students in their note-taking or whether old-fashioned longhand note-taking might be a better idea. As is often the case, the results are mixed.

And finally, in the coming year NTLF will be going on the road. I'll be in residence on a variety of welcoming campuses beginning with the University of Nevada-Las Vegas. I'll be observing, writing about what I find, consulting with faculty, helping where I can. I hope to scurry up some new voices to write for the FORUM and give some from-the-field sense of how faculty and faculty developers are working together to improve teaching. I hope to extend this initiative through the fall of next year. If your campus is interested in hosting a residency, drop me a line.

—James Rhem

students to do the reading, Maurer introduced quizzes in all five sections of his course. These were real-time quizzes utilizing "clickers" and thus gave immediate feedback on what students understood and what they did not. Only four of his sections received reading guides. In addition to the in-class quizzes, those four sections also sometimes got online quizzes. Some got practice quizzes. Some got graded quizzes. Some got both graded and practice quizzes. Those who got online practice quizzes displayed the "sweet spot" in the research: they scored better than any other section on the in-class quizzes. But a "sour spot" also emerged: students who got both graded and practice online quizzes did the poorest of any on the in-class quizzes. "The in-class quizzes then seemed to matter less to them," says Maurer.

> You want [students] to have the expectation that if they do the reading, they will learn the material.

It's (Now) Part of the Job

"As faculty we don't expect that we are going to have to teach students how to learn," says Maurer. "We think we're just going to teach them material, but that's one of the reasons I love working at the intro level because once I figured out that part of my job is teaching students who aren't really ready for college how to learn, then I can do that and I can do it very well. I just needed to know I need to do this as part of my job. I enjoy doing it."

There's a twist to Maurer's research experiment that covertly

encourages students to develop a level of metacognitive awareness as well: "At the start of every class period, we have a quiz over the reading, and right before the quiz I ask them a series of questions—'How much of the reading did you do for today? How much of the RG did you do for today? How many hours did you spend studying for today's class?' Just a little bit of information on that. Which I then compared to their end of course self-report data, and it turns out that their daily course self-report data is far more accurate than their end of course self-report estimation."

Maurer's use of reading guides and of studying the effect of using them employs elements of the "flipped" classroom and "Just-in-time" teaching, elements which always force professors to work in fresh, responsive ways. "What I've done for any 75 min. class period . . . I might plan 2–3 hours of activity," says Maurer. "So there's no way I'm ever going to be able to use them all." Between the in-class quiz and the online quiz, Maurer has "a pretty good idea what most of the class got, what most missed, and then something in the middle. Usually that tends to be the cluster—some right, some wrong, some in the middle. So I start each day with something most of them got. I always start from a point of strength to build on something they got. And then after we've got that and we've flexed their critical thinking skills, we move on to something they missed. What we do really depends on how they did on the quiz. Maybe we only do two activities one day; another we may do five." It's a model of engaged teaching, almost theater with a script-outline and a lot of improvisation.

The result of all this effort won't impress anyone looking for a large number of A's. But given the context, Maurer's experiment not only shifted the large-class situation from one where most students were failing to one

where only about 10% currently do not pass. In the smaller classes (20–25 students) even without the "reading guides," A's and B's were common; C's were rare. Now, C's are common. "There is no question that the student outcomes are better when the class is small," says Maurer, "in part because each student gets more individual and small group interaction with me." Still, in the class of just 28 he's teaching this summer, he's adding "reading guides."

As Lee Shulman said in his keynote at the same ISSOTL conference, every experiment carried to the fullest extent becomes a case study as one answered question leads to yet another. Maurer's careful research on the positive effect of reading guides in large intro classes seems in his own practice to lead to a question about whether small class sizes using reading guides will learn more than small classes who don't.

Stay tuned. SoTL research and past pedagogical wisdom are finding common ground.

There's only one downside to "reading guides," and perhaps it can't be regarded as a downside since students learn more from their introduction. Preparing "reading guides" takes a lot of time. "The time is 'up-front time,' in much the same way that developing an online course is upfront time," says Maurer. "Once I've done it I usually don't have to change anything unless a new edition of the text comes out." ▐▐▐

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CREATIVITY CAFÉ

Flipping the Classroom as Disruptive Innovation

Charlie Sweet, Hal Blythe,
Rusty Carpenter
Eastern Kentucky University

Years ago at a creative writing conference we heard Stephen King postulate on the origins of inspiration. According to the horror writer extraordinaire, the germ of a story comes about with the convergence of two good ideas. A case in point, he explained, is his novel *Carrie*, which he developed from an actual girls' locker room incident that happened at the high school where he taught while he was reading an article in *Life* magazine on telekinesis.

King's theory of creativity came into play recently. After we had published our column on "Fear and Trembling in the Face of Creativity," we received an email from a professor at Drexel who thought that because of that column we might be interested in the theory of disruptive innovation (née disruptive technology) espoused in the *Harvard Business Review* for over a decade by Clayton Christensen and others. At the same time, we were in the midst of putting on a faculty development program about flipping the classroom that was culminating with our writing a book on the topic.

Bingo! Christensen's business-centered theory helped explain some difficulty we had encountered . . . if we extended his ideas.

In 1995 Christensen and Bower published "Disruptive Technologies: Catching the Wave," in which they posited that "*disruptive* technologies introduce a very different package of attributes from the one mainstream customers historically value" (6). In later works Christensen and his co-authors would change the term to *disruptive innovation* to explain products and services that improve the market in unexpected ways. A good example might be Henry Ford's introduction of the assembly line that resulted in mass-produced automobiles with surprisingly low costs. This often-used example seems to us a process, which suggested to us that the theory could be applied to flipping the classroom, a concept we've been involved in recently in our capacity as faculty developers.

In terms of the classic definition of creativity, disruptive technologies are 1) novel, but their 2) usefulness is often unrecognized at first.

While Christensen's theory is used primarily in business to describe products and services eventually aimed at a new group of consumers, we extended beyond products and services into another of creativity's four Ps (person, product, press, and process)—and asked a key question: how does disruptive innovation elucidate the process—in this case, the educational approach of flipping the classroom—especially in the case of faculty resistance.

In our last column we discussed "Creativity and the Flipped Classroom," so to review, in the inverted or flipped classroom students' homework consists of reading the assigned material, looking at PowerPoints (often of what were once lecture materials), and even watching videos on the basic material. Class time is devoted

not to a lecture but to activities that develop higher-order learning, practice assignments, and group work. Of course, the major reason for the sudden change to flipped classrooms is technological gain. A combination of better course management systems (e.g., BlackBoard), advanced video software for screencasts (e.g., Camtasia Studio), increased broadband width, greater access to computers and mobile devices, and improved general technological competence by both faculty and students has made flipping the classroom both possible and relatively cheap. In addition, the Internet provides a plethora of resources (e.g., Cengage Learning, Khan Academy). While the flipped classroom approach is too new to have much assessment data on its effectiveness, and Goodwin and Miller (2013) assert, "To date, there's no scientific research base to indicate exactly how well flipped classrooms work" (78), in a study of college-level information systems spreadsheet courses, Davies, Dean, and Ball (2013) concluded that "a technology enhanced flipped classroom was both effective and scalable; it better facilitated learning than the simulation-based training and students found this approach to be more motivating in that it allowed for greater differentiation on instruction" (563).

Still, faculty developers have noted resistance from instructors. To help explain this phenomenon, let us return to the theory of disruptive innovation. Specifically, the introduction of technology into higher education in the 1990s coincided with the sudden rise of active learning's replacing the lecture method as the primary pedagogical approach. Technology brought laptops (for

both instructor and student) into the classroom, email for instant communication, online courses, course management systems (such as BlackBoard), and a host of software possibilities (such as software that could automatically format research references). Yet, with all this electronic power available, studies a few years ago demonstrated that 90% of all faculty prefer the lecture method in the classroom.

What happened? Certainly this technology disrupted the old approach, improved the product and services of education, and created a new market as universities and colleges took to the Henry Ford-like assembly line of online instruction.

In education at least, technology is always ahead of pedagogy and therein may lie a problem. In an ideal world, pedagogy should lead and use technology to implement its best ideas. For instance, if educators decide that deep learning should be a major goal of any pedagogy, then they should be able to develop a technology that institutes such learning. Unfortunately, in reality someone creates the classroom clicker, then pedagogists figure out how it can be used. Perhaps faculty resentment of change is caused in part by their lack of ownership of that change.

How many universities offer a degree in PIT, Pedagogy and Information Technology? Yet, flipping the classroom demands expertise in both technology and pedagogy as well as the ability to integrate the two areas, something for which discipline-specific PhD work rarely prepares the aspiring professor. Teachers desiring to flip a class must at once feel confident with a new strategy for conducting sessions and the new, often more sophisticated tools for carrying out the new approach. Simply put, too much is being asked, especially for experienced teachers for whom high tech was the mimeograph machine and a daring pedagogy

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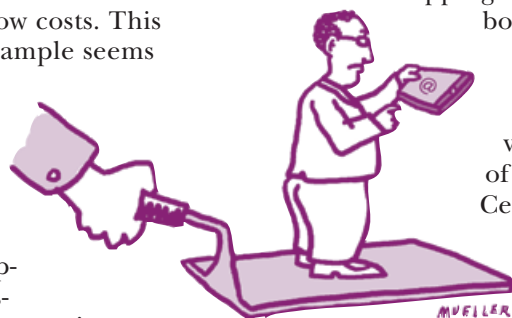
meant momentarily halting a brilliant lecture to ask a rhetorical question.

We heartily admit to the existence of other related phenomena that help explain why flipping has yet to be embraced.

One, new ideas advance slowly in academia. In fact, in couplet form the Blythe-Sweet-Carpenter Theory of Academic Change states, "Nothing presents so much anemia/As a new idea in academia." Remember the pain that resulted from the introduction, relatively a few years ago, of the computer, a device that today most faculty could not live without? Even with the current wide-spread acceptance of this basic technology, taking a further step involving a broader use of innovative tech systems is tough.

Two, our colleague Dr. Chris Taylor, chair of our Department of History, has her own view. Faculty, she claims, are trained in graduate school mainly to look backward on a subject more than they are offered studies in emerging events, trends, and materials. Unlike the business world, academia seldom provides positions devoted to conjuring visions of a brave new world. Faculty are content to teach the way they were taught, and promotion and tenure decisions are likely to be in the hands of the old guard, more traditional colleagues who value the tried and true, the safe over the risk of innovation.

Third, the Faculty-Student Unofficial Code of Omerta avers that professors won't challenge students too much in classes and will give high grades; in return, students will rate their professors as if all taught at Lake Wobegon University, that magical place where all faculty and students are above average. Whether we like to admit it or not, faculty-student relationships, especially involving non-tenured faculty, are often controlled by end-of-term evaluations. Introducing a new classroom process—one that involves more work on the students' part—is apt

to be met with resistance. Further, in this age of heavy teaching-scholarship-service requirements, teachers often hesitate to move from the comfort zone of what has worked in the past. Cruise control trumps hours of preparation for something new.

In short, in academia too much innovation colliding with untrained professionals provides so much disruption that stasis prevails. ▌▌

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Three Tools for Promoting Metacognition for Meta-Understanding:

Educating in Fractal Patterns XLI

Ed Nuhfer, Professor of Geology, Director of Faculty Development and Director of Educational Assessment (retired) and Karl Wirth, Associate Professor of Geology, Macalester College

It took over 52 centuries after the invention of writing before humans recognized how shapes of large-scale complex natural forms such as seacoasts and trees resulted from a simple recursive process that employed tiny seed forms (generators). Benoit Mandelbrot's realization opened a new perception to all—an ability to see common order across scales in natural forms and to realize nature as an inherently fractal world.

When students seek to become educated by focusing on learning at the scales of isolated lessons and disconnected courses, they do not recognize the learning available in larger curricula or realize how a larger metadisciplinary way of knowing supports the disciplines and produces their knowledge. A *metadiscipline* consists of disciplines that hold in common an overarching way of knowing. Arts, humanities, mathematics/quantitative reasoning, science, and social science are familiar metadisciplines from which students choose courses to meet their institution's general education (GE) requirements.

Metacognition or "thinking about thinking" is an informed, self-imposed internal conversation that reflects on one's on-

going thought process while performing a task. The focus of this Diary is on employing meta-cognition to extend the learning acquired at small-scale to larger-scale awareness. Hattie's monumental compendium includes meta-analyses that reveal the high impact of mastery of metacognitive strategies on students' success (Hattie, 2009, 188–193).

Engaging in metacognitive reflection involves taking a pause during a learning task to address: "What am I really doing here?" Metacognitive proficiency involves learning to reach an answer in bits: What kind of problem is this? What additional information do I need? What kind of reasoning does this require? What in my experience is helpful to addressing this kind of problem?

Hattie (2009, 6) describes "high level teaching" as "…teachers teaching the students something, instructing them in how to produce something, and *giving them instruction as to the processes of learning.*" The last includes instructors helping students reach metacognitive proficiency and metadisciplinary awareness. Any assumptions that students should reach either on their own are bankrupt. Students need explicit guidance in what they need to be "thinking about" in the process of "thinking about thinking" before they can construct informed conversations with the self. Remember that civilization did not recognize the fractal character of the natural world until one person showed others what to look for.

Suppose a student is taking an introductory course in literature to fulfill a GE humanities requirement. What should she "think about" in order to use her course content as her bridge to understanding the humanities' way of knowing? As a start, suggest that she download the student learning outcomes for six metadisciplines from http://profcamp.tripod.com/metadoutcomeslist.pdf and reflect on how her course exemplifies any of the

humanities' outcomes. Next, consider employing one of the following three tools for guiding thinking toward reaching larger-scale outcomes.

Verified gain supports self-assessment's related metacognitive cousin, self-efficacy.

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1. Learning-across-the-curriculum modules (NTLF V20N4, 8–11).

These offer a direct approach for initiating students in any discipline into metacognition. Our example module comes from research that revealed how successfully higher education advances adults' capacity to think in a known sequence of stages (Table 1). Download the module from http://profcamp.tripod.com/

module12metacog.rtf and try going through it yourself. The citations on adult intellectual development are in the module.

Acquiring higher order thinking requires intentional work over several years, so we introduce this module in our freshman courses, and we continue to engage students with it through higher-level courses. Students need a map to intentional intellectual development, and they can get it by learning the characteristics of higher order thinking, the sequence in which these appear, discovering their current stage of development, and then considering how to reach for the next stage.

2. Knowledge surveys (NTLF V15N6, 11; V15N4, 8–11).

Each item on a knowledge survey poses a challenge and asks students to self-assess their ability to engage it successfully on a three-point scale from zero (low-ability) to two (high-ability). See the site at http://www.merlot.org/merlot/viewMaterial.htm?id=437918 for tutorials, down-

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Table 1 – A Summary of Stages of Adult Intellectual Development (Perry Model)
Stage 1 & 2 thinkers believe that all problems have right and wrong answers, that all answers can be furnished by authority (usually the teacher), and that ambiguity is a needless nuisance that obstructs getting at right answers.
Stage 3 thinkers realize that authority is fallible and does not have good answers for all questions. Thinkers at this stage respond by concluding that all opinions are equally valid and that arguments are just about proponents' thinking differently. Evidence to the contrary does not change this response.
Stage 4 thinkers recognize that not all challenges have right or wrong answers, but they do not yet recognize frameworks through which to resolve how evidence best supports one among several competing arguments.
Stage 5 thinkers can use evidence. They also accept that evaluations that lead to best solutions can be relative to the context of the situation within which a problem occurs.
Stage 6 thinkers appreciate ambiguity as a legitimate quality of many issues. They can use evidence to explore alternatives. They recognize that the most reasonable answers often depend upon both context and value systems.
Stages 7, 8, and 9 thinkers incorporate metacognitive reflection in their reasoning, and they increasingly perceive how their personal values act alongside context and evidence to influence chosen decisions and actions.

loadable references, and examples. Self-assessment is a metacognitive skill; it involves accurately perceiving the degree of proficiency that one currently possesses. Hattie (2009, 39–43) found present understanding of their level of achievement as the most significant attribute of students for meeting their future goals. Skillful use of knowledge surveys involves structuring frequent opportunities for students to engage in self-assessments on banks of items and then compare these assessments with their actual performances on quizzes and assignments.

Three examples of knowledge survey items from introductory GE courses in geology reveal the versatility of the instrument to direct students' thinking to scales beyond lesson content.

A prompt can trigger self-assessment of disciplinary course content knowledge:

I can explain why it was necessary to first understand the principles of original horizontality, superposition, and crosscutting relationships before scientists could begin to derive the theory of plate tectonics.

Items can just as easily engage students in the larger-scale metadisciplinary understanding of the nature of science that these courses are supposed to address in supporting the GE curriculum:

I can employ examples to illustrate key differences between the ways of knowing of science and of technology.

An item can draw students to reconsider the stages of intellectual development from the learning module described above:

My friend tells me: "Because everyone has a right to his or her opinion, we respect others by accepting all opinions as equally valid." I can recognize the stage of intellectual development revealed by that statement.

Some programs employ *learning documents*, which are refer-

ence documents used to deliver a co-curriculum in how to learn while majoring in the discipline (NTLF V17N6, 9–10). Download one from http://www.macalester.edu/geology/wirth/CourseMaterials.html. The course knowledge surveys in these programs carry items drawn from the learning documents.

Often, knowledge surveys of about 150 such items given at the start of a course cause students to exclaim something like: "Good heavens! Will we be able to learn ALL this?" However, by the end of a well-taught course, nearly all recognize how much they gained from every item. Most will compare their own pre- and post-course results and realize: "I re-

ally did learn that much." Verified gain supports self-assessment's related metacognitive cousin, self-efficacy—the degree of proficiency that one believes one can attain with instruction and support. Alfred Bandura established self-efficacy as one of the most important predictors of student success (see NTLF V18N6, 12, and www.des.emory.edu/mfp/self-efficacy.htm).

3. Reflective Learning Journals.

Reflective learning journals offer a valuable addition to any course for developing metacognitive reflection. Employing a common format evaluated with a common rubric, and giving

Table 2 – Components of a Reflective Learning Journal and What They Do	
Component	**Metacognitive enhancement**
Summarize your assumptions, beliefs, understanding that you had when you first encountered the topic assigned here, before you started to engage it during learning it in this course.	Assessing what one thinks at the start of a task is a common theme in metacognition. A free writing exercise given at the introduction of a new topic is ideal for helping students capture their baseline knowledge and archive that for later use in a journal entry.
Disclose new vocabulary that you acquired during your study of this topic. Include vocabulary that you may have acquired as part of your process in items 4–6 below.	Building vocabulary increases reading comprehension and personal ability to access information.
Discover and describe connections that you can make between the topic and several other class sessions, exercises, readings, homework. Note in SPECIFICS what you found from making these connections that informed or expanded your understanding of the topic. Be sure to note how this learning is relevant to one or more of the published learning outcomes for the course. Refer to the specific outcome(s).	Metacognitive reflection uncovers connections that are otherwise difficult to access. Practice in seeking connections between lessons and larger ideas is immensely valuable.
So as to avoid depending on materials given to you in class, take action on your own behalf by looking to other resources. To provides evidence of this learning, describe IN SPECIFICS what you learned and from what source(s).	Assigning students to go beyond what authority (instructors) offers them moves beginning students to higher-level stages of thinking. Metacognition trains independent thinking.
"Close the loop" by comparing what you knew in #1 against what you know now.	Seeing one's growth affirmed builds self-efficacy.

the exercise repeatedly (between four and six completed journal submissions in a course) gives the necessary practice required to develop measurable proficiency. One version (Table 2) employs five components. We format the components together with a guiding rubric to make a "help sheet." Download it from http://profcamp.tripod.com/rljhelpsheet.rtf.

Our students at minimum should understand the differences between gaining knowledge, skill, capacity for thinking/reasoning, and metacognition (all recently addressed in NTLF V23N2, 7–11). In addition, they should distinguish different kinds of understanding provided at the different scales of lessons courses, or the curricula of majors and degrees.

For continued learning about metacognition, we recommend that readers enroll at the Improve with Metacognition site at http://www.improvewithmeta cognition.com/2014/07/. ▌▐

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PRAXIS

Learning from the Local:

Finding and Using the Research Potential in Your Own Backyard

Kathryn N. McDaniel,
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Ashoot-out on Front Street between moonshiners and police. College men demonstrating against admitting women to their institution. Pacifists sent to a conscientious objector camp during World War II. Families helping slaves escape across the Ohio River and into the Underground Railroad. Life as a soldier in an eighteenth-century frontier fort.

These are just a handful of topics my students have undertaken in Marietta College's senior research seminar for History majors. Sometimes I wonder at the fact that I, an historian of early modern Britain, have come to mentor students in such a variety of local, American History topics. Not all faculty find jobs in places where we can transplant our narrow research focus directly. If you are like me in that regard, local studies might be the answer for you too. I have become convinced that learning from the local offers exciting and meaningful opportunities for both students and faculty, no matter what your discipline or area of specialty.

Marietta, Ohio, is an historic town, and over the years I have been amazed at the richness of our local resources, including those held by our college, the city, churches, and even private individuals. But Marietta is not necessarily unique in this. Most of us have access to such treasure troves of local resources ripe for study. Although the study of local history has been my interest, faculty and students across divisions at my institution are making great use of the local area for a variety of research topics, for example: toxicity studies, research into fossil footprints, nutritional analyses, and a wide range of other discipline-based investigations.

Encouraging students to do local research in their major disciplines has distinct advantages. They can complete independent research, developing original hypotheses or interpretations, without traveling great distances. They gain practical experience in acquiring access to court records, interviews with key people, admission to important sites, and permission to publish findings. They learn the reality that, despite living in a digital age, personal connections with area experts and gate-keepers are still necessary to add to our knowledge. Students may also have deep ties with the community that allow them to make those links with greater ease than more established researchers who may yet be considered "outsiders." Ultimately, these local projects allow students to see their community with new eyes and to experience empowerment from using research to affect positively the local area.

There are hazards to guiding local projects, though, and it is important to be prepared for the common pitfalls. Here are some strategies I've developed over the years that are applicable to a variety of disciplinary studies.

Getting to Know Local People and Places

No matter where you live—big city, small town, suburbs—there are people who serve as gate-keepers to resources and knowledge. Depending on the project, you may need to make contacts with the staff of your area city hall, archives, parks office, schools, churches, or businesses. Often the most helpful people are those who work in clerical positions, but it is sometimes necessary to get permission for that help from higher-ups. Students, especially if they are from the region, may have contacts that can help. Try to find people who might see a reciprocal benefit from your study
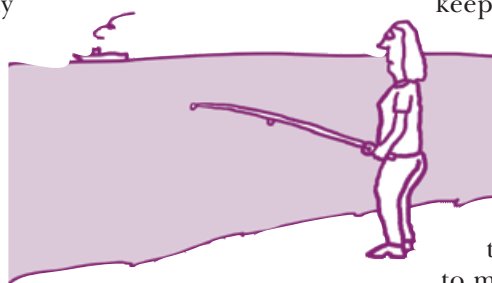
or increased contact with your institution, and don't spend too much time trying to break down doors that seem solidly shut.

When it comes to gaining access to the materials or sites you want, remember that old saying, "You catch more flies with honey than with vinegar." These gate-keepers are in a real sense doing you and your students a favor, so be polite, patient, and plentiful in your gratitude. Remember to have students acknowledge these folks in the final product of the research and that thank you notes still go a long way.

Bear in mind that gate-keepers often have a point of view on what they guard and may not be keen to allow access to the skeletons in the closets. Faculty may need to intervene delicately to negotiate access as well as the students' right to critical interpretation. Students may also have some trouble separating what such local experts say about a topic from what their research reveals.

Avoiding Heroes, Villains, and Victims

When students study their own local areas, they can sometimes fall into a pattern of focusing on heroes, villains, and victims. In my discipline of History, this is a particularly challenging issue, as local students are typically inundated with heroic ideas about the area in their childhoods. Through their research projects, they may instinctively continue that tradition, or they may—because they are developing more of a critical spirit in college—become iconoclastic and see frauds and schemers wherever they look. More sophisticated analysis goes beyond such stereotypes to focus on the complexities of human beings and their relationships.

Although this is a particular problem for students looking into local history, the drive to cast people or groups in the role of hero, villain, or victim

can also emerge in other kinds of disciplinary studies. If there is a local chemical company, students performing a toxicity study may need to set aside unproven assumptions about that company's role in pollution in order to perform neutral research. If low-income parents are being interviewed about their spending practices, they need not be heroicized, villainized, or made into victims because of what they say.

Gaining that neutral perspective is such an important part of understanding academic research; learning how to do that by looking into one's own environment can be profoundly influential for students. Faculty should be sensitive to the drive to stereotype in this way, yet gently lead students toward a more complex and balanced approach to research.

Connecting the Local with the National and Global

Some students when faced with a local study will immediately wonder, "So what? What does it matter what happened in this little portion of my not-so-important part of the map?" If that area has not been much studied, students may feel that they have no secondary literature to help guide them or that they are not participating in an important scholarly conversation.

This is almost always the result of overly narrow research. There are many ways to make broader connections to not only national but also global developments and projects. Because students often have trouble seeing how their smaller study fits into larger academic debates, the faculty mentor should point students to

those debates and where they are discussed in articles and books. I also encourage students to look for other small studies of similar events or phenomena; they can then provide an important comparison that makes both local studies more broadly valuable. They may find that what happens in the local area runs counter to what others have said in their own local or national study, and this, too, makes the project worthwhile. Students may need a little push to help them see how they can connect in their local research to formulate an answer to that "so what" question.

## Finding a Local "Lab": An Example

The Stacys, owners of a local farm, recently contacted one of my colleagues in the History department, whom they knew because he had visited there with his family to get locally-produced strawberries and corn. Interested in forming a connection with our college, they invited him to arrange a summer field trip for faculty to their working farm. My colleague's interest in its history stems from the fact that, during the Great Depression, this land was used by the Civilian Conservation Corps and then as a Conscientious Objector camp during World War II. He is considering using it as a laboratory for students in his spring research methods course.

The owners of Stacy Farm are genuinely motivated to have students and faculty learn from their land about not only its history, but modern farming practices and environmental issues. There are, of course, potential reciprocal benefits to
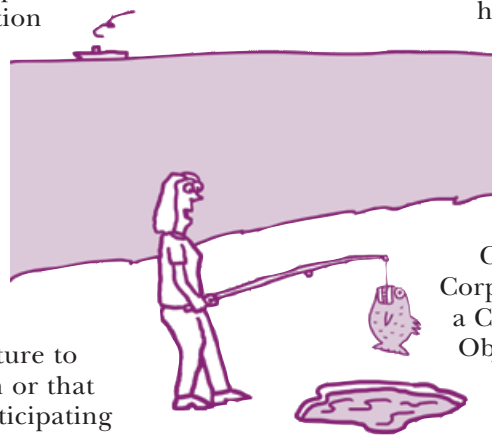
the owners if student interns can help promote the farm, develop marketing strategies, and even contribute their own ideas about sustainability based on their coursework. Other faculty, in the departments of Geology, Psychology, Education, and Biology, also expressed an interest in the farm as a site of potential research for faculty and students. This connection has the potential to create educational and tangible community benefits for our students as well as the region.

Like other higher-education institutions, our college aims to help students develop critical-thinking skills so that they may become effective leaders in the world. Through collaborative ventures such as these between colleges or universities and their local businesses, individuals, schools, churches, and governments, we can help students develop their ability to think critically in ways that prepare them for a lifetime of positive influences on their communities—even if our own specialties lie elsewhere. When students learn from the local, they become empowered to shape their own circumstances for the better. And that's the real value of a college education. ▌▌

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In Note-taking, Quantity and Quality Both Count (or more is better but better is also better)

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On a morning commute, I was listening to NPR when a piece caught my attention. The commentator was reporting on recent research on note-taking and its impact on retention of lecture material. You may be asking yourself, "Haven't we answered this question already?" I thought the same thing. But something has changed since last we visited this question. Students now have laptop computers on which to take notes. The question of the research being reported had changed to taking notes on a computer versus taking them longhand. Don't jump to any conclusions about the finding yet, however. It's the "why" of the result that is interesting.

I found the new research twist interesting enough to track down the actual study. (In the process I found several other recent articles testing the effects of taking notes in a lecture by hand or by computer. So things are never as simple as we would like in researching learning.) However,

the authors, Mueller and Oppenheimer (2014), were quite careful in their examination of this effect and went through three design iterations before being willing to make their assertions.

The general research format was that students watched a video of a short lecture and were instructed to take notes as they would in a class where they would be tested on the material. In some conditions they had laptops and in others they had pencil and paper. Three measures were computed. The first was the actual number of words that were written by each student. The second was the amount of *verbatim* overlap there was between their notes and the lecture (a possible measure of just recording rather than thinking). The third was performance on a delayed test made up of both factual and conceptual questions.

The study resulted in data that were very similar to other older studies: 1) There was no difference between longhand and laptop conditions on factual questions, but 2) laptop users did more poorly on conceptual-application questions. When analyzed further, longhand note-takers wrote fewer words, but did less verbatim note taking. The total volume of words recorded positively predicted test performance, but the interesting outcome was that students who took fewer *verbatim* notes also performed better even if the number of words they wrote was lower than computer transcripts. Longhand note-takers still did better on conceptual questions compared with laptop note-takers
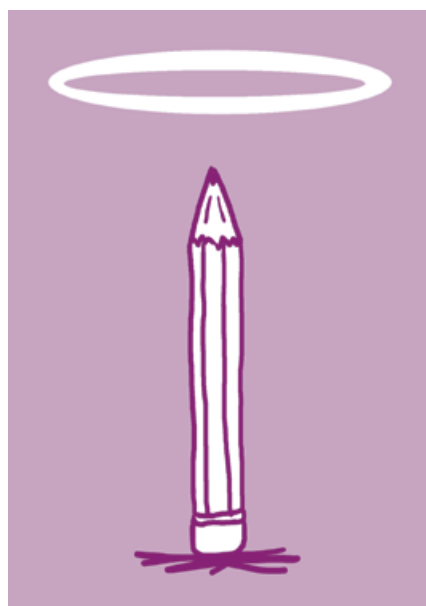
even when the students using laptops were specifically encouraged to *not* take verbatim notes. At this point the analyses become more complicated, but Mueller and Oppenheimer conclude that while taking more notes regardless of medium can lead to better performance, mindlessly recording everything verbatim (as most computer note-takers do) without processing what is written hurts performance. Thus both quantity and quality matter in note-taking!

So what does this research mean for lecturers in the real classroom? While there are many variables that could be affecting student performance beyond just the notes they take, there is pretty clear evidence that "just recording" a lecture is not enough. That's one of the advantages of longhand notes; students are forced to make choices about what to write. Without that mental processing going on during note-taking, the notes lose their impact. If students could learn to use their facility with the computer to take MORE notes, and use their thinking about what is important and what is not to take BETTER notes, their performance would improve.

So what are the implications for us as teachers?

First, as teachers we should help our students learn how to summarize and condense what they hear into good representations of the main points. For example, building in some short (maybe 3–5 minutes) "catch-up" pauses where you invite students to write a short summary of what they just heard would help them. A little feedback on what they should have written in their notes could get them started down the right path.

Using minute papers at the end of each class seems like a good strategy to employ. If students are asked to write down 2–3 main points at the end of each lecture on a regular basis, they may come to think about the lecture differently and more in the line of meta-cognitively processed note-taking.

Maydosz and Raver (2010) reviewed the literature on helping students take better notes, but with work done before the spread of laptops as note taking aids. Their advice still holds for lectures in general. They recommend the pauses described above, and also a) the use of instructor outlines for notes, b) cueing main points during the lecture, and
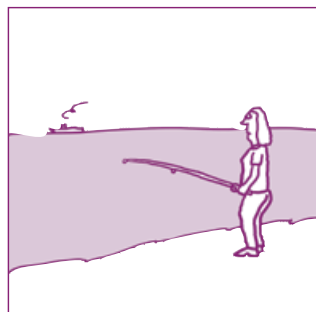
c) using visual images that can provide an overall concept map of the spoken words.

The research is not done yet, of course. In their conclusion, Mueller and Oppenheimer hint at one reason why longhand notes might help. It harks back to that earlier column I wrote about "desirable difficulties". In essence it's hard work to create verbatim notes by hand in comparison to typing them into the computer. Maybe the extra effort required to take down notes by hand actually also forces a student to make decisions about what is worth writing down. If we could teach students to engage in the same reflection when using the computer, we might have the best of both worlds: more notes and higher quality notes as well. ‖

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