Using Technology in Partnering

**Guiding Questions**

1. What is the role of technology in partnering?
2. How can I ensure that students use all the technology available?
3. How do I choose the appropriate nouns, or tools, for students to use?

In the previous chapter I discussed the verbs (i.e., skills) of learning. In this chapter I will look at the nouns, the actual technology tools used by students to answer the guiding questions, practice the over- and underlying skills, make presentations, and, in so doing, learn the material.

The reason I emphasize so strongly the important verb/noun metaphorical distinction is that it helps partnering teachers (and all teachers, for that matter) keep the focus on what is most important in education, which is not the technology itself, but rather the underlying skills our students must learn and master—with or without technology. So while I am a big proponent of our students using digital technology—these are the tools of their time and will certainly be what they use in almost any job as adults—technology for its own sake will get us nowhere.

As I have discussed, the verbs of learning (e.g., understanding, communicating, presenting, persuading; see Table 2.1 for all of them) are unlikely to change for 21st century students. They are the stuff of education, the skills we want all our students to have, and
the part of education that we want to carefully preserve. In the old metaphor of the baby
and the bathwater, verbs are the baby.

NOUNS: THE TOOLS STUDENTS USE

So what, then, are nouns? Nouns are tools for “doing” the verbs. And unlike the verbs, nouns
change. They change with the times and with improvements in technology. Of course,
technology is hugely important in today’s education. Using as much of it as possible is kids’
birthright as students in the early 21st century, and it is crucial that we all strive, as educators,
to provide students with as many technology tools as possible. But technology is, and will
always be, just that—a tool.

There is a useful saying (from researcher Alan Kay) that “something is only ‘technology’
if it was invented after you were born.” We already use many forms of technology in our teach-
ing (books, encyclopedias, writing boards, even paper and pencils) that we no longer think of
as technology. Educational technology tools (nouns) did change in the past—from the scroll
to the book, from the pen and ink to the ballpoint pen, from the blackboard to the white-
board, from chalk to the marker, from the private tutor to the class teacher. But they generally
changed very, very slowly, over decades and centuries. Because this pace of change was so
slow—and often over the course of one’s entire career no change in tools happened—some
teachers may have gotten the idea that the nouns of education are fixed.

But that is not the case. The verbs stay the same, but the nouns do change. And sudden-
ly that change is accelerating wildly. We have entered a period—the digital age of the
21st century—when new learning tools are emerging, changing, and even disappearing at
a speed never before experienced, a pace by which tool change happens in months and
years, rather than decades and centuries.

TECHNOLOGY IS THE ENABLER

Once the partnering teacher has given the guiding questions to students and made certain
that students understand the appropriate verbs (i.e., once the partnering students know their
goals), the teacher’s job is to let them work, on their own and with their peers (and with the
teacher’s guidance and coaching), until they have convinced themselves and the teacher that
they know the answers to the questions and have mastered the required skills.

To learn (both the content and the skills) on their own, students need tools. Part of the part-
nering teacher’s job is to be sure students are aware of all the available and appropriate learning
tools at their disposal and are using the best ones for the job. As I have said before, while teachers
should never use the tools for students—and are not required to use the tools themselves—it is
important that partnering teachers know what tools exist, understand what each of the tools can
do, and, to the extent that the tools are available in the school, make them available to students
and encourage their use.
As partnering teachers, we want to use as much (modern) technology in our teaching as possible, precisely because it will help students learn the skills better. Digital technology is the enabler, allowing students to teach themselves in ways they couldn't in the past. Students know that digital technology represents the tools of their time as people growing up in the early 21st century, and they want to use these tools, as deeply as possible.

Technology's role, therefore, is to support the partnering pedagogy. For that to happen, partnering teachers need to know what modern technologies are (potentially) available to students, what they do, and how they support learning, both in answering guiding questions and in practicing skills. In Chapter 7, I present this information, tool by tool, and encourage you to supplement what I tell you with further inquiries, classes, and especially consultations with your students around any tools you think might be of help.

TECHNOLOGY AND EQUITY

To Each His or Her Own

Of course, not all technologies will ever be available to all (even the richest). But that is OK as long as all students have access to a minimum. More and more, this minimum is becoming each student having his or her own networked personal computer (and, of course, cell phone).

If you don't have one-to-one computing (or, as one teacher put it, 2:1 with the phones) in your school today, you should expect it tomorrow. And as a partnering teacher, you should prepare for it today by thinking about what you would do if your students did have access to that level of technology in your classroom. There are a number of things partnering teachers can and should do in the interim to approximate 1:1, such as teaming.

Partnering teachers need to be proactive about finding out what technology is available in their schools today, what's coming tomorrow, and what to ask for that's not. It is also very important that partnering teachers continue to encourage the use of technology and not hold back because some students do not have the same access as others. Students who don't have the technology need to be accommodated by putting them on teams or partnering them with those who do and by making sure labs, libraries, and other places with the technology are open long enough so that all can have access. Many schools now keep their computer labs open on weekends and until midnight during the week to accommodate students who need this access.

LET THE STUDENTS USE ALL TECHNOLOGY

Viewing all the technologies available to students today (more than 130 are listed in Chapter 7, and more come daily) can seem overwhelming to teachers who are not technophiles or who have never paid much attention to this area before. But there is really no cause for alarm. The partnering teacher's job is simply to know about these technologies and how they can aid student learning. It is not to use them; using them is the students' job.
Many of the teachers who are the most successful at using technology in partnering say, "I never touch the stuff. My students do it all." And their students use a great deal of technology.

And by the way, this is not an unfamiliar position for a teacher. To teach about books and essays, novels and poetry, teachers do not have to actually write them. To teach about science, they don't need to actually research and publish. To teach about films, they don't have to make them. The teacher's (i.e., coach's) role is not to do these things for the students, but rather to help students do them for themselves, to give them feedback, and to help them improve.

Which is not to say that students can't benefit from expert advice in using various technology tools. On the contrary. But their teachers do not have to be the experts at using these tools. There are outside experts who know, in great detail, how to use Web 2.0 tools effectively or how to make good videos or podcasts. Such expertise can be brought in, in person, virtually, or through reading and YouTube. And when these experts do interact with the class, they should talk directly to the students (with the teacher present, of course), not first teach the teachers so that they can later (and much less expertly) teach the students.

**The Prensky Apostasy**

So in partnering, it is the students' job—not the teacher's—to use whatever technology is available, just as it is the students' job to answer the guiding questions, use the verbs, and master the skills. When it comes to technology, the teacher is the guide, the coach, and the quality controller, not the user.
PowerPoint? Not for the teacher. Only students should be allowed to use it. Interactive whiteboards? Again, not for the teacher; students (only) can and should present on them. Computers, smartphones, blogs, wikis, Facebook, Twitter, or other technologies? Students, not the teacher, should be setting them up and using them. Interestingly, this is true (perhaps more true) even in the elementary grades. The only exception is that teachers can, from time to time (if they are able), model the kind of use(s) they expect. But even that is not absolutely necessary. Many, if not most, kids can learn on their own if good feedback is provided.

It should be noted that this is not a universal point of view, which is why I call it an apostasy. Many think that teachers should use the tools, and many teachers ask for and receive training in their use. But I think this is the wrong way to go.

My view is based partly on comments from students, who say things like “Teachers make a PowerPoint and they think they’re so awesome, but it’s just like writing on the blackboard” or “Don’t try to use technology yourself—you’ll only look stupid.” It is also based on my observations of teachers using technology at only a fraction of what it is capable of doing for learning, and not letting students (who are dying to) use it instead.

This, of course, is not to say that teachers shouldn’t use technology to communicate with their students. They should. But not via PowerPoint. Rather via texting, e-mail, and posting online, which are often the best and easiest ways to communicate (at least from the students’ point of view). And, of course, there is certainly nothing wrong with a teacher who really knows something about a technology communicating that to students, just as a peer might.

But, overall, I think this should be the rule: partnering teachers should never, ever use the technology for their students.

I recently came across this blog post from a longtime teacher:

Throughout my career I have believed that in order to bring a learning tool into my classroom I had to be fairly adept at using the tool myself—after all, how could I require my students to use a tool without having the personal expertise to show them how to use it effectively? ... I must admit that it is rather unnerving to give an assignment that requires students to use a technology in which I have little expertise. But, to my surprise, students appreciate the fact ... that they know more than I do and that I am more than willing to learn from them. Rather than undermining my credibility and impact as a teacher, my students view my “openness to new technological experiences” as cool, and a way for us to build a deeper connection than my content knowledge and expertise ever could.32

Teachers who are especially fluent in technology (and proud of it!) might be very tempted to use the technology for students (e.g., to set up blogs for them, to create their own PowerPoint presentations). They should, I think, resist this temptation. In the long run, students can use technology much more effectively than (most) teachers can, and when they can’t, they need to learn to do so and not have it done for them.

So let’s be clear. Should a lot of technology be used in the partnering classroom? Absolutely! Should it be the teachers who are using it? Rarely—only using it for something students can’t or shouldn’t use it for (e.g., giving a test) or when modeling or preparing
technology-based materials out of class for students to use in class. It's great for a teacher to create (out of class) an alternate reality game or some other type of game for students to play, or to make a podcast of something for students to listen to. In class, though, teachers who know how should be showing and getting the students to do these things for themselves.

For skeptics, in a sense this is no different from dealing with older technologies. Should teachers who have great essay writing skills be writing for their students? Do students benefit (except in special cases) by being read to by teachers? (We may bring in an actor or great speaker sometimes to demonstrate how to read dramatically, but most would agree that reading should be the students' job.) In the case of those older tools, I think we can all agree that it is the students' job to use and master them on their own. The same is true with digital tools. The difference, though, is that the kids already have a head start with these modern tools.

The Teacher's Roles With Regard to Technology

So what exactly are the partnering teacher's roles in this area? The teacher should

- point out to students all technologies that are available. Teachers should know about all those listed in the following chapter and be constantly checking for new ones.
- watch carefully as students use the technologies and present with them, to be sure that students are producing high-quality, rigorous work. (If not, teachers should request revisions.)
- encourage, or even require, students to make use of as many different technologies as possible over the course of a semester or school year.
- point out (through well-constructed questions rather than telling) potential pitfalls and mistakes that are often made by students when using technology, and help students become better at critically assessing the tools they use. Teachers can point out, for example, web sites that are not what they purport to be (e.g., the now-famous instance of the Martin Luther King Jr. site that is actually run by a hate group). But teachers should always follow up by asking students to find additional examples on their own.

Partnering teachers should also point out important distinctions that students might not recognize on their own. Example might include the difference between search (where anything goes) and research (which has traditions and rules) or the difference between fair use (OK) and plagiarism (not OK.)

Four Special Cases

Before we get to the full technology list in Chapter 7, let me say something additional about four technologies that I think partnering teachers should particularly focus on.
Web 2.0—What’s Happening Now

As I write this, it is hard to attend or read anything related to technology and schools that does not mention the great benefits of Web 2.0 for learning. In case you don’t know, what people mean by Web 2.0 is that, in addition to being a medium for reading and watching (which it was, mostly, a few years ago), the Web is also a medium for publishing (of words, videos, etc.) by anyone. This is not especially new, since the inventor of the Web, Tim Berners-Lee, said many years ago that “what people put into the web is much more important than what they take out.”

Web 2.0 is a shock only for those who internalized the model of the Web as a library, a place for reading and watching, and have not watched it evolve. What has happened is that tools for extremely easy publishing of words, images, videos, and other media have been developed that allow any student to be a publisher of his or her work. Because publishing one’s work (and getting feedback from the world) is important for learning, improving, and sharing (not to mention pride in oneself), this is an important development for students. They should be encouraged to use Web 2.0 tools, such as blogs, wikis, YouTube, and others as much as possible.

And stay on the lookout for Web 3.0, the “semantic web,” where you can search any work ever created for anything and link any pieces together. It’s just around the corner.

1:1—The Coming Wave

Beginning with small programs in the State of Maine and other places, the idea of giving each student his or her own computer (laptop, netbook, or even cell phone) to use, maintain, take home, and, essentially, learn on is finally taking hold. It is being adopted in more and more countries, districts, and schools around the world. For example, the prime minister of Australia recently announced such a program for the whole country. Any teachers, no matter where they teach, would be foolish to think this will not be coming to their classroom within the next several years, and ought to be preparing for that day.

The issue, of course, is what do you (or more precisely, in the partnering pedagogy, the students) do with computers, particularly in class. Most students will have no trouble (especially if coached by their peers) in using the computers outside of class for homework, research, connecting with teachers and assignments, turning things in, and so forth. But in some colleges and universities, where students have had their laptops in front of them for some time, teachers have cited disappointment that students in class use their computers for non-class-related activities such as Facebook. “Computers have become the new spitball,” wrote one teacher.

It is extremely important for partnering teachers to understand that when this happens, it is not the fault of students (or the teachers) but rather of the pedagogy the teacher is using. Technology, particularly laptops in class, does not support lecturing or telling pedagogies at all. Given nothing interesting to do on the powerful machines in front of them, students will use them as they wish.
A partnering teacher whose students have their own laptops (or netbooks or even cell phones) in class has an obligation, therefore, to be sure they are used regularly as part of students' required work. This can mean researching answers to guiding questions, meeting in groups and with people outside involved in student projects, creating and posting online in writing or other media, and preparing presentations. Ideally, there should be no time in a partnering class for a student to throw a new spitball (although reality tells us there will always be some).

**PARTNERING TIP**

If you do get 1:1 computers in your classroom, begin your work with them by holding a conversation with your class about using the computers. What are the responsibilities of each partner (i.e., you and the students) with regard to these tools? How can they best be used? How can abuse be minimized or prevented? Although it often goes against teacher or administrator instincts, students almost universally ask for fewer restrictions and more responsibility in this area.

*Cell Phones—The Computers in Students’ Pockets*

Cell phones are a technology that merits a discussion of its own, if only because so many educators are so confused about what to do with them. Should we ban them? Can we use them? What about students who don’t have them? These are all important questions, all with a variety of answers.

As I write this, the policy in many schools and districts around the country and the world, including my hometown of New York City, is to ban cell phones on the grounds that they can be a disturbance in class and an opportunity to cheat on quizzes or exams. Obviously, no one wants a cell phone going off in the middle of a lecture, and no one would encourage cheating. But what about cell phones in a partnering classroom? What is the role of cell phones there? It is different. Should we have different policies? It is important for us to think about a good role for cell phones in students’ education for a number of reasons:

1. Cell phones have become so ubiquitous, and they are such an important tool in students’ lives out of school.
2. They are an area where there may be a digital divide, which as teachers we need to help overcome.
3. Their power and the useful things they can do for education are growing rapidly and enormously as they morph into smartphones and full-fledged computers, which is already happening with the iPhone and other phones like it.

For more and more of today’s young people (and for many of us from the older generation), our increasingly powerful cell phones are a tool we can’t do without. Phones are now
practically ubiquitous in many high schools, and their penetration is quickly growing in middle and even elementary schools. So it makes sense to find ways of incorporating the cell phone's benefits into our teaching while eliminating its distractions. Banning cell phones—as easy a solution as it seems—will in the long run only make our education weaker.

Luckily, attitudes toward cell phones in schools are changing rapidly, with more and more teachers finding ways to incorporate them into students' education. They are doing so, at times, despite official bans, asking forgiveness rather than permission. (Note: I'm not advocating, here or anywhere else, breaking rules. I am just reporting what is happening, and happening frequently.) Consider these examples:

- Many science teachers have students use their cell phones for unit conversions and data collection, often using the phones' cameras.
- Many math teachers have students use their cell phones as calculators (there are downloadable applications for turning many phones into graphing calculators).
- Many language teachers have students use their cell phones to connect to students in other countries, particularly via texting.
- Many social studies teachers have students use their cell phones to follow breaking news and e-mail politicians.
- Many English and English language arts teachers have students use their cell phones to interview experts, practice business speaking and writing, and post to blogs and other web sites.

Open-phone tests? For a number of years I have been advocating these, whereby students can use their phones (individually or in groups) to find elements of the answers to complex questions. It took a while for a student to finally tell me, "Most of our tests are open-phone tests, you guys just don't know it." Open-phone tests are now being used by teachers around the world (along with, of course, appropriate redefinitions of cheating in these instances). Recently, such a use by a teacher in a private school in Sydney, Australia, made the front page of the country's biggest newspaper. As a result, the school received inquiries from as far away as Central Asia!

Using cell phones in class represents big changes in how we think about education and technology, but these changes are both societal (i.e., happening far beyond just school) and appropriate to the new capabilities we have as users of these technologies.

For an interesting discussion of the many ways phones have been used in class, along with a set of available tools, I recommend Liz Kolb's excellent book *Toys to Tools* and her blog "From
Toy to Tool" (see sidebar on previous page). It is important to consult the blog since, with the rapid advances in phone technology, many of the tools she mentions in the book have already been supplanted by better ones.

The bottom line for partnering teachers is that we need to find ways to make good and appropriate use of students' cell phones. These already powerful tools will soon be far more powerful and useful than anything a school can provide.

**Partnering Tip**

Hold a discussion with your students about whether and how they want to use their cell phones for learning. That discussion should include questions like these: How and when can we best use them? How will we prevent their use from becoming a distraction? What will we do about students who use their phones inappropriately? How will we deal with students who don’t have them?

If necessary, work with students to contrast legitimate student needs with outdated and fear-inspired school policies, and advocate for policy changes in your school. Doing this certainly qualifies as making learning real for students.

As for the issue of equity—dealing with the fact that every student may not have a cell phone or a phone as good as his or her classmate’s—I recommend that partnering teachers work hard to become digital multipliers (rather than digital dividers). One way to do that is by placing students into groups around the number of phones available. Another is to get donations of used cell phones. Note that more and more cell phones can use a Wi-Fi signal (often available for free in schools) in place of the carrier’s network, which can often mitigate the cost related with data usage. I recommend talking to your school’s tech coordinator about this.

**Partnering Tip**

If not all of your students have cell phones, I suggest looking at this positively, as a glass half full. The “glass half empty” way is to think, “Half my students don’t have a cell phone. I can’t use them.” The “glass half full” approach is to think, “Great! 100 percent of pairs of my students have a cell phone. Let’s go!”

I am often asked what I would recommend as 1:1 technology for a school or district that is starting from scratch and wants to buy new tools for all its students. At this point in time, with the way things are going, I would definitely recommend purchasing a smartphone (such as the iPhone) for each student, rather than laptops or even netbooks. Today’s iPhone, for example, has means for easy reading and writing, a still camera and a video camera, and over 100,000 useful downloadable programs, many of which are
usable in the classroom. These capabilities will only get better in future versions. In my view, the smartphone is the 1:1 device of the future and one that is likely, with software upgrades, to be useful for some time and for students at all levels.

Games—The Great Potential Motivator

Many teachers use games already (especially minigames such as versions of Jeopardy!), and all partnering teachers are encouraged to do so and to explore the category further. I have written much about the potential value of computer and video games as learning tools, particularly for generating engagement (see my two previous books, Digital Game-Based Learning and “Don't Bother Me Mom—I'm Learning”). Games can be used in the partnering context in a variety of ways:

- Some existing off-the-shelf commercial games can be used directly to help answer guiding questions or to acquire and practice skills. Games about periods of history are some of the best at this, as are logic games for younger learners.
- There exist some “learning games” within curricular subject areas that can be used for answering guiding questions and for skills practice. Examples include Dimension M and Lure of the Labyrinth for math, SlinkyBall and Waste of Space for physics, Darfur Is Dying and Food Force for social studies, and The Grammar of Doom for English. These games, widely scattered around the Internet and of varying size, quality, and complexity, have been created by individuals, companies, and foundations looking to engage kids in different types of learning. Most of the existing games are collected and rated on the Spree Learning Games web site.
- There are many tools that students can use to design and create their own games, such as Game Creator, GameStar Mechanic, Flash, and various “modding” tools. Students can create games as answers to guiding questions, as tools for learning and practicing potential skills, and even as presentation tools. One way for students to demonstrate their learning is to make a game that teaches what they have just learned to students who have not yet learned those things. Contests for older students to create games for younger ones have begun popping up around the world and are becoming more and more popular.
- Game tools can be used to make machinima (noninteractive animations made using game tools) as presentations that answer guiding questions.
- Even if your students lack access to any or all of these games or tools, it can be useful to work with students to design a theoretical or hypothetical game about the questions or skills you are working on. This has the advantage of requiring no technology at all, other than brain power.
PARTNERING TIP

Ask your students if any of them play a game that relates to what you are learning. If the answer is yes, ask them to present it to the class, and integrate it into their learning.

Work with your students to invent a theoretical game that, if one were to beat it, would prove that a person had answered the guiding questions and/or learned the skills in question. To do this, ask questions such as these: “What decisions would the player have to make? What would the conditions for winning be?”

NO TECHNOLOGY AVAILABLE?

What if, in your school, students have access to no technology at all that is remotely up to date? Or perhaps your school lacks the specific technologies you would like your students to use for certain purposes (or the technologies exist, but are blocked from student use). What can you do in such cases?

Fortunately, there is a good solution for a partnering teacher, which is to say to students, “Let’s assume (or pretend) we have the technology. How would we use it? What would we do? What might we search for? What terms and strategies might we use? What should we be wary of?” Done well, this type of discussion can often be more powerful than the students actually using the technologies, because it gets directly to the question of why we are using technology: What verbs are we supporting? What do we hope to learn?

This approach can be even more powerful when thinking about simulation, in any subject. Rather than students using an existing simulation and observing the results, if no simulation is available you (or they) can ask, “How would we design a simulation for this? What are the relevant variables? What are the relationships between those variables? What are the key decisions to be made by the user?”

The point is that a partnering teacher need never feel totally stymied by a lack of technology available to students (even while always pushing for more). From the learning perspective, pretending is often equally good (or at least a close second).

USING THE APPROPRIATE NOUNS FOR THE GUIDING QUESTIONS AND VERBS

Finding the appropriate tools for students to use to answer the guiding questions, practice the verbs, and in so doing learn the content and skills they need to learn is not always an easy or obvious task. Because there are so many tools, and they change so frequently, some people have adopted the strategy of learning only a few of them and then sticking with what they know. That, however, is a losing strategy for both teachers and students in the 21st century and in partnering. Partnering teachers should instead read widely, striving to familiarize themselves with as many tools as possible (by “familiarize” I mean understanding the tools.
and what they do, not necessarily using them or using them well), and encourage all students
to use as many appropriate tools as possible.

The annotated list in Chapter 7 consists of a great many (more than 130) technology tools
(nouns) that students can use, if available. As you read or browse the list, please bear in mind
the following things about the items:

1. These are not technologies that you as the teacher (or even students) have to, or even
should, totally master. They are means to an end, the end being answering the guiding ques-
tions and practicing the verbs.

2. The tools on the list represent varying levels of digital technology, from zero to cut-
ting edge. Some tools do almost the same things but in different ways; deciding which to use
is merely a matter of what is available, up to date, and of personal preference.

3. The preferred or so-called best tools for any particular use will change over time,
often quite rapidly and frequently. Therefore it is very important that teachers not get too
attached to any of them, or let their students do so. Despite what you may hear, in cases of
rapidly changing technology there are no best practices to follow, only good practices.

The idea that the best tools for particular tasks or skills will change frequently is a major
disruption for many teachers, who are used to using the same tools over and over, year to year.
While in some ways this makes the teaching job more complex, it also makes it far more inter-
esting, and that is how I recommend partnering teachers look at it.

**Partnering Tip**

*Review the list of nouns in Chapter 7. Make a list of those that are unfamiliar to you,
and then ask your students how many they are familiar with. Find out which of your
students know a lot about technology, and then (1) use them as your own tutors and
(2) pair them up (or put them in groups) with students who know less.

Think about the next things you will be teaching and the underlying skills related to
each. Then find the tools that relate to those verbs (see Table 2.1). Suggest those tools
to your students, and discuss them.*

**Working the List**

The list in Chapter 7 describes the major tools available to students today (not all tools are
available to all students, of course). I recommend browsing the list and then using it as a ref-
erence. You can of course read about all the tools if you wish, or you can just quickly search for
any that you may not know about. Once you identify all the tools you are interested in, check
with your school to find out which are available to your students. You can then suggest that
students use certain of these tools, alone or in combination, to help answer guiding questions
and practice required skills (verbs).
The tools are listed alphabetically, not in order of importance. Clearly, the list is selective and hardly includes every tool, or even every type of tool, out there. I have attached to most a selection of verbs that the tool might be useful for in terms of learning, practicing, or doing.

Although today we hear a lot about blogs, wikis, podcasts, and other Web 2.0 tools—and these are extremely important as tools for our students—one thing that I hope you will quickly notice is that there are far more tools available than just those. As important as those are, they should not get all our attention just because they are new.

Also note that additional new tools will appear on the scene frequently, so updates to this list should always be sought from the Web; from this book’s web site; and from books, other teachers, and students.

Finally, although I have occasionally provided specific product names and URLs, when of special interest, the best way to find a specific tool to use with or to recommend to students is to search for the term in a search engine or look it up on Wikipedia. (Until only a few weeks ago I would have written that the best way is to Google it, but now that Microsoft’s Bing has appeared on the scene, who knows what will be the preferred search engine by the time you read this.)

And so it is with all of these tools—expect them to evolve and change. And now to the list.