Guiding Principles for Teaching with Technology

Classroom response systems, electronic textbooks, Prezi®, course management systems (e.g. Blackboard®), social media, online lectures, video chats – welcome to the classroom of the 21st century! For those accustomed to the traditional classroom, the technology may at times seem overwhelming. The following ten guiding principles for teaching with technology serve as a resource for educators integrating technology into any type of course – distance learning, hybrid, or traditional face-to-face classroom.

Focus on pedagogy, not technology. Start with your imagination. Initially, set aside thoughts of particular technologies. Think first like a science fiction storywriter. Identify how you would like to teach if anything were possible technologically. Your vision will help others help you identify the most promising and appropriate technologies to make your vision a reality.

Set expectations clearly. When teaching practices change, students need to understand clearly how you expect them to adapt. This is especially true when introducing new technologies to the classroom. When students' personal computers malfunction, what are your expectations for completing assignments? What if the campus network is inoperable for 24 hours? For one minute? What are your expectations? What digital file format (e.g., PDF, Word, etc.) do you expect? What about use of computers and cell phones in class? Does your syllabus state that you reserve the right to make changes as needed?

Choose high-quality over high-tech. Just because it is the newest option with the most bells and whistles does not mean it is the best choice for your course. In some cases and for some professors, a piece of chalk or dry erase marker is the best educational tool. High-tech does not work well for all courses and can be distracting and discouraging for some students. The trick is to find what technology works best for what you are trying to accomplish, your students, and your level of comfort. Just because a colleague is teaching a course using a particular technology, does not mean it fits the needs of your course – be selective and deliberate when using technology.

More technology requires more organization. The more technology you integrate into your course, the more organized you should plan to be as you prepare your course. Recognize that not all students have been exposed to the technology you are using in the class. For much of the technology you may use, it is important to have resources explaining the technology and how-to guides and exercises for practicing with the technology. One idea is to have modules with quizzes at the start of the class session for each piece of technology that will be utilized (e.g. how to navigate the online classroom management system). Embedded videos explaining the technology can be highly effective.

Accommodate before you innovate. Sometimes your preferred technologies may be inaccessible to some students. Not all students may be able to afford laptop computers and cell phones for use in class. Not all students may have Internet access at home. Your pre-recorded lecture videos may be inaccessible to students with visual or hearing impairments. Many of these challenges have existing technological solutions. Be aware of accessibility and accommodation concerns and consult with your campus disability resource center, if needed.

Appeal to multiple styles of learning. Some students love electronic textbooks. Other students love social media. And yet other students love online lectures. The bottom line is that while most college students today are adept at using technology, not all students find the same electronic resources engaging and beneficial to their learning. Therefore, it is important to include variety in the technology you use in teaching.

Don't let technology make you mechanical. Academic technologies can automate teaching in many ways. Quizzes can be graded automatically. Email reminders and pre-recorded content can be sent automatically. Course progression for individual students can be managed automatically. These can be

valuable time-saving innovations. Still, students need and will expect specialized, real-time attention from their instructors as well. Consider offering telephone and/or web-based office hours if teaching online.

Use technology to teach, not entertain. Show a funny YouTube® clip in your class and you'll probably capture the attention of your students. As a class opener or to engage your students this can be highly effective. However, when overdone, the technology is now entertaining, rather than teaching, your students. Technology in the classroom can be entertaining, but should ultimately support the student learning outcomes of the course. For example, PowerPoint® lectures that integrate animation, automatic slide transition and excessive embedded video links can be distracting and take away from the lecture itself. Instead, develop slides that are organized, have a limited amount of text, and include relevant and interesting graphics.

To legitimize, you need to personalize. Cheating and plagiarism are very legitimate concerns. Expanded use of technology in classrooms can raise these concerns. For example, student can copy in-class exams using a plain-looking pair of eyeglasses with a high-resolution camera ($80). Personalization in different forms can help. Require students to show photo IDs when submitting exams. Create assignments that require students to record themselves demonstrating competency. And, of course, get to know students' personal concerns, achievements, and names.

Prepare for technology to fail. The reality is that technology does not always work. The projector bulb may blow in the middle of an important PowerPoint® lecture, the speakers may not work for the video clip you are trying to show, a storm may result in power outage at the time students are supposed to be taking an online exam. We *know* it will happen at some point, so it is important to be prepared with a back-up plan and to be accommodating. Before the start of the course, think about how you may handle failure of technology and be fair and consistent with all students.

Successful teaching strategies integrating technology require both expertise in the course content as well as knowledge and experience with the selected technology. The bottom line is to use the technology you feel most comfortable with and that best supports the learning environment and outcomes for your course.

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