In a recent New York Times article, researchers point out that popular self-paced “brain training” programs have not been demonstrated to improve performance in school or work (DeSteno, Breazeal, and Harris 2017). They chalk up the problem to the lack of social cues in online teaching, such as facial expressions and voice inflections, which are a fundamental part of human interaction.

While I wonder whether their position “proves too much” in that it would also dismiss books and articles as learning devices, they nevertheless bring up a good point in that text-based communication lacks the social cues that are critical to conveying the full message in face-to-face communication. Therefore, people tend to interpret email messages more harshly than intended—they lack the facial and verbal signals we use to modulate the tone of our communication. Hence, emoticons are used to recover the lost fidelity in moving from face to text.

This fact tends to be lost on online course developers in higher education. Most course developers default to text communication when developing their online content, basically transcribing what they would normally say in a face-to-face lecture and assigning readings as outside resources. Perhaps, as academics, they are most familiar with communicating through articles and so assume that all asynchronous communication, needs to be similarly text based. But important information is lost in that communication, so course developers should be taught to look for ways to develop content and activities that incorporate social cues, defaulting to text only when there is no alternative. Several relatively easy ways can be used to incorporate social cues into online teaching.

Content
I have long noticed that the best online teaching content is coming from the private sector and massive open online courses (MOOCs), not traditional higher education. Instead of text or voice-over PowerPoints, which simply read bullet points to the viewer as if they were illiterate, the private sector and MOOCs use videos of real people and things, so they are the go-to method for teaching outside of higher education. Their videos, thus, capture the social cues that are a key to communication.

Continued on page 6 >>
The Purpose of Educational Technology Is Interactivity

John Orlando

I recently delivered the keynote speech at a conference for medical school faculty. The theme of the conference was Technology in Teaching, and the organizers asked that my keynote serve as a pitch to get faculty members interested in using technology in their teaching. This means that I needed to explain why they should use technology rather than the traditional blackboard.

The request made me realize that I had never asked the fundamental question of why technology is beneficial in learning. Most of my talks are at educational technology conferences, where the value of technology is already accepted. But it is a legitimate question, and we should all ask ourselves if we can come up with a simple answer for why technology should be used in teaching.

Is the purpose of educational technology to replace teachers? This is not as far-fetched as it may sound. Much of technology is designed to replace labor. Robots on car assembly lines replace human workers. But I don’t think this is why technology should be used in teaching.

Is the purpose of educational technology to replace teachers?

The request made me realize that I had never asked the fundamental question of why technology is beneficial in learning. Most of my talks are at educational technology conferences, where the value of technology is already accepted. But it is a legitimate question, and we should all ask ourselves if we can come up with a simple answer for why technology should be used in teaching.

Is the purpose of educational technology to replace teachers? This is not as far-fetched as it may sound. Much of technology is designed to replace labor. Robots on car assembly lines replace human workers. But I don’t think this answer will fly with educators.

Eventually, I came to the realization that the purpose of educational technology is to add interactivity to the educational experience. The fundamental flaw with the traditional lecture is that it assumes information can be transferred from the head of the teacher to the head of the student verbally like data transferring between databases. But learning is not like that. Knowledge is produced by learners in their brains by developing and strengthening neuro connections. The learner interprets a variety of inputs—visual, auditory, tactile—in terms of what he or she already knows and builds upon that prior body of knowledge.

Importantly, creating this new knowledge requires moving the immediate information stored in working memory to long-term memory. That is an active process that requires reflection on the information. Working memory can hold up to only four discrete items. New information needs to push out old information. The learner, thus, must move some of the working memory information to long-term memory to retain it and allow for new information to enter. The traditional lecture does not allow for this, as it simply motors through information without stopping. That is why retention is so incredibly low from traditional lectures.

Faculty members try to overcome this one-way model by asking periodic questions during a class. But those are often met with silence. Faculty members assume that the silence is due to apathy or lack of preparation, but often it is due to fear of public failure. I have found that my keynote serve as a pitch to get faculty members interested in using technology in their teaching. This means that I needed to explain why they should use technology rather than the traditional blackboard.

Is the purpose of educational technology to replace teachers? This is not as far-fetched as it may sound. Much of technology is designed to replace labor. Robots on car assembly lines replace human workers. But I don’t think this answer will fly with educators.

Eventually, I came to the realization that the purpose of educational technology is to add interactivity to the educational experience. The fundamental flaw with the traditional lecture is that it assumes information can be transferred from the head of the teacher to the head of the student verbally like data transferring between databases. But learning is not like that. Knowledge is produced by learners in their brains by developing and strengthening neuro connections. The learner interprets a variety of inputs—visual, auditory, tactile—in terms of what he or she already knows and builds upon that prior body of knowledge.

Importantly, creating this new knowledge requires moving the immediate information stored in working memory to long-term memory. That is an active process that requires reflection on the information. Working memory can hold up to only four discrete items. New information needs to push out old information. The learner, thus, must move some of the working memory information to long-term memory to retain it and allow for new information to enter. The traditional lecture does not allow for this, as it simply motors through information without stopping. That is why retention is so incredibly low from traditional lectures.

Faculty members try to overcome this one-way model by asking periodic questions during a class. But those are often met with silence. Faculty members assume that the silence is due to apathy or lack of preparation, but often it is due to fear of getting the answer wrong in front of one’s peers. Plus, always answering the instructor’s questions can make the student look like a “brownnoser.”

A better way to inject activity into learning is through in-class quizzes, surveys, and polls. They allow students to respond anonymously, thus eliminating the fear of public failure. I have found that students are very interested in using audience-response systems in classes, such as Poll Everywhere and Kahoot.

One option is to motivate the students’ learning by asking a pre-lecture question. For instance, few people would say they have...
Flipped Learning Mistakes

John Orlando

“Flipped learning” has become a hot catchphrase in education circles as of late, with many faculty members feeling the pressure to flip their courses to escape the drawbacks of the traditional “stand and deliver” model of teaching. The flipped learning model takes the traditional in-class lecture and puts it online as a pre-class activity, thus leaving the face-to-face class available for interactivity, such as answering questions. Yet many faculty and students report dissatisfaction with flipped classes, which has led people to question the whole premise of flipped teaching.

But, as I have previously discussed in Online Classroom (November 2016), objections to flipped learning are often really objections to the way in which it has been implemented. In particular, faculty members who flip courses often do not put much care into designing quality online content. They just post transcripts of lectures rather than create an introductory video that motivates and directs the learning by explaining what the student should get out of the course resources and why. Faculty also often lack a clear understanding of how to use in-class time to build on the understanding that is gotten from the online content.

Robert Talbert, a mathematics instructor at Grand Valley State University, adds two more interesting flipped learning mistakes from his own experience that serve as helpful guides for faculty members looking to effectively flip their courses.

Outside Work

Talbert points out that the traditional view of flipped learning is that the online activities are for mastering content (Talbert 2017), but he suggests that they are really for generating questions. Mastering content is part of the purpose of pre-class activity, but it should not be the only purpose.

The exercise is meant to generate student questions that they cannot answer at the time and so need to bring to class.

Talbert is questioning those who are merely moving their face-to-face lecture online. They deliver content, be it text, video, or outside resources, but do not invite student engagement. They are using the “push” model of learning, where information is pitched by the instructor and caught by the students, rather than one of engagement.

Talbert notes that, once the content is online, it can be used to “launch” in-class learning by requiring the students to engage it in a way that generates questions to bring to class. For instance, students go through a module that teaches Eulerian paths and then run some examples on a computer program. This yields a counterintuitive result, which the students are required to explain.

In-class time

Instructors often assume they need to start classes with an entrance quiz to ensure that the students do the out-of-class work. This is not an issue unique to flipped learning since face-to-face courses also assign out-of-class readings and the like. But instructors teaching flipped courses seem to feel especially pressured to ensure out-of-class work perhaps because they don’t actually see the students attending the lectures. The way they normally do so is with a quiz at the beginning of class.

But Talbert notes that these quizzes only induce anxiety and might subconsciously cause students to shut down afterward. He suggests replacing these graded quizzes with “guided practice.” The difference is that guided practice uses questions that students solve in class without being graded. These questions can be given to students at the beginning of class, like a quiz, or before class. But the students work on that question in class, and at the end the instructor goes through the answer. Students do not worry about a poor grade; they are more focused on learning what they did wrong if they did not get the question right. Instead of only testing prior knowledge, the activity creates learning.

I would add that the instructor can use an in-class audience response system, such as Kahoot, to gather answers from the student before going through the problem to see how many get it. Students like to see whether they are in the majority or minority without being

Continued on page 7 >>
Online Classroom

institutions, these librarians hold graduate degrees in the fields to which they are assigned. They also usually possess many years of experience working with faculty from those fields. Combined with their training in developing collections, these librarians bring considerable expertise when selecting resources to be used in class and should always be consulted when choosing textbooks, articles, and other materials being used in class. They often know of material that faculty members are not aware of. They are also up-to-date on what databases and other electronic resources are currently offered through the library. This is no small detail because licensing agreements and available titles shift regularly as libraries and vendors renegotiate their existing contracts. Consequently, it is best to always include a course’s assigned librarian in all stages of course design, as the librarian may have more current knowledge regarding available resources than an instructor or instructional designer.

Copyright is another important area for consulting librarians. Many instructors have become accustomed to freely using materials in face-to-face courses on the grounds that this is educational use. While such use is almost always compliant with copyright law, things get messier in online courses because the educational use exemption is intended only for traditional classroom instruction. When making resources available online, instructors must adhere to the TEACH Act of 2002, which puts limits on how copyrighted materials can be used in a classroom. For example, instructors can use only the amount of a copyrighted work that is needed for a lesson, that lesson must be relevant to the course material, and access to the materials is limited to only the amount of time needed for the course. Furthermore, the material cannot be accessible to anyone not enrolled in the course, and reasonable attempts must be made to prevent students from downloading and distributing the copyrighted material.

Sound complicated? That’s because it is. So it’s a good thing that librarians are available as resources to provide support in making sure everything used in an online class is compliant with copyright law, including the TEACH Act. Furthermore, librarians have taken a leading role in the promotion of open educational resources (OERs) and can often recommend resources that are licensed for use. These include learning objects, test banks, activities, open access journal articles, electronic textbooks, and even entire courses. Selecting such resources does not just help save money for students but can also help you improve your course, as, in many cases, they are superior to copyrighted material that is frequently included in courses. This is contrary to a widely held notion that cost is correlated to quality, a myth that is probably perpetuated by many publishers. As with copyrighted materials, instructors and instructional designers may not be current on where OERs are located, especially for specific concepts. Librarians, however, track these resources as part of their jobs, and some of the larger institutions have even hired librarians specifically assigned to curating OERs. Therefore, instructors and instructional designers interested in incorporating OERs into courses should seek out their assigned librarian for assistance.

Librarians can help with much more than selecting course materials, though. Pedagogical training is now more common in library schools and professional development. Consequently, librarians can help develop instructional resources for the online classroom, such as tutorials on how to use library-related resources for research projects. It is rare to find an academic library that does not have a librarian assigned to online courses and is responsible for the development and promotion of such resources. These resources are easily integrated into any LMS and incorporated into the course seamlessly. Better yet, the librarians themselves can be embedded into the course and assist with the development and grading of assignments. Unfortunately, in my experience, instructors tend to be completely unaware of such services. At my institution, for example, we get only a handful of such requests every semester, and almost none of those requests come from instructors teaching online courses. This is unfortunate because instructors tend to agree that their students lack basic information literacy and research skills yet do not realize that they have an excellent resource available to help solve those problems. Consequently, instructors and instructional designers should be discussing how to integrate librarians into the instruction of the course, especially since students are unlikely to seek out librarians outside of the online classroom.

Librarians are a key, and often forgotten, resource for developing online courses. Engaging them right at the beginning of the development process saves faculty members time and improves the educational experience for their students.

Andrew J. Cano is a virtual learning librarian and assistant professor at the University of Nebraska-Lincoln. @
The Online Course Test-Drive

John Orlando

Drexel University is among several schools that offer students a free “test-drive” course before taking a full online class (Goodman 2017). This is a shortened version of a regular online course meant to allow students to determine whether online learning is right for them. Drexel says students who take the course are twice as likely to enter an online program than those who do not. The test-drive also prepares students for online education in a no-pressure environment, helping to reduce many of the initial problems that students encounter when they first take an online course. Plus, the test-drive can flag students for whom online learning just does not work, thus preventing failures later.

Drexel is applying the “freemium” model that has become standard in the online software industry. Systems such as Evernote provide a free version with limited features to try out. Users who like it normally reach a point when they want more features and are willing to pay for the premium version. Higher education is unique in expecting customers to plunk down an enormous amount of money for their product without any test-drive at all, and any institution willing to offer a test-drive will have an enormous marketing advantage over others.

Institutions looking to implement a test-drive program have a range of options at their disposal. Capella offers a complete course. My guess is that this is not instructor led due to the cost of paying for an instructor and so not a genuine online learning experience, but its length can test a student’s resolve for sticking with an online course over the long haul better than a one-week module. Kaplan allows students to take a live online course without cost and leave after three weeks if they are not satisfied, which is probably a better representation of the online experience for participants. In some sense, this is just a clever marketing gimmick because students normally get a full tuition remission when pulling out at the beginning of a course anyway. But the packaging as a no-obligation test-drive sells that opportunity to potential students.

More than 100 student and faculty volunteer “ambassadors” handle the interaction with participants.

Drexel’s program offers participants one module of an online course, including content, assessment, and discussion. The experience is interactive, so it closely represents a real course. To make it work financially for the institution, more than 100 student and faculty volunteer “ambassadors” handle the interaction with participants. In this way, Drexel provides an enticing experience for participants without a huge instructional cost, a powerful formula for drawing students into online education and preparing them for their classes.

Faculty options

It is worthwhile for an institution to develop a test-drive course for its own online course program, especially given the spectrum of options and costs. But a faculty member can take the initiative with his or her own test-drive program. At the very least, a faculty member can post some of the course content in a public location for prospective students to view. I’ve mentioned previously in this publication how faculty members mistakenly put up their CVs on their faculty websites. Students are not interested in what the faculty member published or where the faculty member went to school but rather what the classroom experience will be like. Faculty members would do better by providing an introductory video about their classes, explaining what they are about and what students will be doing.

A faculty member can also put an entire online module on a website outside the school’s learning management system to give students a sense of what online content looks like. If the faculty member’s school-designated website does not support or allow online course content, several free systems for hosting web content are available, including Google Sites, Weebly, and Zoho. A faculty member teaching a flipped course can essentially kill two birds with one stone by posting the online content on a public site rather than within the closed learning management system. That content would both serve current students and allow potential students to learn what the course looks like and decide whether it is right for them, a kind of partial test-drive.

The next step up would be for a department to host a section of an online course on a public website for potential students to test-drive. This could be a fully functioning module, including content, discussions, and assessment, to give students the real experience of online education. Like Drexel, the interactivity could be provided by volunteer faculty, graduate students, or...
The best source of examples of effective online teaching content is YouTube. Channels such as the SciShow release engaging videos designed to leave viewers knowing something they did not know before. They do it by blending face-to-face shots with images of the topic or animation to provide both social cues and content that produces real learning. Notice how this example integrates those elements, and think about how it compares to the traditional higher education online content: https://youtu.be/GyiIBY6GO1Q.

Some faculty members think it takes a professional to create these types of engaging videos, but it does not. Barbara Oakley and Terrence Sejnowski of the University of California, San Diego, created exceptional green-screen videos for the most popular MOOC on Coursera using a cheap green cloth, a few lights, and a camera to create a studio in their basement. The focus of the video is of one of them speaking to the camera while imagery is added around them to illustrate their message. This imagery was added by inexpensive software that any instructional designer can master. The only real requirement is a sincere desire to communicate with the student. See our detailed description of the course in the August 2016 issue of Online Classroom newsletter, an example of the videos used, and directions for making green-screen videos in the June 2016 issue.

**Discussion**

The default for online discussion is text threads, but there is no reason that discussions cannot involve voice and face. Simply putting the content on VoiceThread will allow students to reply by voice or video, and many learning management systems also allow for voice or video comments in discussions. I like to provide a video wrap-up at the end of each online discussion, as seen in this (very old) example: https://youtu.be/b7vq8J_gZuQ. While the production values are not the greatest, they do not need to be. Communicating with sincerity is the most important goal.

**Voice and Screencasting Feedback**

Most faculty members default to margin comments when providing feedback on student work because that is how it has always been done. Feedback, in particular, is an area where the loss in fidelity of written communication can badly undermine the message. Faculty forget that, like emails, feedback can be interpreted far more strongly by students than intended. I also see written feedback that would be interpreted as callous or hostile by students even though I know that the faculty member did not intend it that way. This is one of the reasons students often do not follow feedback given on their assignments.

Voice and screencasting feedback are exceptional ways to recover the nuances that are needed to communicate difficult messages to students. Whereas people tend to focus on what was done wrong only in written feedback, the tone of the instructor’s voice and the facial expressions can indicate to the student that there is hope for improvement, and faculty members tend to move beyond simply pointing out the wrong when they move to voice or screencasting feedback. Again, the processes for providing voice and screencasting feedback are remarkably simple and are explained in the July and August 2017 Online Classroom newsletters.

Social cues can be incorporated into online courses in many ways. Try some of these, and discover how they lead to improvements in course culture and student learning.

**Reference**

an innate interest in the thermodynamics of gas flow. But imagine that your physics instructor started his or her lecture by asking the following question: “Assume that I inflate a balloon with helium and put it inside a car with the windows shut. It floats stationary in the middle of the car. Now I accelerate. Will the balloon stay in the same place, go backward, or go forward?” The instructor then asks the students to vote on it through their cell phones. You render a guess. Afterward, the instructor tells you the balloon will go forward. Like most students, you probably guessed wrong, which is what the instructor wanted, and now you are interested in learning why. You have just become interested in the thermodynamics of gas flow.

Another option is to ask questions during a lecture. They can be simple recall questions, such as “What are the number of genes in the human genome?” or can involve the application of concepts, such as “Which type of bridge would be ideal in X situation?” A student who gets it wrong will have his or her understanding corrected on the spot, and the instructor can determine how many of the students misunderstand a concept.

Finally, faculty can ask exit questions at the end of a lecture. Once again, these questions can inform the faculty member of how well students understood the material to return to it in the next class if necessary, but they also show students what they missed and need to exam again on their own. This type of assessment needs to include information on how to correct misunderstanding, such as places where the concepts are covered in the class material. Too often, faculty members tell students only that they got something wrong, not how to correct their misunderstanding. Faculty members complain about students’ obsession with grades, but students are anxious only when they do not see a path to improving their grades. Allowing students to return to the material to relearn it and take an assessment again not only improves learning but also reduces faculty members’ headaches over students’ lobbying for higher grades.

Rather than replacing the teacher, faculty should focus on how technology can be used to get students to spend less time texting and more time engaging with the material. That is the real reason for technology in the classroom.

The major lesson is that the flipped classroom does not just invert the location of student work and content delivery; it should also integrate them so that students are using one to instigate the other.

Reference
Six High-Touch Processes for Improving Student Learning in Online Classes

Chris Roddenberry and Tom Rankin

In the fall of 2016, we embarked on a journey to integrate high-touch processes into our online introductory courses in psychology and business administration. Examples of our processes include such well-known technology best practices as instructor personalized videos, synchronous events, text messaging, virtual office-hour sessions for students, contacting at-risk students during the first week of class, issuing reminders, and following any missed assignments with a personalized message.

**Instructor personalized videos**

**Process Used:** Weekly personalized video, generally one to three minutes in length. Most often the videos were utilized as an update of upcoming items along with recaps of the prior week’s learning. The videos often included instructor’s insights and were shot at various locations and done with another instructor to create interaction.

**Technology Used:** iMovie, Movie Maker, and Camtasia

**Initial Learning:** Students were forgiving and really appreciated our efforts. The students found the fun nature of the process, personal stories, and insights outside the textbook very rewarding.

**Synchronous events**

**Process Used:** Weekly online synchronous events, such as virtual office hours, online seminar discussions, homework help sessions, and lunch and learn sessions.

**Technology Used:** Adobe Connect and Skype for Business

**Initial Learning:** Students enjoyed getting the opportunity to have access to instructors who had time to focus on their needs.

**Text messaging**

**Process Used:** Students opted to receive updates, reminders, and access to instructors via text messaging.

**Technology Used:** Remind, Blackboard IM, and others

**Initial Learning:** Students who participated found this form of communication valuable.

**Virtual office hours**

**Process Used:** Each instructor did two to three hours of virtual offices per week.

**Technology Used:** Adobe Connect and Skype for Business

**Initial Learning:** Students found it rewarding.

**Contacting at-risk students during the first week of class**

**Process Used:** We created a model to forecast student success. We contact at-risk students during the first week of class. This contact was to build trust and presence between instructor and student.

**Technology Used:** Emails, phone calls, texts, and face-to-face meetings with students on campus

**Initial Learning:** We built trust with at-risk students early in the semester. Contracting and following up on low-risk assignments is of high value to improve success.

**Issuing reminders of upcoming due dates**

**Process Used:** Reminders of due dates were sent weekly in the form of texts, emails, checklists, and announcements.

**Technology Used:** Emails, texts, and LMS announcements that are often programmed to go out on certain dates.

**Initial Learning:** Students performed better, especially at-risk students.

**Following any missed assignment with a personalized message**

**Process Used:** We followed up with students who did not submit assignments to understand how improvements could be made.

**Technology Used:** Emails, texts, LMS grade books, phone calls, Starfish

**Initial Learning:** Instructors should seek to listen to students and understand their perspective without lowering standards.

Student surveys showed a substantial improvements. The question with the biggest improvement in student opinion: The course challenges me to obtain a deeper understanding of content. Students were more likely to successfully complete the course. Students performed better on standardized test questions.

We will continue to evolve our protocol/process, but the idea to collect best practices and turn them into best processes appears to have some real merit.

Chris Roddenberry is an associate professor of psychology, and Tom Rankin is an assistant professor of business administration at Wake Technical Community College.

---

**Next Month’s Topics**

- Teaching with assessments
- Reconceptualizing your teaching in an online environment
- Finding and creating images for online content
- Group study in an online environment
- Methods for teaching outside of the LMS