Smart Ways to Use Smartpens: Personalizing Online Classes

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Abstract

Research shows most students prefer that instructors incorporate their personalities into online classes. Previously, this has been accomplished using such technologies as videos and voice-over PowerPoints. This article describes a newer tool – the smartpen. This tool easily captures the written word along with accompanying audio. Additionally, the authors discuss how to create pencasts and integrate them into online classes as a way to provide more meaningful communication between instructors and students.

Keywords: pencast, smartpen, technology, elearning, online education

Traditional course delivery typically involves a variety of activities occurring in the classroom, but regardless of what these activities are, it is necessary for both the teacher and the students to be in the same place at the same time. This allows for face-to-face communication between the two. In contrast, distance learning allows the teacher and the students to be separated by both physical distance and time while engaged in the course (Belanger & Jordan, 2000). This separation, however, makes personal communication more difficult. Although online classes are now a more common method of course delivery, many educators still have valid concerns about communications between online teachers and their students. In many online classes, teachers limit their interactions with students to word documents, emails, and online discussions. While these are useful means of communication, they all focus on the written word, and it can be difficult for instructors to reveal their personalities through these avenues of communication. Students receiving these types of communications may not feel a connection with the instructor because they are not able to hear the instructor's voice.

While some students prefer to have little or no contact with the instructor, many others prefer that their teachers exhibit a distinctive online persona (Reupert, Maybery, Patrick, and Chittleborough, 2009). In a study of twelve course components in online classes, Coombs-Richardson (2007) found that students ranked instructor's personal touch as the third most important component in an online class. This placed the instructor's personal touch higher than flexibility of assignments, instructor feedback, content, technical assistance, schedule, written assignments, readings, and exams. Reupert, Maybery, Patrick, and Chittleborough (2009) suggest including voice-over PowerPoint slideshows and videos as a means of enhancing the instructor's personality in online classes. Another benefit of communication presented both visually and audibly is that the student is more likely to recall information when it is presented using more than one of the senses (Banikowski, 1999).

As technologies continue to be developed, teachers of online classes have more tools available for creating high touch learning materials. One such tool is a smartpen. This advancement in technology allows teachers to easily create a pencast—an interactive document that combines recorded conversation with synchronized handwriting (Van Schaack, 2009). Most research on the use of smartpens and student achievement has been conducted using survey data. Powers, Bright, and Bugaj (2010) reported nearly half of the students responding to a survey in a pharmaceutical calculations class stated they viewed pencast lectures, and of those, 92.6% felt the pencasts enhanced their learning. Additionally, students who viewed the pencasts indicated they believed pencasts could also enhance learning in other courses. Czocher, Tague, Baker, and Roble (2013) conducted a survey in a differential equations course, and 107 students responded to questions regarding the use of pencasts. The students indicated pencasts were easy to follow and guided them when solving problems. The researchers found the pencasts had value as instructional aids and students viewing the pencasts were looking for more than "just an answer" (p. 4).

Currently Livescribe offers three versions of the smartpen: the Echo, which connects to a laptop or desktop using a USB cable to transfer notes and audio; the Sky, which uses Wi-Fi to transfer notes and audio to an Evernote account; and Livescribe 3, which uses Bluetooth technology to transfer notes and audio to smartphones and tablets. Smartpens

range in price from a 2 gigabyte Echo, which costs approximately $120, to an 8 gigabyte Sky, which can be purchased for approximately $250.

The smartpen described in this article is the Livescribe Echo pen, which is the most economical of the smartpens. It is similar in appearance to a ballpoint pen and only slightly larger (see Figure 1). In the same way that you would use a ballpoint pen, you can use the smartpen to write on special paper that is purchased from Livescribe. The smartpen contains a built-in camera capable of capturing handwriting along with a microphone that records the instructor's spoken words. Echo smartpens are available with 2, 4, and 8 gigabytes of internal memory and can store up to 800 hours of recording time. The smartpen comes with instructions for downloading the Livescribe Desktop software, which provides the interface between the pen and computer. This software also allows pencasts to be emailed directly to a student, embedded in a course management system, or posted on a blog, website, or social media.

Figure 1. Livescribe Echo smartpen.

The smartpen supplies the technology for a teacher to provide a quick response, including both visual and audio components, to a student. For example, Figure 2 shows a homework problem that a college algebra student might have trouble completing. Prior to the development of smartpen technology, an instructor could call a student and try to explain the problem over the phone or type out steps in an email and hope the student could interpret them. A really industrious online teacher might write the steps for the problem, scan them, and email them to the student. The student would then receive an

email which contained a PDF file similar to the one shown in Figure 2. Compare that to the pencast created with the smartpen for the same problem. To view the pencast for this problem click here [requires Internet Explorer or Safari]. The inclusion of audio provides the student with a much better explanation of the problem and the steps necessary to complete it, including pointers on using a calculator to solve the problem. This pencast can be created and sent to a student in approximately 5 minutes following some very simple steps.
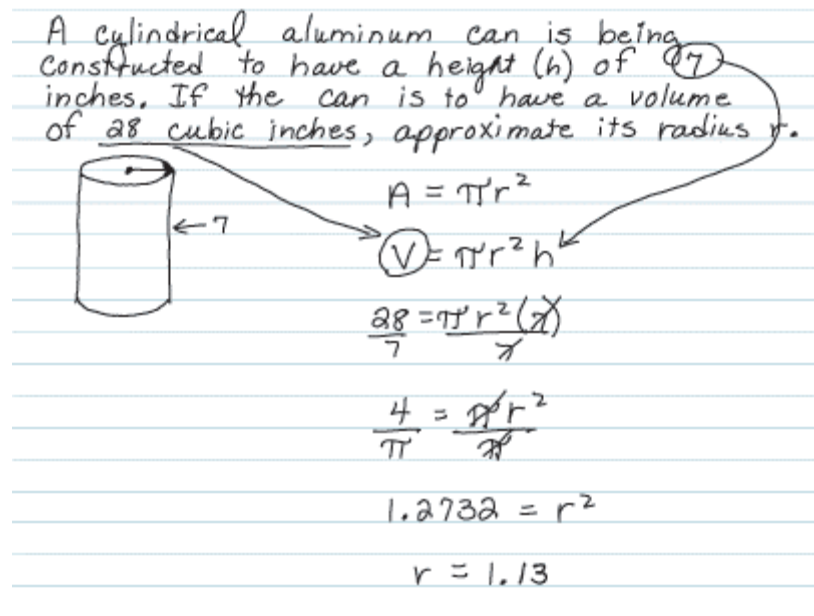

Figure 2. College algebra problem.

Steps for creating a basic pencast for solving a problem:

1. Turn on the smartpen. Begin by writing the problem on the page.
2. Tap the **record** button (see Figure 3) at the bottom of the notebook page. You can now solve the problem by writing the steps and including the voice explanation.
3. When you have finished recording, tap the **stop** button (see Figure 3) at the bottom of the notebook page. If a problem takes more than one page, continue writing on the next page without stopping the recording.
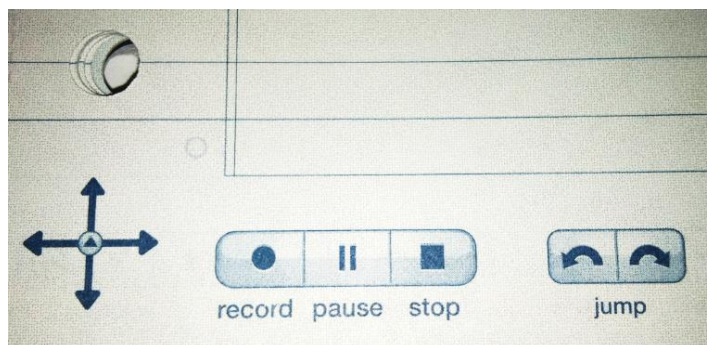
Figure 3. Livescribe notebook page buttons.

A slightly more sophisticated pencast might include images such as graphs or calculator screen shots. Livescribe makes available a video as well as an article in their education blog detailing the process for embedding images and text into a pencast (Glascoe, 2011; Livescribe Training, 2012). An example of this type of pencast is shown in Figure 4. You may click here to view this pencast [requires Internet Explorer or Safari].
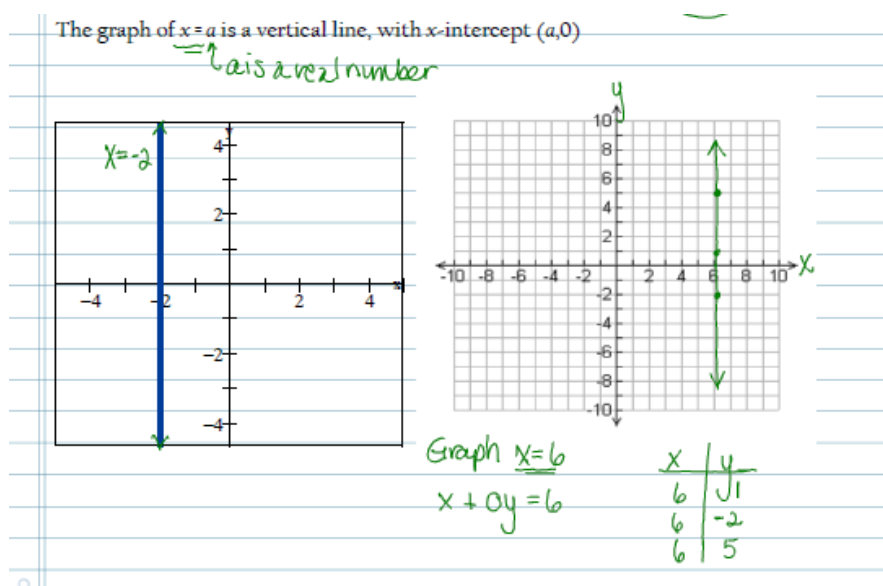

Figure 4. Pencast with embedded text and graphs.

Both of the authors of this article teach math and use the smartpen in their own classes to provide initial instruction, explain assignments, and provide other assistance for students. The smartpen can also be integrated into other disciplines. For example, the

smartpen can be used to provide feedback about student writing. Figure 5 shows an instructor's pencast response to a student's paragraph, containing both the written comments from the teacher and the audio explaining why these changes should be made. To view this pencast click here [requires Internet Explorer or Safari].
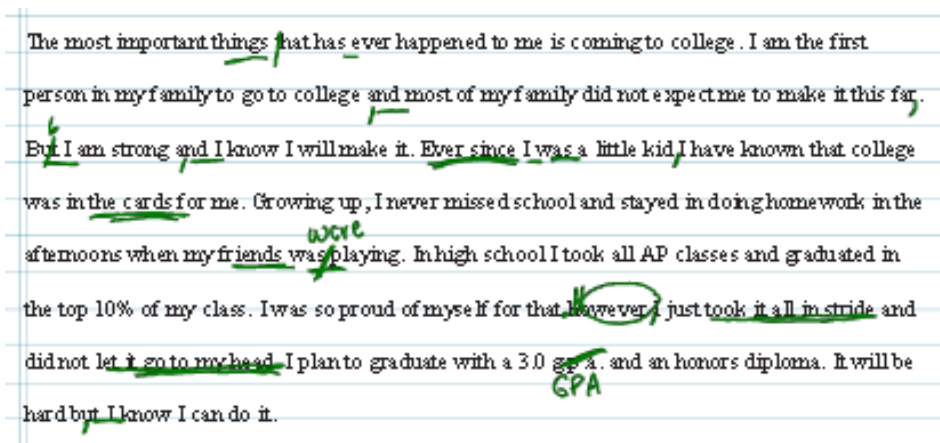

Figure 5. Paragraph with edits.

After a pencast is created, it can be made available to the student in a variety of ways. First, the pencast must be transmitted to the computer and saved as a PDF file with audio. Steps for doing this are as follows:

1. Connect the smartpen to your computer using the USB cable provided with the pen.
2. The recording will be transmitted from the pen to the Livescribe Desktop.
3. In the Livescribe Desktop, find the page you created and click on it. You will then have to choose where to send this page.
4. You now have the option of saving the page as a pencast PDF file with audio.

This file can be emailed directly to a student or, if it is of interest to the entire class, it can be posted into a course management system such as D2L or MyMathLab. To view pencasts, students need only a computer with the latest version of Adobe Reader, which is a free download. The smartpen is extremely easy to use, and the instructions with the pen are easy to follow; there is additional help online if it is needed. Within a matter of minutes after receiving the smartpen, the authors had created a rough pencast.

One concern regarding the smartpen is that currently there are no editing capabilities. If you make a mistake while recording, the choice is to correct it by restating or rewriting or to start again and re-record the entire session. Because of the lack of editing capabilities, we suggest that pencasts be relatively short. You should draw any figures and write any lengthy passages before you begin to record the audio to minimize dead air time. You may also find it helpful to work from a script. If you want to highlight text and objects, you must circle or draw a box around them, so leave room to accommodate these markings. Color cannot be added unless you change the ink cartridge in the pen or add typed text or images containing color.

As online education continues to expand, providing a personal touch for students becomes more important. Smartpens can help take the "distance" out of distance learning by infusing an instructor's personality into an online class. With writing and audio linked, pencasts also provide students with additional information while providing a personal touch from an instructor. The authors of this article use smartpens in their online math classes, and students' responses are very positive. In course surveys, students indicate that the pencasts are very helpful. One student stated, "When you're not in a classroom watching an instructor on a white board, it is helpful to see the steps laid out on how to solve problems." Upon receiving a pencast from her online math instructor, another student commented that it was unexpected. She added, "I can't imagine how many students she must have at any given time and yet she took the time to do that for me."

Compared with other technologies that accomplish this type of communication, such as voice-over PowerPoints, the time and effort required for using the smartpen is substantially less, and pencasts are a cost effective way for teachers to quickly and easily assist online students. The only limitation to the ways pencasts can be created and used is in the imagination of the teacher.

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