Problem

Class lecture remains the principle method for communicating course content to students. Accordingly, notetaking during lecture is considered essential to student academic success (Titsworth, 2001). The process of taking notes engages a student in the learning process and assists with deepening their comprehension and ability to synthesize new material (Katayama & Crooks, 2003).

But how hard is it to take good notes?

Note-taking can be challenging for all students; students typically record less than 50% of the key information presented in lecture (Anderson and Armbruster, 1991). We can assume that students with disabilities such as learning disabilities (LD) in reading or writing, ADD/ADHD, Dyslexia, and other bona fide barriers that affect information processing (chronic pain, physical impairments, Autism Spectrum Disorders, etc.) would have additional challenges to perform at this level or better. Furthermore, according to Piolat, Olive and Kellogg, (2004) it takes more cognitive effort to take notes from a lecture than it takes to play chess, read a book, or even read a sentence.

Considering that between 1990 and 2008, there was a 166% increase in students with disabilities in general education settings (McLeskey, Landers, Hoppey & Williamson, 2011) re-thinking notetaking has never been more timely and critical.

Despite advances in electronic course delivery, most university content is still conveyed through class lecture, which necessitates note-taking by students (Maydosz & Raver, 2010). Typically, colleges and universities provide note-taking accommodations through an in-class note-taker, who may be a volunteer or student who is paid for providing a copy of his/her notes. In addition, faculty may provide a copy of their lecture notes to the student in lieu of a peer note-taker. Recruiting student note-takers can be a tremendous challenge, and payment for notes can be an expensive endeavor.

For example, if a college pays note-takers a stipend of $25 per credit for a typical three credit class, it is not uncommon for a college to pay as much as $10,000-$50,000 or more per year on note-takers.

If peer note-takers are expensive and hard to find, is there a better alternative in the ever-changing realm of learning technology?

Sonocent Audio Notetaker, an effective, established learning technology software, is a cost-effective tool that empowers all students to take more effective notes.

Evidence

Brazeau (2006) argued that active learning, considered a key aspect of student engagement, is reduced when students are not directly involved in the process of collecting and sorting information for notes. If a student with a disability (SWD) only has a copy of another student's notes or notes from an instructor, for example, he or she may be missing out on the critical active learning that occurs during the note-taking process: thinking about the information, sorting it, evaluating importance, and synthesizing with other related course material. Students with learning difficulties are often passive learners (2006). Combining passive notes and passive learning strategies poses serious negative educational consequences for SWD.

When presented in lecture format, things like multiple concepts, facts, and vocabulary may be difficult for students with LD to learn, especially if content is presented at a fast pace or is dense (Scruggs et. al, 2008). As a result, the notes that they take are often incomplete. If information is recorded poorly in their notes, students will more likely perform poorly on tests (Stringfellow & Miller, 2005).

Lastly, many students who use a note-taker also struggle greatly with reading comprehension. Even if the notes are perfect, how much of that information will the SWD actually be able to use? Accessible notes are a vital part of an accessible education and written notes are not accessible for many SWD.

Traditional note-taking accommodation models place students at risk several times during the learning process: as they learn during lectures, when they study their own inaccurate or incomplete notes after class, or when they try to read the notes provided to them by a student or faculty (Suritsky & Hughes, 1996).

Is the "level" playing field accidentally tilted for many students using traditional note-taking accommodations?

The evidence clearly indicates that traditional note-taking creates a deficit for many students with disabilities. With the ever-changing world of learning technology, it makes sense to review new ways of empowering all students to take more effective notes.

Solution

Why Sonocent Audio Notetaker?

Audio Notetaker does not rely on words, which is critical for students with disability-related barriers that affect reading. Audio Notetaker visualizes audio by creating bars of color that begin to grow when the instructor starts talking and end after each verbal pause. In essence, the lecture is "chunked" into manageable units of information without relying on written words. Audio Notetaker can incorporate an instructor's PowerPoint, PDFs, and other visual content for lecture, thus allowing students to record some basic annotation of the combined audio and visual either at that time or later after class.

In addition, Audio Notetaker recordings are more than just the audio recording created by a digital recorder, smartphone, or laptop alone. Audio Notetaker allows a student to focus on listening during class and to review the audio recording of lecture later, annotating and highlighting important content. Audio Notetaker captures a lecture in manageable, visual "chunks", rather than a long tedious audio recording, so working with the lecture is easy.
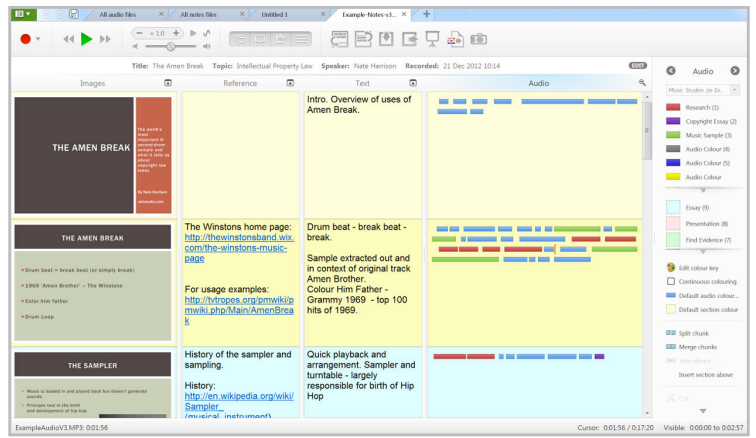
Sonocent Audio Notetaker

Testimonials

> "I'm using Audio Notetaker for my History class and I find it very helpful. After I'm done taking notes I can go back and see what I've missed and correct errors in my notes. It gives me confidence because I know I will have the lecture on hand and can refer to it whenever I need to. I find myself more prepared for class than I was before. I can check my written notes against my audio notes. I use the color-coding all the time with my notes to switch when my teacher is speaking compared to when we watch films."
>
> **Dakota (Community college student with a learning disability)**

Using Audio Notetaker provides a critical opportunity to increase retention and minimize information loss in a "hands-on" environment, allowing students with kinesthetic learning styles to shine. Students can interact with lecture material and "play" with the material after class.

> "Audio Notetaker helped me a lot this past year…I felt more relaxed that by recording my class lectures, I could go back and listen to any details that I couldn't remember. In one of my classes, the instructor changed the exam dates several times, which became confusing. I was able to go back and listen to the lecture to find out the actual date of the exam. Audio Notetaker also helped me a great deal in my computer networking class. While I was practicing with my instructor on physically putting together a network, I could record the discussion and get all the details and steps I needed to be able to study/practice for my final exam. I recommend Audio Notetaker for students on the spectrum."
>
> **Garth (Community college student with an Autism Spectrum Disorder (ASD)**

A 2008 study found that students scored higher on exams when they had a chance to review a podcast and PowerPoint and take notes on the audio, rather than relying solely on written lecture notes. Furthermore, students who created their own notes from the podcast obtained higher test scores (McKinney, Dyck & Luber, 2009). Considering that compared to a podcast, Audio Notetaker provides a superior visual anchor that is both interactive and organized into chunks of audio, one could infer the same positive results or better for students using Audio Notetaker.

Save Money

Audio Notetaker is a cost-savings tool as well. Providing notes to 100 students via a paid peer note-taker in two classes each, per semester (at $25 per credit), costs a college $30,000 in one academic year.

Universities and colleges utilizing the flexible Audio Notetaker loan-license program for those 100 students have a one-time investment of just under $11,000 ($107.99 SRP each for 100 licenses). The university or college would save at least $49,000 ($11,000 vs. $60,000) for students completing two-year degrees and at least $109,000 ($11,000 vs. $120,000) for four-year degrees. The loan-licensing program is uniquely designed for universities and colleges to be able to cost-effectively manage licenses of Audio Notetaker to students with differing degree time-frames. Loan-licenses can be reassigned easily in cases where a student transfers in or out, or when the student graduates and moves on to his or her professional career. Incremental savings to the college or university accrue every year a SWD uses Audio Notetaker.

Audio Notetaker is an innovative and interactive note-taking tool. It serves as an anchor for recording, reviewing, and interacting with class lectures. As a result, it empowers students to work to their strengths and be active learners, which copies of peer or instructor lecture notes noticeably do not provide. Inclusive education predicates that all students can have the opportunity for effectively carrying out the critical task of learning. Audio Notetaker is a vital, inclusive tool that puts the student with a disability in control of their education.

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