

Creating Community in the Virtual Classroom: Choosing Tegrity As A Pedagogical Tool

Deborah Wise, MSIT
Senior Curriculum Designer
Colorado Technical University
dwise@coloradotech.edu

Abstract: As the demand to meet the needs of the non-traditional student increases, institutions need to adopt tools that leverage the technical knowledge of existing faculty with the ability to create curriculum that is interesting and applicable to an active learning model. Multimedia tools that don't require specialized knowledge can have substantial returns in terms of student interaction and retention – as long as they are used to enhance, not replace, what is currently used in the classroom. Features for one such product are highlighted, along with suggestions for where it can best assist current pedagogical methods.

Purpose

Colorado Technical University has developed an accredited graduate degree program in Instructional Technology, to begin in May 2006. Two target markets for this program have been identified: Corporate trainers/educators and k-12 teachers who may be looking for a graduate degree to increase their income potential and advance in their field. These targets work with very different types of learners, yet their challenge is the same: How do teachers/trainers amend traditional pedagogical methods to engage learners in a digital society? The degree program will initially be offered as a hybrid degree (virtual classroom in addition to on-ground class time), although it may be offered as a fully online program in the future. In an effort to serve these two markets, CTU has researched the types of tools that may be used by these groups in their professional environments and have decided on Tegrity as a multimedia learning aid for the instructional technology program, with the possibility of using it in other degree programs as student retention results are analyzed.

CTU currently uses Blackboard as their content management system. While that platform serves the school well as a course repository, synchronous features such as the live classroom have gone unused, largely because they are primarily text-based. The University was looking to enrich the learning experience with sound and media when the decision to test Tegrity was made. Tegrity's easy integration with Blackboard as a Building Block tool was just one factor in favor of its use. Due to the nature of the Instructional Technology program, students enrolled in the program should be more willing to adopt a digitally based tool as a learning aid. My task as a curriculum designer was to develop a course in basic multimedia production, for use with the Tegrity system.

Community in the Classroom

The classroom is the workplace of a student. Here community is developed – the student’s voice is established and their place (in terms of the whole class) is identified. Great instructors draw out naturally shy students and reign in those who might otherwise dominate the group. Eye contact is made, body language is read – it is how we understand communication. Is it possible to replicate that sense of community in a virtual world? In a world where students may never meet? This type of community has traditionally been part of the gaming world, largely due to role-playing. How might instructors bring this sense of community to the classroom?

In an on-ground classroom situation, instructors have the ability to create an environment where learning can take place. They can determine the knowledge base of the class, offering the scaffolding pieces where students can apply new concepts to what they already have learned. Enlightened learning – the “ah-ha” moment - happens when learners can make that connection between what is in long-term memory with what is being presented (Briskin 1998). Can this depth of interaction be accomplished when we see nothing more than images on a computer screen? The challenge in virtual communities is to create an environment that touches as many of the senses as possible, allowing for the synchronous exchange of dialogue and ideas between students and instructors, while remaining mindful of course goals and objectives. We chose to use Tegrity to try and bridge this digital gap by reinforcing a visual message with sound and action (use of changing multiple screen shots).

Quality of Learning in a Technology-Driven Environment

Will a student learn better just because we can throw more materials at them through a content management system? Will 2G of class materials actually cause a student to learn the material more effectively than 500M? Meaningful learning depends on the learner’s cognitive activity during learning rather than on the learner’s behavioral activity during learning (Mayer 2001). Reading ten white papers on a subject won’t create meaningful learning if the student can’t actively relate what is being taught to what they already know. Meaningful, active involvement reinforces learning (Rosenberg 2001). More content is not necessarily better. Technology is a tool, not an end. Curriculum that is delivered digitally needs to include activities that will stimulate learning by allowing students to share ideas, collaborate on projects and have fun despite the subject matter. Game-based activities and rewards can not only demonstrate active learning of subject matter, it can provide instant gratification in terms of rubric-based scoring (Calongne and van Tonningen 2006). Students will know in advance how to “score” points in terms of learning outcomes.

The challenge in the virtual classroom is to make this all seamless. The appropriate use of text, audio, video and other enhancements that are introduced to reinforce the message without distracting the learner is nothing short of an art. Cognitive learning theory would lead us to believe that technology can just as easily disrupt the learning experience as help it. Instructors need to be deliberate in their choice of media enhancements, using only what is necessary to connect to the target curriculum.

Faculty Acceptance of New Technology

According to the Sloan Consortium, "...a relatively stable minority of Chief Academic Officers (28% in 2003 compared with 31% in 2005) continue to believe that their faculty fully accepts the value and legitimacy of online education." (Sloan 2005) *That leaves 69% who don't!* Why is faculty so seemingly resistant to online technology?

One reason may be *time*. Many instructors are teaching full course loads, volunteering for committee work and doing research. They believe an online course takes longer to prepare in terms of curriculum. If they are teaching a hybrid course, there may be confusion as to what should be presented in class as opposed to online. They may also be concerned about maintaining discussions and creating interactive, engaging activities. This is where acting as a "guide on the side" may be more helpful than feeling compelled to answer a student's every thought. It *does* take more time to learn and implement a pedagogical tool such as Tegrity. Table 1 below reflects the time involved to record (not develop) a 15 minute lecture segment:

Table 1. Production time for recording lecture

TLC610 Basic Learning Materials Production	
Time (minutes)	Action
13	Session Recording (audio and slides only)
9	Upload/compress to Preview
3.5	Upload session to Tegrity Server
15	Preview Recorded Session
Finished File Size	20.7 MB

For the purposes of the Instructional Technology program, a handful of technology-savvy instructors were chosen to test the system and integrate it into their course design. That way, there wasn't a long learning curve with regard to Tegrity's use. Still, courses for this program will be designed around the capabilities of the tool, as opposed to the intuitive teaching style of the instructor.

Another reason faculty may be reluctant to adopt online learning is that the majority (64%) believe that it takes more discipline for a student to succeed online. If that is true, then faculty may be more hesitant to use online learning at the undergraduate level, when students are less disciplined in university-level instruction. It may also be more of a challenge to transport traditional curriculum to an online format, where sensory barriers are present. Why not instead develop curriculum that uses the online environment to its greatest potential?

Tegrity Features

Tegrity is primarily a recording tool. The instructor can use voice only, or can use an optional camera to record the classroom while in session. The classroom deliverable is an online version on whatever is happening on the instructor's desktop, including PowerPoint slides. With the use of an optional tablet PC, the instructor can annotate their lecture, just like John Madden on Monday Night Football! All annotations are recorded as part of the session. With one click of a record button, the session can also be recorded for upload to the Tegrity servers to be translated into a Podcast, complete with slides and even video (if the receiving iPod will support the technology). The constraints to Tegrity use lie in its ability to capture streaming media. For a multimedia instructional technology program, the ability to demonstrate how different media elements can be incorporated into an interactive learning module is critical, yet Tegrity forces the instructor to choose between slow running media or the ability to use the optional camera to record lecture activities (such as the instructor writing on a white board). While this may be a small inconvenience for most degree programs, it is a major hurdle for classes dealing with multimedia. In my 15 minute example segment, I included a short video clip of a jet with accompanying sound in my third slide (to demonstrate the benefit of reinforcing media with appropriate sound). Even with this small amount of media, I had to choose between using an instructor camera and keeping the video. The resulting recording can be seen on the attached, self-extracting Tegrity movie. While I kept the video clip, the playback is more of a choppy abstract than a representation of the actual video.

For students, the feature that makes Tegrity unique is the Notes feature. Students have a digital pen and dock, which they will use to take notes on Tegrity notebooks. This pen will store the notes as they are written, requiring periodic docking in order to transfer notes to the dock for storage. Once they are back at their home computer, they can connect the dock via USB and the notes will automatically open the previously-installed Tegrity software and upload the notes. Students can then go into their institution's content management system and view the classroom archive along with their notes. If there is a place where their notes don't make sense, they can click on the notes and the archive will move to the point in that lecture where the notes were taken. Playback can be made on demand, with or without Notes.

Specialized Hardware

Any time technology is introduced into the classroom there are concerns. While tools like Tegrity are designed to accommodate as many users as possible, there will invariably be those for whom the tool just won't work. In the case of the Instructional Design faculty, each instructor will have access to a tablet PC that has been configured to use Tegrity optimally.

Tegrity has also tried to make the playback as user-friendly as possible. While the company says the recorded class sessions will play well at any connection speed, we found that even with network connections at the University, playback was noticeably jerky, especially when the instructor's desktop environment was being recorded.

Perhaps the most disturbing hardware aspect was Tegrity's apparent lack of cross-platform compatibility. While there are many who can make the business case for PC only compatibility, our target market includes educators, who may have a higher Mac usage than the general population. While the recorded sessions can be viewed on a Mac (if the instructor sets the recording options to include Mac, which will make the settings less than optimal), the student isn't able to use the Notes feature (below) with the Mac platform.

Pedagogical Concerns

If an entire course can be viewed online, what will compel students to attend class? (Silverstein 2006). Aside from a mandate for classroom participation, hybrid instructors will be charged with creating value-added activities that only occur in class to create a sense of community. Will Tegrity's ability to Podcast be more of a deterrent and less of a study tool? If students can view their notes and the interaction of every other participant in the classroom in the privacy of their own home, will it be difficult to encourage students to work as groups?

The key to using Tegrity as curriculum design tool is in knowing when *not* to use it. It is great for recording the presentation of material from the assigned text, or for live classroom lecture where the instructor is presenting material on the desktop. But the technological concerns and the time to upload make it an unlikely tool for recording entire class sessions. By using Tegrity for select aspects of a course, the instructor can still facilitate class time and create an environment where deep learning takes place. To be fair to Tegrity, there is an optional Cart system available that may make it easier to record an instructor video in a live classroom situation however we have chosen not to use that at this time.

Students can also benefit from the discretionary use of Tegrity. Lecture recordings, or taped sessions where difficult material is introduced, can be uploaded to the institution's content management system, where students can view the material anytime, anywhere. Then class time can be used for active discussion and clarification of recorded material. This way, a class is not so "scripted" and the instructor doesn't have to be inhibited by technology that may not accomplish what is needed in the classroom.

Recommendations

Because the Instructional Technology program isn't scheduled to begin until May 2006, we have not used Tegrity in a live classroom situation. Our current activities involve designing the program curriculum. As a result, it would appear Tegrity's strength is the marriage of sound and desktop activity or instructor video with a PowerPoint presentation (but not both at the same time). If an instructor is looking for a way to record a classroom session where dry or difficult material is being introduced, Tegrity is a great tool.

For purposes of multimedia, Tegrity can't seem to handle more than one stream at a time. And the stream will be recorded at less than real-time, which makes it inconsistent for playback.

Tegrity requires the instructor to have a tablet PC or similar configuration (if they want to annotate). The Notes hardware is central to Tegrity's marketing; the pen, dock and tablets are at additional cost (we have chosen to provide the pen and dock as part of student tuition expense). At this time the digital pen (made by Logitech) is not Mac compatible, which could pose a problem for our k-12 target market, who have a higher than average percentage of Mac users. If a student forgets to bring the dock and pen to class, they will not be able to take notes of the lecture, which is a principal feature of the product.

Another concern with Tegrity is how it might be used in the student's professional environment. As students become more comfortable with their ability to learn, they develop their own discipline in how they approach subject matter. By the time a student reaches the graduate level, a tool such as Tegrity may not be useful. Corporate trainers (one of the initial target markets for our program) may not see a need for this tool in their professional environment. Educators in the k-12 environment may find Tegrity a useful tool for younger learners; school districts however, may not have the budgets necessary to implement Tegrity system-wide.

In all, Tegrity is a great tool as an aid, not a replacement for instructor facilitated discussion. Its benefit to our program is in the ability to record live classroom.

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