

Shared Practices

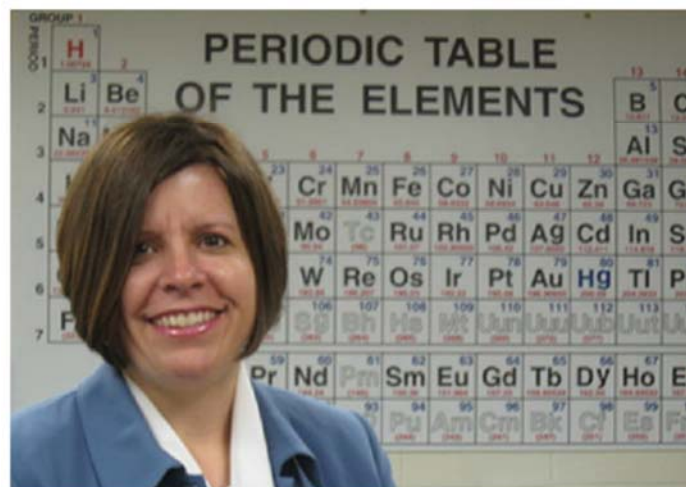
Creating a Multimedia Learning Object to Improve Metacognition and Learning

By Deanne Oppermann

Since 2000 I have been offering *Introduction to Chemistry* (CHM 131) via online delivery for several reasons. One reason is to provide students with more flexibility to fit it into their schedules. Another reason for offering it online is that I have always enjoyed the challenge of learning new skills that can be incorporated into my coursework and labs. From the onset of teaching this course online, I was committed to maintaining standards similar to my face-to-face class. My online students use the same textbook and receive the same study guides, homework problems, solutions, chapter assignments, review sheets, and tests. Obviously, I am unable to deliver the lecture portion of the course in the same way, but I designed condensed online modules that correspond to the topics that I present in my face-to-face class with online Web sites for additional support. Despite these efforts, some of my online students generally *have more difficulty* grasping the material. Whenever students switch from online delivery to face-to-face delivery, their grades improve.

Metacognition is fundamental in achieving understanding of chemistry and in developing problem solving skills (Cooper et al., 2008). Metacognition is the awareness individuals have of their own mental processes and the subsequent ability to achieve their desired result. In other words, if I am a student learning about topics A and B during my learning process, and I become aware that I am having difficulty learning B, but not A, then I am utilizing metacognition. My online students are aware of their problem areas, but often do not think these problems will hinder their success in the course. Over the years I have tried several approaches to improve online student learning. If online student schedules allow, I gladly welcome them to join my face-to-face class. I post this option on my syllabus, the announcement page, and I suggest it throughout the course progression. I also offer one-on-one tutoring sessions with myself or with the Student Support Services tutoring program.

Since the majority of my *online* CHM 131 students register for the face-to-face *Introduction to Chemistry* lab (CHM 131A), I often offer them additional tutoring sessions (before or after the labs) to discuss the difficult topics found in the online CHM 131 course. The one thing that was apparent to me through all these different approaches was that once I physically showed my online students concepts about metric conversions, electronic configuration, Lewis structure, chemical bonding, or numerous other topics in a visual format, *'they got it.'* Research has also shown that



Deanne Oppermann creates animation to improve student learning.

learning activities that integrate visualization tools with active and cooperative learning strategies provide students with opportunities to construct their knowledge regarding chemistry concepts, and, thus, they outperform comparison groups significantly (Frallich et al, 2009).

In fall 2008, I decided to further develop the visualization tools that were available in my CHM 131 online course by developing a multimedia unit, ***Metric Conversion Factors***, within the first module to cover metric conversions. Metric conversion is a fundamental concept that is repeated throughout the course making it a necessary concept and skill to understand and master. Thankfully, Linda Venturo was willing to assist me with my endeavor. I met with her for a total of five face-to-face training sections. She had suggested Sound Forge Audio Studio to record audio, Fireworks to prepare images, and Camtasia to present the entire unit. After each 1 ½ hour training session, I spent several hours using the tools she gave me to continue developing my first animation on metric conversion factors. It took me approximately 30 - 40 hours of time to develop one multimedia learning object to incorporate into my CHM 131 online course (*I would think I could cut this time in half the next time I do another unit because I have a better idea of the approach and I would be more familiar with the software*). My face-to-face students also benefit from this animation since they have access to all material in my online class. My goal is to continue to develop multimedia units for each chapter in an attempt to increase the success of all students enrolled in my chemistry courses.

References:

Cooper, M.M., S. Sandi-Urena, and R. Stevens. 2008. Reliable multi method assessment of metacognition use in chemistry problem solving. *Chemistry Education Research and Practice* 9(1): 18-24.

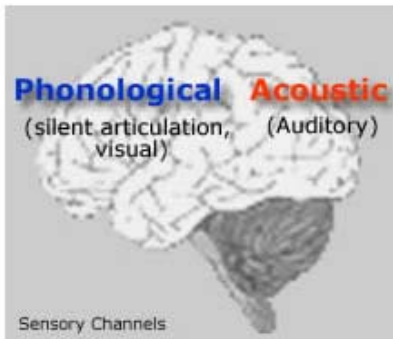
Frallich, M, Kesner, M, and Hofstein A. 2009. Enhancing Students' Understanding of the Concept of Chemical Bonding by Using Activities

Understanding the Modality Effect When Developing Animation

By Linda Ventura

Deanne Oppermann brings clarification to a challenging lesson by creating an animation for her distance students. The design of her animation aligns with human cognitive architecture to support learning. Cognitive research indicates that novice learners will be overwhelmed by highly-complex content because they lack prior knowledge in the domain (domain is in this case is *metric conversions*). Working memory capacity is limited. When highly complex information exceeds working memory limitations, learning will be hindered. Design of instruction can help lessen cognitive load. Deanne's **Metric Conversion Factors** animation exemplifies one instructional method that supports learning.

When designing animation, consider how students learn. The human memory system is comprised of separate *sensory channels* (or separate streams) to process visual and auditory stimuli (Penney, 1989). Learners use these



independent channels to process information. Visual stimuli (text, diagrams, equations, and more) are processed through the *phonological* code and auditory stimuli (narration, music, and more) through the *acoustic* code (1989).

Single modes of presentation overload working memory (an example would be presenting text with diagrams –

two visual stimuli). However, when information is presented in two modes (visual and auditory), cognitive load decreases.

This effect is called the *modality effect* (Low & Sweller as cited in Mayer, 2005). Design **multiple representations** of knowledge (visual and auditory) to reduce excessive cognitive load and to increase working memory capacity and, thus, understanding. Delivery of instruction by way of lecture, textbook, Blackboard, Web site, or, as in this case, animation, *enables* the instructional method (Moreno, 2006).

Deanne sticks to a multiple representation method when designing her animation. Her visual content includes relevant imagery integrated with limited text. Restricted uses of text or symbols act as *cues* to strengthen the probability of learning. She, then, adds an in-depth narration to explain all visual materials and concepts presented. Because she is using a mixed mode of presentation, her students will be able to process more information (Low & Sweller as cited in Mayer, 2005). Deanne also allows her students to control the pace of their learning by including a “seek” bar in the animation. The modality effect decreases when students learn at their own pace (Ginns, 2005).

To summarize, consider using a multiple representation method of instruction when designing instructional animations. If planning to include multiple forms of visual content, try to integrate your visual content. For example, use text as cues within a diagram rather than presenting large amounts of text and diagrams separately. Convert text to narration to accompany visuals. Include a seek bar to allow your students to pace their own learning.

References:

- Ginns, P. (2005). Meta-analysis of the modality effect. *Learning and Instruction*, 15, 313-331.
- Mayer, R. (2005). *The Cambridge handbook of multimedia learning*. New York: Cambridge University Press.
- Moreno, R. (2006). Does the modality principle hold for different media? A test of the method-affects-learning hypothesis. *Journal of Computer Assisted Learning*, 23, 149-158.
- Penney, C.G. (1989). Modality effects and the structure of short-term verbal memory. *Memory & Cognition*, 17, 398-422. ■

Communication in Online Courses

By Dale Hall

I have taught several online classes over the past years and one of the things that has been the most difficult to overcome is communication issues with the students. I am not referring to the student that your office number on speed-dial or the one that emails every time they login to Blackboard. I am talking about that good solid student B+A- student that works hard and really wants to learn. These are the students that will often convince themselves that you are too busy for their question and struggle needlessly with course material.

I have tried many approaches in an attempt to explain to students that each of their questions deserves my attention. Few have shown much promise. This semester I tried a different approach. My first assignment for record is a short introductory quiz. This is a mastery style quiz – take it until you are satisfied that you know and understand the material. I instruct the students to go to various sites within the course and look for information. This includes such items as reading the syllabus to determine the number of exams to be given in the course or other key information. This time I added a question to the quiz about the number of books required for the course. Now you must understand that this question is a no-brainer since I include the title and author, ISBN, and a picture of the required texts in my course information. I intentionally made an incorrect answer for the key on this question. I expected to have all of the class emailing since I specifically direct them to notify me if they identify any incorrect answers on the key. To my surprise, everyone



Dale Hall discusses communication in online courses.

took the quiz multiple times with most of the class receiving a perfect score and the remaining students only missing my “miskeyed” question and I didn’t receive a single email!

Needless to say, my “way to go” email had to be replaced with an announcement and email about not wanting the class to learn incorrect material just to make a grade or to settle for a lesser grade simply because they didn’t want to contact me. Since that time, this class has been a little better about contacting me with questions. I will probably use this technique again, but be advised that this is not the answer to all communication issues. It is often easy for instructors of online classes to assign the burden of contact to the student but we must keep in mind that we have equal if not greater responsibility to establish and maintain the lines of communication with students. ■

Improving Your Course Through Student Evaluations

By Elizabeth Haynes



Elizabeth Haynes

practices.

In 1987 Chickering and Gamson developed a list of seven principles for good practice in undergraduate education. While these principles were written before the advent of Web-Centered courses, they can be applied to these courses too. Due to space limitations, only one or two examples for implementing each practice are shown here—you probably have developed even more stimulating

1. Good Practice Encourages Student-Faculty Contact. On the first day of class, send an email to each student with a personal welcome message and continue this direct contact on a regular basis.
2. Good Practice Encourages Cooperation Among Students. Create virtual study groups and provide discussion topics that allow students to share personal viewpoints.
3. Good Practice Encourages Active Learning. Create assignments in which students must do something such as interview a person and report on the interview or create a

5. Good Practice Emphasizes Time on Task. Communicate the estimated time required for the class on a weekly basis and do not accept late submissions.

6. Good Practice Communicates High Expectations. Give students opportunities to revise their work.

7. Good Practice Respects Diverse Talents and Ways of Learning. Use different types of learning activities and a variety of assessment methods.

An eighth “good practice” is to continuously evaluate and improve your course. A self-administered student survey at the mid-semester point can help you achieve this goal because it serves two purposes. First, you can develop questions which are more explanatory than those in the official SCC evaluation, which are more specific to your course, and which will provide more meaningful and timely feedback. Second, you can identify problem areas and address them while the course is in progress. To illustrate the first point, I have provided a [chart](#) of some of the feedback I have received from my self-administered survey as compared to the official SCC survey.

By implementing these eight practices you will be well on the way to providing a meaningful Web-centered learning experience for your students. The end result will be improved delivery of course material and improved student learning.

Source: Chickering, A., & Gamson, Z. (1987). Seven principles for good

brochure or PowerPoint presentation on a pertinent topic.
 4. Good Practice Gives Prompt Feedback. Return assignments quickly and embed comments.

practice in undergraduate education. The Wingspread Journal, 9, Special Section. Retrieved from: http://www.johnsonfdh.org/Publications/ConferenceReports/SevenPrinciples/SevenPrinciples_.pdf
 I would be happy to share any and all of my surveys and results to anyone interested.■

Comparison of Two Questions in the Official SCC Evaluation and the Self-Administered Survey BUS 125 Personal Finance (Spring 2008)	
Office SCC Evaluation	Self-Administered Survey Anonymous. Students receive points for completing. Only two of the 11 questions are shown here. Only the first five responses (unedited) out of a total of 16 are shown here.
<p>The instructor's syllabus clarified the expectations of this course.</p> <p>D: 1 response SA: 6 responses</p>	<p>Question: During the orientation exercise, I asked that you read the course syllabus. I use that document to communicate the parameters and goals of the course, especially as to the nature and extent of the assignments. I also provided a schedule. My intention was to provide clear expectations about the course. Did I accomplish that goal? Why or why not?</p> <p>Given Answers</p> <p>Yes, I knew exactly what was expected and when</p> <p>Yes I liked the way that you set up the introductory quiz</p> <p>Yes, the syllabus has a good layout. The course assignments due dates are clearly expressed. A student should not have a question about when assignments are due. The outlines for the research paper are also very helpful.</p> <p>Yes, you achieved that greatly. I can keep up with assignments a lot better with the schedule.</p> <p>Yes, I felt that you provided a very clear outline of the goals for the course.</p>
<p>The amount of work assigned was appropriate for this course.</p> <p>A: 6 responses SA: 1 response</p>	<p>Question: I have pretty high standards for myself and high expectations for your achievements. Are my expectations too high? Do I provide an environment for you to achieve these goals? Please elaborate on any of your answers.</p> <p>Given Answers</p> <p>I think you provide an environment to achieve these goals pretty easily. It is our fault if we don't achieve them.</p> <p>I feel your expectations of me were exactly what I needed. I feel that I have everything I needed to obtain my goals.</p> <p>Your expectations are not too high for students in this course. The environment has helped me achieve these goals.</p> <p>I think that you give a variety of assignments, there should be at least one thing that everybody does well on, I do well on the assignments but I am not a test taker so I do not do so well on those.</p> <p>I kind of felt like I was taking a writing class, not a personal finance class. I would have liked to do more activities related to finance, rather than so many writing assignment.</p>

TechTalk

Enriching Your Courses with Flash-Based Media

by Ryan Schwiebert, director of technology services

(www.openoffice.org). All this entails is opening the presentation in OpenOffice, going to 'File' and choosing 'Export,' then select Macromedia Flash as the file format. The result will be an embeddable .swf file that students can change from slide



Ryan Schwiebert

There are many different ways you can enrich your online course content. Many of the applications designed to accomplish this are both costly and difficult to master. Given the current economic climate, let's look at a few free tools to make your presentations more media rich and engaging without spending any money.

Since many of you already use Microsoft

PowerPoint to develop presentations for your courses, you might be interested in embedding those presentations into your Blackboard course or a website. There are several common methods that could be used to accomplish this goal; including simply attaching or providing a link to the PowerPoint file. However, if you want your students to be able to view the presentation right inside their web browser, then you should consider converting the presentation to Flash. One simple way to accomplish this is to convert your PowerPoint .ppt file to a Flash .swf using the free OpenOffice suite

to slide by clicking with their mouse in the presentation.

In order to take things a step further, you might be interested in recording a window or your entire computer screen. Such a recording (and much more) can be accomplished with the commercially available Camtasia software, but you can also do basic video screen captures including audio narration using the freely available Cam Studio (www.camstudio.org). This software will allow you to record or demonstrate actions on your screen and then save them as either an .avi or .swf file. You can even record a PowerPoint presentation and use the narration tool to explain each of the slides in succession and then embed the result in your course site.

No matter which of these methods you elect to use, it is simple to add them to your Blackboard course by uploading them to the college provided 'pages' server and embedding the link in Blackboard. You can also embed the files you upload to the 'pages' server in a standard web page using the freely available JW FLV Player (www.longtailvideo.com).

If you have any questions or need a little help getting started, please contact the computer center by sending an email to workorder@southwesterncc.edu or by calling the help desk at extension 409. We will be more than happy to assist you.■

blog: <http://blogs.southwesterncc.edu/ryans/>

Web site: <http://www.southwesterncc.edu/support/index.htm>

Distance Learning Newz

New Distance Learning Training Opportunities!

- Virtual (Web conferencing) consultations are available by appointment. Contact lventuro@southwesterncc.edu
- [Blackboard Help A.S.A.P.](#) (quick video solutions to faculty questions)
- Facilitator training site for Learn & Earn facilitators Login to Blackboard (username: ecoll1234, PWD: 010209)

New Release - Blackboard Learn Release 9

To preview Blackboard's newest release, Blackboard Learn Release 9 (next step toward Blackboard NG) go to <http://www.blackboard.com/release9/default.aspx>

- Release 9 include the following improved capabilities:
 - better Web 2.0 experience
 - drag & drop technology in content areas
 - drop-down menus for better student navigation
 - blog & journal tool
 - added tools for "Group" work: blogging, student management, and assignments
 - Instructor Dashboard (customized alerts)
 - Open learning platform to sync with other LMS's

New Online Programs and Courses

Career Technologies Online Degree Options Expanded in Fall

Six additional Associate in Applied Science degree programs from Career Technologies will be offered entirely online beginning in the fall semester. The new online options include **Computer Information Technology**, **Entrepreneurship**, **Office Administration**, **Office Administration – Legal Concentration**, **Office Administration – Virtual Office Assistance**, and **Web Technologies**. These programs join the mix of 12 Career Technologies degree and certificate options currently offered online.

In addition to making its debut as an online program in the fall, the Entrepreneurship is also newest degree option available to SCC students. The curriculum is designed to provide students with the knowledge and the skills necessary for employment and growth as self-employed business owners. The program of study is built on a solid foundation of business courses with a core of Entrepreneurship courses in marketing, funding, current issues, and creativity and innovation. SCC Business Administration majors can earn a second degree in Entrepreneurship with the addition of just three or four courses. Students completing the degree may benefit from an articulation agreement with the Bachelor of Science in Entrepreneurship at Western Carolina University. The 2-plus-2 agreement provides a pathway for program graduates to complete their B.S. after two years of study at WCU. These factors - transferability, online accessibility, and compatibility for double-majoring – will make the Entrepreneurship degree an attractive new career education option for SCC students.

For further information, read [Blackboard's Understanding the Change from Blackboard Suite Release 8 to Blackboard Learn](#)

Arts & Sciences

Beginning in Summer 2009, Arts & Sciences will offer **Professional Research & Reporting** (ENG-114) fully online. ■

D.L. Committee Update

Spring 2009 Update

by Dennis Keough, director of distance learning, distance learning committee chair

Our Distance Learning Committee met on two occasions since my previous report to *The Virtual Educator*. We had several issues to address since then.

Late last spring, the committee composed a procedural document that we hope will provide guidance for faculty who use, or who intend to use, Internet resources that are not supported by SCC's help-desk. This "Guidelines for Use of Non-SCC Supported Internet Tools and Services" document was deemed necessary because students are not always aware that many commercially provided Internet sites are non-SCC supported sites and, should a problem arise, often expect our IT staff to monitor and correct issues on servers not within the help-desk's control. Moreover, student records on non-SCC supported sites cannot be archived for standard auditing practices nor can a student's expectation of privacy mandated by FERPA law cannot be assured on non-SCC supported Internet sites. We hope this document will prove helpful to our faculty and to our computer help-desk.

This fall we are responding to a request by administrators to draft an announcement that will be preloaded into all course websites. The announcement will address the ongoing concern that, in many cases, inadequate direction is provided to students wanting to get started quickly in their online class work. We hope that by adding this announcement students, especially those new to online learning, will be able to quickly navigate their way to their first assignment. We expect to beta-test the announcement this summer in a few selected courses and "go-live" with the announcement in fall '09.



D.L. subcommittee members: Scott Cline, Andrea Kennedy, and Scott Baker (not pictured: Elizabeth Haynes and Carolyn Porter)

The committee, furthermore, agreed that any instructor who is slated to teach a hybrid or web-centered course must provide evidence of computer competency, as determined by the direct supervisor (vice president, dean, or director). Additionally, instructors assigned to teach a hybrid or web-centered course without evidence of Blackboard competency should avail themselves of training provided by the distance learning department, before being permitted to do so.

Looking forward to the next academic year, I suspect some of the issues we'll be looking at closely will include assuring student readiness, achieving continued growth, and adoption of specialized technology to support our online learning initiatives. Surely, this is a challenging time to be either an instructor or a student in an increasingly virtual world. With the help of our committee we are trying to make it less so. ■

To submit an article to *The Virtual Educator*, contact Linda Venturo

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