ONLINE CL@SSROOM

IDEAS FOR EFFECTIVE ONLINE INSTRUCTION

MAY 2016 VOLUME 16, NUMBER 5

Using Online Protocols for Discussions

By Julie Moore

After teaching online for a number of years, I grew weary of the normal "make an initial post, then respond to two others" discussions. Was there another way to engage students? How could I make discussions more meaningful and in-depth? Were there ways to ensure that all students had a voice?

My work includes training K–12 teachers in the use of conversation protocols to look at student work and improve professional practice. These protocols provide a structure by which teachers can look in-depth at student work, dilemmas, and adult work in such a way that feedback can be given in a safe, nonthreatening way and allow an equal voice for all. I have wondered if I could use these same protocols in my online classes to create similar in-depth conversations among students. After using online protocols for several years, I am convinced that they can provide an alternative to regular discussion assignments.

What Are Protocols?

Protocols are structured conversations that come out of K–12 professional learning. They consist of 4–7 timed steps that take the group through a conversation. The conversation focuses on the work or text brought to the group, not on the person who brings it. Protocols have a facilitator and ensure equity of voice among the members.

An example protocol is the tuning protocol, which is used to "tune" something to a stated goal (e.g., a book summary to the goal of adequately capturing the author's message).

"Protocols are structured conversations that come out of K–12 professional learning."

The tuning protocol consists of:

1. Introduction of the protocol to the group
2. Presentation of the work by the person bringing the work
3. Warm feedback—in what ways does the work meet the presenter's goals?
4. Cool feedback—in what ways does the work not meet the presenter's goals?
5. Reaction—the presenter returns to the conversation and reflects on what he/she heard and how that will affect his/her next steps.

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TIPS FROM THE PROS

Differentiating Instruction in an Online Classroom

By Julie Saam

Diversity is becoming common in our college classrooms. Not just diversity of race and ethnicity, but diversity of developmental levels and cognitive abilities. With our students' diverse skills and experiences, faculty members find themselves teaching varied groups of students within one course.

This raises the problem of finding a way to reach all groups. One answer, differentiated instruction, involves providing personalized learning for each group with content and processes that align with each student's needs. It may seem like a daunting challenge, but with a few techniques the task is quite manageable.

Flexibility of Content

The first element of differentiated instruction is flexibility of content. I taught secondary science methods students simultaneously with secondary mathematics methods students. I also had two other overlapping groups within this course. Some of the students were in their first semester of the teacher education program and some were in their second semester.

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IDEAS FOR EFFECTIVE ONLINE INSTRUCTION

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TEACHING WITH TECHNOLOGY

Virtual Reality in the Classroom

By John Orlando

This past November, all subscribers to *The New York Times* were mailed a Google Cardboard Virtual Reality Viewer. Puzzled looks quickly turned to awe as recipients took 3-D virtual reality tours of a variety of locations through the viewers and their cell phones. You simply put the viewer to your face and play 3-D recorded videos of places from YouTube or the free NYT VR app (available from both Google Play and the App Store). The viewers put you in the middle of a scene, such as New York City or a traditional German Christmas market. By turning your head you could look around the scene as if you were actually there. The goggles can be ordered online for about $4 each from eBay or www.newegg.com.

The success of the goggles has led Google to send people around the world wearing helmets affixed with 17 cameras to create virtual reality tours of nearly every place of interest, from monuments to archeological sites, from the tops of mountains to the bottoms of the seas. They have even created a free Expeditions program where Google ambassadors come to schools to organize virtual reality workshops.

I attended one of these, and the teacher led the session by choosing tours on her iPad while the students were taken to the places chosen. A teacher can bring students to a particular point by tapping within the image on his or her iPad, which shows the students an arrow to that spot. As students arrive, the teacher sees camera icons on his or her own screen around that spot to show that the students are watching. The teacher also has information along the sidebar about each location for discussion. It is essentially a lesson in a box, and over 100 are currently available. The app to lead these sessions is currently in beta but will be coming out in the fall.

In addition, *The New York Times* is starting to record virtual reality tours of the news events it covers. For instance, you can use the app to experience the vigils in Paris after the terrorist attacks. You can even get real-time virtual reality experiences, such as this year's NBA game between the Warriors and Pelicans, which was filmed with a virtual reality camera and live-streamed so that fans at home could have the experience of sitting courtside and looking around during a game.

"Virtual reality will be a game-changer for education."

The latest advance is cell phone apps that allow anyone to make virtual reality videos themselves. Cardboard Camera, again available free from Google Play, allows you to make virtual reality videos by pointing your phone, clicking the record button, and slowly rotating around in a circle to record your surroundings. It takes about a minute to complete the turn, with the device telling you to slow down if you are going too fast. The results are stitched together into a video, which you can narrate while shooting. Soon, shooting virtual reality videos will be the norm.

Google also added a virtual reality button to YouTube that allows any video on the site to be played in virtual reality mode. Of course, if the video was not shot in virtual reality mode, then you do not

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6. Debrief—How well did the protocol work? What might they do differently the next time? Was this the right protocol to use?

McDonald, Zydney, Dichter, and McDonald (2012) organize protocols by where one is in an online course. They suggest a variety of protocols for starting up a class, delving into a subject matter or piece of work, and finishing up the course or a piece of work. Examples of each of these are:

An Online Protocol for Starting Up

One protocol for starting up class is titled "Postcards from the Edge" (McDonald et al., 2012).

Purpose: Introduce students to one another and to the course topic.

1. The Collection—the instructor collects a variety of images and puts them in the discussion prompt.
2. Assignment—have students select an image from the collection. Ask a question that connects that image to the topic of the course. Example: How does your image help you think more deeply about _____?
3. Identification—Students explain their image choice.
4. Reflection—Students read other posts and add a reflection to their own.

An Online Protocol for Delving In

A favorite protocol for going deeper into texts is called "The 4As."

Purpose: Delve deeply into a text.

1. Preparation—the instructor sets up five separate threads, one each for the 4As and one for reflection. Pin these threads so they stay at the top of the discussion board. Use the following prompts:
   - Assumptions—What does the author assume in the text?
   - Agree—What do you agree with in the text?
   - Argue—What do you argue with in the text?
   - Aspire or Act Upon—What in the text would you like to aspire to or act upon?
   - Reflection
2. Assignment—Read the text. Respond to each of the 4As threads.
3. Reflection—Read others' texts in each of the threads. Do you notice any commonalities or similarities? What "Ah ha" ideas did you gain from reading others' 4As? What was it like to read a text in this way?

An Online Protocol for Finishing Up

I like to find some way for students to reflect on the entire semester and try to tie it all together. For this, I use the "What? So what? Now what?" protocol.

Purpose: Provide an opportunity for students to pull together learning from a book, unit, or course and reflect on what they learned and how it affected them.

1. Preparation—the instructor sets up three separate threads. Pin these threads so they stay at the top of the discussion board (note: on some LMS systems you will need to enter these threads in reverse order so they show up correctly). Use the following prompts:
   - What?—What have I learned from this course? What are the big ideas?
   - So What?—Why is the learning important? Why do these ideas matter?
   - Debrief—How did this protocol go for us? Was it a good way to reflect on the course as a whole? What might we do differently next time?
2. Assignment
   a. All students initially post in the What? and So What? threads.
   b. All students post a response to at least two others' initial threads. In this response, make suggestions about next steps—how to make the most of what they say they have learned and how to apply it. Title these responses "Now What?"
   c. Reaction—Students go back to their original thread, write a reply to the suggestions they've received, and add their own ideas for what to do next.
3. Debrief the activity in the Debrief thread.

Tips for Getting Started

If you are interested in getting started with online protocols, McDonald et al. (2012) suggest the following:

- Start with a simple protocol.
- Try it out with others before doing it in class, remembering to include a debrief.
- Experiment with a face-to-face small group assignment.
- Observe others facilitating online protocols.
- Look for protocols that serve your purpose.
- Learn more about using protocols in general.

I would add the following tips:

- Start with a text-based protocol—they tend to be less involved and a little easier to facilitate.
- Double-check and triple-check your directions. Make sure they are specific and detailed.

Resources

McDonald, J. P., Zydney, J. M., Dichter, A., & McDonald, E. C. 2012. *Going online with protocols: New tools for teaching and learning.* New York: Teachers College Press.

The School Reform Initiative—www.schoolreforminitiative.org—has a list of protocols for use in face-to-face environments, along with information on facilitation strategies.

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Digital Storytelling for Enhanced Learning

By John Orlando

Digital storytelling is one of the most effective teaching tools in an online environment. In its loosest sense, "digital storytelling" just refers to a means of communication by video that combines images with narration. It need not be a "story" per se. It could be a tour of the Colosseum in Rome or a description of the process of building a bridge. Here the term is broadly used to distinguish the video format from a live action shot of someone in front of a webcam or in a study.

But in its stricter sense, digital storytelling is teaching through telling a story. The excellent documentary "March of the Penguins" taught us about the life cycles of penguins through the story of how they breed and survive a winter. This is a far more effective method of teaching than just walking through concepts in the abstract. Stories capture our attention by providing context, significance, practical application, and relevance to information. This might even have an evolutionary origin in that stories were the first form of education. The children of a tribe learned the behaviors expected of them through stories that provided a moral. It might be the case that our brains are just hardwired to draw themes from a story.

Digital storytelling is also an excellent tool for assessment. Students can be asked to illustrate a class concept by creating a story that demonstrates the concept applied in practice. Students can use events from their own experience, such as how their first running race demonstrates the principles studied in a physiology course. Students might also tell fictional stories, for instance, by describing the Battle of Gettysburg through the first-person account of a hypothetical soldier engaged in fighting it.

Most teachers assume that such stories are best used in fields such as literature, art, or philosophy. But Nihat Kotluk and Serhat Kocakaya of Yuzuncu Yil University in Turkey demonstrated that digital storytelling works equally as well in a science. They had 13 preservice teachers in a physics course each construct a digital story to illustrate a physics concept that they researched, such as gravitational lensing, blackbody radiation, or the uncertainty principle. Afterwards, they surveyed students and found that all believed that the stories aided their learning. The students' work can be found on the class YouTube channel at http://bit.ly/1OogreT.

"Stories capture our attention by providing context, significance, practical application, and relevance..."

This study and others found that digital storytelling arouses student interest and motivation. The researchers also noted that students can have a hard time grasping the abstract principles of physics. But translating these principles into digital stories aids their understanding. Consider how well-known scientists on TV often illustrate principles with visual metaphors, such as how gravity warps space by demonstrating the effect of a bowling ball on a rubber sheet. The act of translating the theoretical to the experiential brings understanding.

Creating a Digital Story

Creating a digital story is easy. It is best done in two steps. First, record the narration. The narration is always recorded before imagery because narration determines pacing. You can use a computer microphone and an audio recording/editing app such as the free, open-source Audacity. The pinhole microphone on your laptop produces poor sound quality, but a webcam microphone should work well enough. A headset or stand-alone microphone is the best.

Make sure to test your recording volume before starting so that your voice is clear. Low volume is the number one error in audio recording. Type out a script to read from or just go with notes. I have done it either way but have found that reading from a script tends to make you sound scripted. Reading from notes sounds more natural. Whichever method you use, make sure to consciously use voice inflections for emphasis. The second biggest problem with audio occurs when the speaker uses a monotone.

Another good trick is to not restart your recording when you make a mistake. It will drive you crazy and take forever to get a clean take. Instead, just pause for a few seconds after any mistake and then repeat yourself from the prior natural break, such as the start of the sentence. Once you are done, you can just highlight and delete all of the errors, leaving a clean copy. The pause will show you where the errors exist on the timeline and provide plenty of space to "insert the knife" for the cut. This is very easy to do in Audacity.

Once you have the narration, the second step is to combine it with imagery on a video editor. WeVideo

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is a good system that allows you to make digital stories for free. I use Camtasia Studio, a paid system from TechSmith, because of its ability to add text, shapes, highlights, or zoom. But if you are not going to edit the video, then something such as WeVideo is adequate.

Start by dropping your narration into the video editor's storyline. Then play the narration and add images as you go. I sometimes get my images lined up ahead of time, but just as often, I pause and search for an image each time I need one. I drop it onto the timeline and continue until I am done.

Make sure to use striking images that grab the viewer's attention, not bland stock photos of happy, good-looking business people that you see in marketing. When I needed to illustrate how we communicate through nonlinguistic cues, I used the image of a young girl giving the viewer a death-stare. I got many comments about how effectively it communicated the message.

A good place to find photos is Google Advanced Image Search. I just type in a phrase that represents what I am looking for, such as "sad patient" or "determined scientist" to see what comes up. Of course, you need to be mindful of copyright restrictions. Advanced Image Search allows you to filter results by license, including "free for use." Other good sources for royalty-free and Creative Commons images are Pixabay, PhotosForClass, Wikimedia Commons, Library of Congress, Flickr—The Commons, and Creative Commons.

Elements of Good Stories

There are a few stylistic elements you need to keep in mind when crafting a digital story. Use a perspective (Lambert, 2010). You might tell the story through the eyes of the character. This is easy when it is a personal tale, but when it is not, the narrator can still adopt the persona of the character. The story of a Civil War soldier might include something such as "We marched all day and were dead tired by the time night came."

Use emotion to help convey the feelings of the characters and the importance of the events. The narrator might say, "Hubble was shocked when he looked at the images and realized that the universe was actually expanding."

Open by grabbing your audience's attention, not by giving an overview of what you will cover. Martin Luther King did not open his "I Have a Dream" speech with "Today I am going to outline eight reasons why Blacks should have rights equal to those of Whites." The opening is about motivating the story. You might start with a question, problem, or interesting fact.

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Kotluk, N. & Kocakaya, S. 2016. Researching and Evaluating Digital Storytelling as a Distance Education Tool in Physics Instruction: An Application with Pre-Service Physics Teachers, Online Journal of Distance Education, v. 17, n. 1.

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get the true experience. The point is that you can now use YouTube to broadcast virtual reality videos.

Virtual reality will be a game-changer for education. The viewers are cheap enough for any student to buy—or you can just buy a few for a class. Soon you will be able to take a virtual reality tour of any place of interest in the world. Architecture students can take tours of the structures that they study. Animated tours of the insides of molecular structures for chemistry classes will be available. I will be able to incorporate tours of intensive care units into my medical ethics course to give students the sense of how the mechanized, sterile environment can appear frightening to a patient.

Faculty will also be making their own virtual reality videos. A biology teacher offering a course on ecosystems will make videos of the different environments that are encountered, such as wetlands and forests. Online teachers will make videos of their departments to provide their students with the sense of physical space that on-site students get. These videos will help reduce online student isolation and better connect students with their institutions. Of course, virtual reality tours of the campuses themselves will be part of recruitment, which online programs can use to further connect students to the institutions.

Finally, instructors will assign students to film virtual reality videos themselves to illustrate how topics covered in their courses play out in their environments. Students in an online geology course could be required to make a narrated virtual reality video describing the features and history of a geographic formation in their area. Students will share these videos with one another via YouTube or another host and comment on one another's work.

The sky's the limit, so consider how you could incorporate virtual reality into your courses. @

Teach Reading Skills with Student-Generated Questions

By John Orlando

When students miss information from a reading, it's generally assumed that the student did not read the article carefully. Yet, it might be that the student does not know how to read an academic work. Faculty know how to read because they would not have otherwise succeeded in academia, and consequently, they often assume that students must know how to read academic work as well. But reading academic work for the proper information is a skill developed like any other skill, and one which students often lack.

Students have been shown to read articles differently from faculty. Faculty read for underlying concepts, whereas students often read for facts (Rhem, 2009). Faculty read actively by asking questions, whereas students are just trying to remember information. Teachers can improve their students' work considerably by teaching them how to read academic work.

Erika G. Offerdahl and Lisa Montplaisir used student-generated reading questions (SGRQs) in their biochemistry course to teach academic reading skills. They asked students to submit one question they had after each reading, focusing on conceptual issues over factual issues. This exercise forced the students to read actively by asking questions and to read for the right types of information. Moreover, it helped the students think like scientists, which is one of the skills the course taught.

The exercises also helped faculty decide what to cover in class. In a hybrid course, with the course content handled online, the questions could be used to choose which topics to go over in class. Moreover, students' questions could be used to create problems for other students to solve in class.

This in-class exercise can easily be applied to a fully online course using discussion boards. The faculty member sets up a discussion board for each reading, with each student posting a question and answering another student's question. The questions can also be used to inform course revisions by demonstrating areas in which students commonly have difficulty. Faculty often believe that their assessments are sufficient to identify student problem areas, but students often have problems in areas that circle around the assessments and can be found only with open-ended questions.

"With this rubric, a teacher can use student-created questions to evaluate the students' general level of scientific thinking."

The researchers further refined the diagnostic instrument by dividing the questions students raised into three levels of thinking skills: those that demonstrated conceptual understanding, those that demonstrated questioning skills, and those that demonstrated metacognition skills—the ability to evaluate the level of one's own understanding. With this rubric, a teacher can use the student-created questions to evaluate the students' general level of scientific thinking.

As this was an introductory class, most students scored in the lowest thinking skills category. One would expect that students would move up the spectrum as they progress into later courses, and so by applying the method in different courses, departments can use it to measure the development of thinking skills across a program. Thus, the instrument can be used for program-level assessment of learning outcomes.

Although this study focused on a hard science class, one can easily imagine applying it to other courses. It also fits the online format, because the LMS can host an unlimited number of questions that the instructor can segment by reading, topic, and other categories.

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Offerdahl, E. & Montplaisir, L. 2015. Student-Generated Reading Questions: Diagnosing Student Thinking with Diverse Formative Assessments, *Biochemistry and Molecular Biology Education*, 42 (1), 29–38.

Rhem, J. 2009. Deep/Surface Approaches to Learning in Higher Education: A Research Update. *Essays on Teaching Excellence Toward the Best in the Academy*. v. 21, n. 8 @

Next Month's Topics

Continuous Assessments for Better Learning

The Benefits of Video Discussion

Teaching Hidden Knowledge

Greenscreen Videos Made Easy

What Documentary Filmmaking Can Teach Us about Course Design

Snapchat for Education

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I first used the group function in our LMS to put students into separate groups. I then created specific content for each of the groups. Some of the content was pertinent to all groups, such as assessment, cooperative learning, or discussions. But some of the content was specific to each group. For instance, my first-semester students needed lesson planning content; my second-semester students did not. My science students needed laboratory safety content; my mathematics methods students did not. The latter group needed content on error recognition, which was not pertinent to the science methods curriculum. The science methods students had a laboratory safety assignment that the mathematics students did not see or have to complete. The first-semester students had a lesson planning assignment to complete that the second-semester students did not.

Flexibility of Process

The second element of differentiated instruction is flexibility of process. On some class days, all students met face-to-face to engage with content that was common to all groups. On other class days, I would separate the class into groups. Those who needed new content attended class in person, while those who needed application of prior content attended class through the LMS and engaged in either a group discussion, an application activity, or extended exercises.

Conversely, you could use the flipped classroom model and send students to the LMS when they're learning new content and teach them face-to-face when they're applying content. Either way, I used the LMS to be in two places at once. I would teach the face-to-face class, then hop on the LMS to monitor the learning there. For example, one day in the semester I taught my science students face-to-face the topic of science, technology, and society (STS). Meanwhile, my mathematics students were reading an article on how Chinese teachers differ from American teachers in how they handle errors. My mathematics students then were involved in an online discussion with question prompts: Why do you think US teachers and Chinese teachers responded differently to errors? What strategies did you take away from this article that you would use in your instruction and why/how? The next class period, my science students were online extending our lesson on STS, and my mathematics students were face-to-face practicing the application of error-recognition strategies with actual student work. In a fully online course, the process would remain the same, although all activities/content/processes would be online.

Flexibility of Student Product

The third element of differentiated instruction is flexibility of product. I provide different groups with different assignments or with the same assignments with different expectations. As mentioned above, my science students had a laboratory safety assignment that my mathematics students did not. Neither group was able to see the assignments of another group, so students needed to be concerned only with the assignments within their group. Because I knew this course provided my first-semester students with their first exposure to lesson planning, but my second-semester students had already learned and practiced this content for one semester, my expectations were different for the two groups. I then used different rubrics that focused on different aspects of lesson planning and adjusted the rubric scoring to match my expectations. The rubric for my first-semester students placed considerably more emphasis on writing objectives and detailed plans. The rubric for my second-semester students focused on strategy choices and the alignment of objectives with the assessment.

Although the groups were set in my course, another option is to allow students to choose their groups and move in and out of groups throughout the course. Formative assessments can be used to determine initial student placement within groups and then to monitor the effects of movement between groups later on. According to Levy (2008), future advancements in LMS functionality may allow students to plan personalized goals and keep records of their progress toward those goals.

Just a little ingenuity is all it takes to differentiate instruction in the online or hybrid classroom to serve the needs of all students.

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Add Interactivity to Live Sessions with Dotstorming

John Orlando

Whereas an advantage of online education for students is the flexibility to schedule their own time for their studies, there is still a place for live events in online teaching. I use them for hosting discussions in my faculty training courses on how to give students feedback. I provide various feedback examples and allow faculty to share their ideas about them, as well as provide suggestions for the best feedback for different student issues. Faculty feel that these live events add a human element to the online environment.

But it is important to include interactivity with students in any live event. A one-way discussion by the instructor might as well be done as a video that students can watch on their own time. Live events are for allowing students to engage by adding thoughts, answering questions, or uploading their own content to the events.

There are a number of good systems for hosting interactivity in live online events or during the in-class portion of a flipped classroom:

Poll Everywhere allows users to add polls to PowerPoint presentations. You go to the website, create a question, and export it as a PowerPoint slide, which is then added to your deck. You broadcast the slide with the question and options, and students cast their votes in one of two ways. First, each option is assigned a texting address, which allows students to send texts to cast their votes. A website also is associated with the question, which students can visit to cast their votes. In both cases, the results are tabulated live and projected with a bar graph, which creates a fun experience when students watch the bars advance across the screen as different options accumulate votes. ParticiPoll is another free site that does much the same thing as Poll Everywhere; you can compare the features and presentation of each to determine which you prefer to use.

Socrative, Kahoot, and Infuse Learning are the most popular systems for creating Web-based polls or quizzes. All provide a range of question types, with Socrative including an interesting "space race" option that allows students alone or in groups to race one another with their answers. Kahoot allows for quizzing without registering for the site and can award points on the basis of both the accuracy and speed of answers. Infuse Learning allows students to reply with drawings or diagrams and can also provide audio narration of questions.

"Dotstorming can improve engagement in live events in a number of ways."

But one of the most exciting options for live events is Dotstorming. This free site allows teachers to create walls, similar to Pinterest or Padlet, that can contain either text boxes or images. The instructor shares the URL of the wall with students as a link or by email invitation, allowing students to view the wall in real time on their own devices. They can then vote on the options that they are given.

The visual element of the interaction is a big step up from the text-based, multiple-choice voting option of GoToMeeting or many LMSs. Images capture students' attention and keep them engaged in the material. In addition, students can add comments to the selections to defend their votes. The instructor can also allow students to add their own content to the boards and solicit votes from classmates.

Dotstorming can improve engagement in live events in a number of ways. An instructor in a philosophy course can put up images of different objects and ask the students which of them John Locke would say represents a primary quality and why. Locke's theory of primary and secondary qualities is connected to human perception, and so it is much better for students to engage in perception than just text representations.

Dotstorming is also good for hosting student brainstorming sessions. An art class can be divided into groups, with each assigned to create a presentation on an art piece that represents a particular style. The students in each group can be assigned to find a photo of a piece and explain why it is interesting. The group can vote on the options, with the winning option used for the group project.

Similarly, students in live online sessions of a chemistry course can be asked to find images that represent a particular reaction under discussion and describe it, with the class voting on the best examples. Now, instead of students texting or reading email, they are given something interesting to do on the Web that is related to course content and will use their imaginations to apply what they are covering to real-world examples.

Dotstorming is exceedingly easy to use. Take a look at this tutorial and think of the many ways that you can use it to add value to your live events: http://bit.ly/1R1Bew7. @