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Collaborative Jigsaw Midterm

Assessments in E-Learning

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University of Wisconsin-Stout

The **Jigsaw Technique**, as explained by *Jigsaw Classroom* is a cooperative learning technique that is meant to increase positive educational outcomes. Just like when completing a jigsaw puzzle, every piece of the puzzle plays an important role in the puzzle completion. In this learning technique, every student plays an equally important role in the process, while having unique dynamics, qualities, characteristics, and experiences to bring to the project.

As is with jigsaw puzzles, no two pieces of the puzzle are the same and no two students are the same, but each plays an equally important role in learning outcomes. According to *Pedagogy in Action*, the **Jigsaw Technique** has increased in popularity in course design workshops and practice; it is observed that this cooperative learning technique is a well-structured accountability system that improves student learning in cooperative settings.

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The overarching goal of the **Jigsaw Technique** is that each student is able to contribute to the learning of other students in the work group, enhancing teach-back opportunities as well as increasing collaboration and providing opportunity for peer-assessment. The **Jigsaw Technique** in the online learning environment, takes the isolated, passive learning experience and creates an interactive, cooperative, active learning experience. The group goals consist of the creation of a project through collaboration, cooperation, and peer-teaching opportunities that allows students to apply the knowledge from the learning materials into real-world experiences or problem-solving projects.

In this project, the group members created a Web 2.0 toolkit in order to teach about the advantages to different web-based tools to enhance learning in the online environment and promote assessment strategies. The group consisted of students enrolled in a graduate-level, distance education *Assessment in eLearning* course through the University of Wisconsin – Stout. Using the **Jigsaw Technique,** this group created toolkit pages analyzing **VoiceThread, Twitter, and WebEx**. Utilizing Google Docs, email, and learning management system discussion posts for collaboration and communication, the group practiced the methods and achieved the outcomes expected by using the **Jigsaw Technique**.

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Twitter [Online image].Retrieved November 11, 2015 from http://www.bolsadenoticias.com.ni/images/twitter-icon.png

VoiceThread-Mobile [Online image]. Retrieved November 9, 2015 from http://voicethread.com/media/custom/mobile/app_icon.png

WebEx [Online image]. Retrieved November 11, 2015 from https://sitevision.com/wp-content/uploads/2012/01/webex-icon.jpg

Introduction to Twitter

Twitter is an online social media network with more than 300 million active monthly users. The website serves as a microblogging tool for its users, allowing registered members to post “tweets” of up to 140 characters. The most popular use of Twitter is as a broadcast tool during live events, where members can post a running commentary describing what is happening or provide editorial comments favoring various participants. Live sporting and entertainment events are very popular for this purpose.

The privacy policy on the website suggests that Twitter is designed for those thirteen years of age and older. However, the signup process for the site does not specifically ask how old a potential user is. As with other social media websites, enforcing age limitations can be cumbersome, but Twitter suggests that it will remove the information and accounts of anyone found to be under the age of thirteen. This would mean that educators should not consider using Twitter with their students until seventh grade at the earliest, though some students at that grade level will still not be old enough to register for an account. By eighth grade, the vast majority of students will have reached the minimum age, and educators may take advantage of the opportunities the service provides.

Many educators use Twitter primarily for the purposes of professional development, collaboration, and communication. Kathy Shrock maintains a Twitter for Teachers page on her “Guide to Everything” with links to an enormous number of resources detailing how teachers can put Twitter to use in their classrooms. Likewise, Pinterest has links to various sites offering educators ideas for developing their own personal learning network as well as integrating Twitter into the classroom environment.

Benefits

Three main benefits stand out when it comes to using Twitter. It has the distinct advantage of being free. Twitter provides a forum for instantaneous feedback in a learning environment. The service is an excellent communication tool to build a professional network. We will look more closely at each of these, then consider what might be the best use of Twitter as an assessment tool in a classroom or online educational environment.

There are, of course, any number of educational apps, programs, and electronic tools which are free. Those are of varying utility, with some serving well in a classroom and/or an online environment. The quality of such resources is not necessarily related to cost, and Twitter is a high quality tool which will not burden any school district or building with budgetary constraints. This is especially important in an era when funding for public education is on the decline. Resources allocated for an online educational endeavor can be directed toward areas where students will benefit most, including wireless infrastructure, learning management systems, and other hardware or software assets.

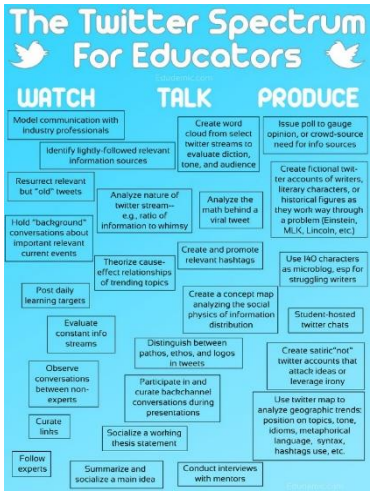
Nancy Messieh (2011) writes that "(t)he advantage to using a tool like Twitter for education is that it's instant and it's to the point." This is a real-time communication device which allows students to input and share ideas as they occur. Messieh (2011) goes on to describe the flexibility of Twitter, noting that facilitates discussion and encourages creativity. Students can also reply to questions, comment on a back-channel, and offer immediate feedback in a synchronous or asynchronous learning environment. Because posts are limited to a maximum of 140 characters, students must learn to be concise in order to use Twitter effectively.

In an undated online article, the National Education Association suggests that one of the chief advantages of using Twitter is as a forum for collaboration and communication. This is echoed by Alderton, Brunsell, and Barriexca (2011), who describe teachers using Twitter "to build connections with educators beyond those in their immediate vicinity… to find and share resources and to provide and receive support." The authors document how teachers use Twitter, whom they choose to follow on the site, and how Twitter can be used to build a professional learning network. The perceived benefits of using Twitter, according to surveys conducted by the authors, include:

- Access to resources
- Supportive relationships
- Increased leadership capacity
- Development of a professional vision

Ultimately, this type of collaboration on the part of educators can be extended to benefit learners by offering them the same opportunities for developing collaborative relationships with peers.

Finally, the question remains how Twitter can serve as an assessment tool in education. It seems likely that the best use of Twitter for assessment would be as formative assessment. One could use Twitter as a form of exit ticket, an avenue for reflecting on what was learned, integrating polls, a forum for new ideas, a place to post questions for students to give brief answers, peer assessment through Twitter Chat, or any of a host of other possibilities. Tuttle (2009) provides a rubric with ideas for using Twitter to assess learning. The Twitter Spectrum for Educators (below) published on the Edudemic.com website also has suggestions for using Twitter as an assessment tool.



In addition, both Kathy Shrock's Twitter for Teachers page and Pinterest have links to a number of other resources which outline ways to incorporate Twitter into both brick-and-mortar and online classroom assessment plans.

Disadvantages

There are a number of potential disadvantages to using Twitter in the classroom or in an online learning environment. One is the age limit noted above. While Twitter does not take an aggressive stance toward pursuing users who may be in violation of the privacy policy, the company will delete the accounts of any underage user discovered to have shared information in violation of that policy. This, coupled with the fact that many parents prohibit their underage children (and even some who are thirteen years or older) from using the service implies that teachers will not be able to expect full participation from a class of students whose cellphone usage is subject to strict parental control. In those circumstances, the collaborative aspect of Twitter would be severely limited by the inability to reach all of the students. Of course, this limitation is unlikely to apply to college age or adult students.

Another possible disadvantage would be the format of the service itself. Because tweets are limited to a maximum of 140 characters, they do not allow students to explain their understanding with any kind of depth. Assessments are limited to an indication of surface knowledge, appropriate for gauging mastery of facts or describing concepts in only the briefest of terms. Admittedly, some teachers would see this lack of complexity as an advantage, and there certainly are other tools which enable students to expound in depth on a variety of topics.

Finally, and perhaps most importantly, it has been suggested that social networking tools may have a dampening effect on students' cognitive abilities (Connolly, 2011). Social media use can, according to Connolly, "subvert higher-order reasoning processes, including the kind of focus, concentration, and persistence necessary for critical thinking and intellectual development" (2011). With that word of caution, teachers may be well-advised to constrain their implementation of social media tools in the classroom.

Learning Objective

Twitter can be deployed as a formative assessment tool to affirm student mastery of required standards. For example, in an online or blended math environment, a teacher can post a series of word problems with a unique hashtag as an identifier, and students can then respond with the algebraic equation represented by the word problem, directing their answers to the appropriate forum by posting the hashtag with the proposed solution. The teacher can then follow up with immediate feedback to the student regarding the accuracy of the solution.

The specific learning objective can be described as:

> "Students will demonstrate the ability to solve word problems by constructing algebraic equations with rational numbers at the rate of 85% accuracy using designated Twitter hashtags."

Conclusion

Twitter is certainly a powerhouse in social media networking. Used in moderation, it has enormous potential in educational settings, both in online environments and traditional classrooms. The collaborative aspect of Twitter lends itself to various means of formative assessment, including peer assessment, and the possibility of providing immediate feedback makes it an excellent option for tailoring the learning environment to students' needs. Judicious use of this tool by teachers can increase student engagement without leading to cognitive decline. Real-time collaboration with instantaneous feedback that requires no expenditure of funds should make this an attractive option for online education providers.

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What is VoiceThread

VoiceThread is an interactive media aggregation tool that offers the creator(s) a centralized platform/interface to add documents, images, audio, and/or video media for presentation and feedback. This platform can range from one slide to multiple slides. Four choices are available to upload materials; computer, URL, webcam and media sources. Slides can be reorganized to suit a desired sequence. Slide enhancements include rotation as well as title and/or link additions. Following slide development, the creator has the ability to annotate the slides including the option for drawing over images. Once created, a **VoiceThread** can then be shared to other users who may add voice, text, audio or video comments. **VoiceThreads** can be saved as an mp3 file and/or uploaded to a website for viewing and commenting. The creator also has extended flexibility to limit or expand the end-users capacity for viewing and downloading. By default all **VoiceThreads** are private. Options for public view, public comment, and comment moderation. Comment moderation controls which comments are viewable to users and which are viewable only to the creator.

Benefits of VoiceThread

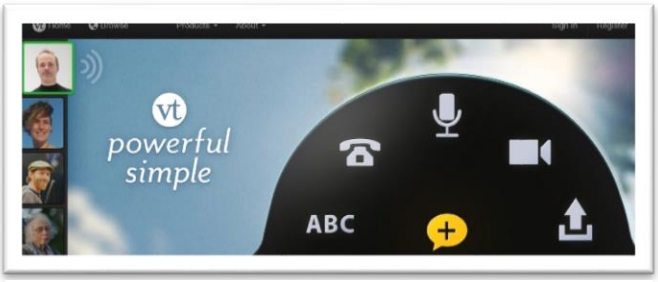
VoiceThreads can be adapted to a variety of applications in education, both K-12 and Higher Education such as debates, blogging, reflections, group presentations, visual discussion boards for questions or topics, critiques, portfolios, exit tickets, and informal feedback.

It structure lends itself to digital storytelling and conversations including the following positive attributes:

- Highly collaborative
- Engaging
- Differentiated
- Asynchronous
- Promotes individual perspective
- Real-time assimilation
- Audio recording can be recorded from computer or phone
- Readily accessible formative feedback
- Increases sense of being part of a community (a significant barrier for online success)
- Improves the sense that the instructor is present in student learning experience

"By far the greatest potential of VoiceThread lies in the creative opportunity it provides for students to tell their own stories and to contribute to or directly critique the narratives of their peers."

Educause Learning Initiative, 2009



Digital Image: http://ed.voicethread.com/#home

VoiceThread rises to the forefront when considering dialogue in the distance education and E-learning environment. The platform lends itself to a small group discussion forum whereby participants can exchange feedback and idea comments through voice, text and video within a timeline. Individualized comments are identified by an icon or picture of the contributor and they speak or type. The easy integration of voice and other types of media when commenting not only maintains engagement but encourages collaboration among peers. When viewing a **VoiceThread**, whether commenting or not, one feels as part of the conversation. Though this conversation is asynchronous, when watching you can add your thoughts at any time; interjecting when you feel it is appropriate. These exchanges are characteristic of live conversations and create a humanistic tone to the digital dialogue.

An environment whereby students are able to share their comments with their peers as well as listen to comments from their peers encourages more authentic peer feedback. Self- and peer-assessment is easily integrated into this platform. Spiller (2012) further discusses the importance of self- and peer- assessment in Assessment Matters: Self-Assessment and Peer Assessment.

PEER ASSESSMENT

"Students can help each other to make sense of the gaps in their learning and understanding and to get a more sophisticated grasp of the learning process."

(Spiller, 2009, p. 11)

SELF ASSESSMENT

"Making judgments about the progress of one's own learning is integral to the learning process."

(Spiller, 2009, p. 4)

By incorporating media from a variety of sources coupled with the layering of sound and comments from many sources, this application supports a new dimension of presentation, sharing and feedback.

Challenges of VoiceThread

VoiceThread, though a powerful addition to any e-learning environment has a few challenges as well. Due to the gravity of oral conversation within a thread, either checklists or rubrics would be required for assessment purposes. Additional challenges include:

- Requires high-speed connectivity; potential access difficulty with slow internet connectivity
- Functioning uniformity across all browsers
- Text responses, unless typed prior, may include grammatical errors (assessment considerations regarding content only)
- Requires flash, which may not be supported on certain devices
- Requires a learning curve for students to become comfortable with the format
- May be viewed as an additional demand; it is imperative to explain why they are using it and how it will benefit their learning
- Instructor/facilitator sets up accounts and manages threads
- Costly instructor license ($79 for K-12; $99 for Higher Education).
- No free trials currently available.

Assessments from this tool may need to include the above considerations. Response quality or participation may be impacted due to functionality barriers.

Application of Use

The following is a suggestion for use of VoiceThread within Common Assessments for Student Learning (E-Learning Course).

Adaptation: *Course content may be substituted; objectives and evaluation can be modified to align with content.*

To view VoiceThread, click on the image below and scroll toward the bottom of the wikispace.

Digital Image & Video: http://voicethread4education.wikispaces.com/home

Objectives:

1) The learner will identify three big ideas characteristic of a professional learning community using visual symbols and text with supporting details referenced from the pieces read, peer feedback and/or other sources.
2) The learner will reflect on and evaluate the quality of their work, identify strengths and weaknesses, and revise accordingly.

Activities:

- Learners will review topic content through provided text and videos. Additional research may be required on behalf of the student.
- Each student, through research and discussion posts, will create an infographic of their choice that represents their understanding of the three big ideas of a professional learning community.

- The students will post their initial submission to the instructor.
- Each student's artifact will be placed within a classroom **VoiceThread**, each student having their own slide.
- The **VoiceThread** will be shared with the class.
- Peers are to review the **VoiceThread** and offer comments/feedback on peer submissions. This feedback may include comments, questions, suggestions, etc.

Following the activities listed above, each student will be offered the opportunity to revise their original submission. The final artifact coupled with a supporting reflective paragraph will be submitted.

Assessment:

A rubric will be developed to assess artifact content, visual display, reflection content, and grammar. Assessing skills in application is the classroom assessment technique (CAT) for this activity; the activity is associated with paraphrasing and application. The learner communicates their understanding of key concepts by way of developing an artifact representative of terminology and graphics that is intended as a job aid.

Conclusion

VoiceThread supports Vygotsky's social learning theory and constructivism. Opportunities for group interactions with others to discuss concepts as well as challenge others and their own understanding and beliefs is at the core (Lehman and Chamberlin, 2009, p. 21). Cooperative learning and collaboration is also supported as informal collaborations take place through dialogue and formal cooperative learning can transpire through group presentations. **VoiceThread** support educational theories and activities of best practice and can be utilized as a collaboration tool as well as an audio/visual assessment tool. Join the Classroom Partners Group or Voicethread For Educators Group to collaborate with professionals in education for using this tool through a variety of applications and activities.

A worthy asset in an educator's toolbox.

Citations:

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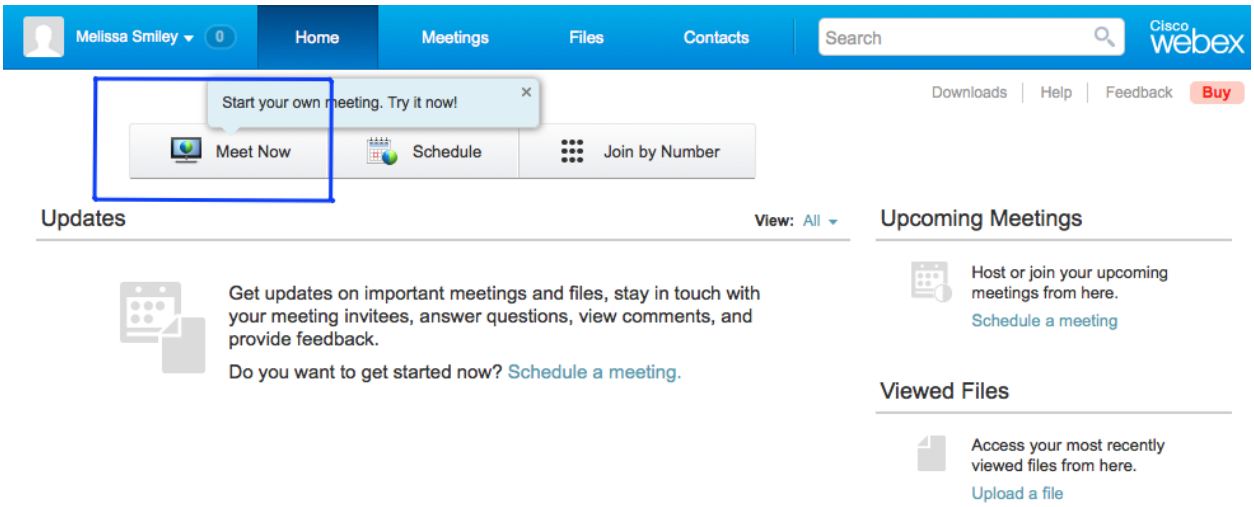
Welcome to WebEx!!

Online collaboration and conferencing made simple! Powered by Cisco, WebEx allows for global interaction to increase collaboration and project completion, while harnessing the creativity and development of diverse online learning environments. This multi-platform web conferencing tool is excellent for online learners and educators to create a personalized and collaborative learning experience, and even works on mobile devices.

Using **WebEx Meetings**, students can meet with and work with two other people for free on collaborative projects, discussion posts in online environments, or in brainstorming and workgroups as needed to help meet the learning objectives. With **WebEx**, students are able to remove the clumsiness of conference calls and the inconsistency of Blackboard Collaborate that is often offered through a learning management system. By signing up for free, students can get a series of services from **WebEx** that make the collaboration process smoother and user friendly. Instructors can receive recordings of collaborative sessions to provide feedback and assess the collaboration experience, study group dynamics, and provide additional instructor support to groups.



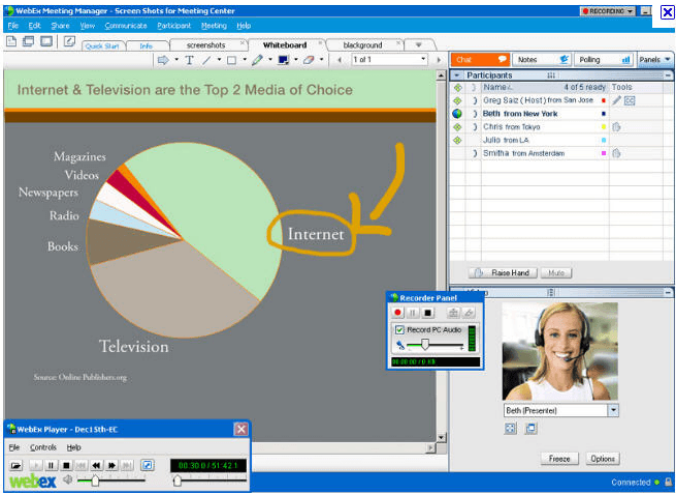
User Review from G2: "*The WebEx service that we use is inexpensive and as far as I know, there are no limits on the number of WebEx conferences we can have.*" (2014)

Benefits of WebEx:

Cisco technologies allow for state-of-the-art conferencing through **WebEx**. This collaboration tool allows students and teachers from K-12 to higher ed increased flexibility in hybrid, blended, and online learning. The features of WebEx allow to Some of the benefits of a free membership include:

- Video from multiple webcams
- Secure, shared meeting spaces with file sharing, comments and Instant Messaging
- Integrated audio with Active Speaker so you know who is talking
- Screen sharing
- Collaboration tools like commenting, real-time annotation, chat
- Meeting recordings to share or review
- Delivery over Cisco Collaboration Cloud for exceptional reliability and enterprise-grade security
- Free webinars to enhance independent learning

"WebEx collaboration products are easy to use. We help you conference and collaborate more productively without technology hassles getting in the way."



WebEx provides ample flexibility and opens the door for online learning to reach new levels of collaboration and providing a human touch to online courses. Many colleges and universities are utilizing **WebEx**'s features to enhance online learning environments with engagement by allowing students to experience learning beyond the borders of typical brick-and-mortar campuses. Additional features to the **WebEx** platform include allowing students to form instant virtual teams, share content, and engage in collaborative co-authoring. Faculty can establish easy virtual office hours and provide advising opportunities for students in real-time communication. Administrators and staff members are able to increase efficiencies within the campus structure by hosting online meetings and integrated social collaboration. **WebEx** also offers a variety of opportunities for K-12 by connecting classrooms and schools in other districts and countries. Students are able to learn without geographical boundaries, and experience educational cultures across the world. Blended education and hybrid opportunities in flipped classrooms can be

enhanced with **WebEx**, by allowing students to engage in global educational opportunities right in their own local classroom.

Enhanced Pedagogies

One of the benefits of the growing technologies available to educational settings is the ability to try new ideas in pedagogical principles and enhance active learning strategies in online learning. Gone are the days of one-way, passive learning in online learning. Traditional independent work, followed with discussion posts, summative assessments, and a written paper promoted predictability, enhanced isolationism, and devalued the ability to provide human interaction in online learning. However, analysis of learners entering online learning shows that students are looking for engaging, active learning environments that allow them to learn without borders, collaborate with peers, and receive individualized experiences in the online learning setting.

ENHANCING PEDAGOGY

"As online learning environments take centre stage, those who push ahead might be intrinsically rewarded by the chance to try their pedagogical ideas out, while those in the following wave are provided with internal and external training opportunities. There is a need to know how to build effective interaction, collaboration, and engagement with online learning technologies that foster two-way, not just one-way, interactions."
(Bonk, 2004, p.2)

In online learning, allowing for synchronous learning opportunities builds collaboration and pedagogical ideals and as stated by Bonk (2004), "*there are many promising opportunities to develop online learning modules, courses, and programs rich with interesting and engaging pedagogy...there are frameworks for critical and creative thinking activities and collaborative learning online as well as motivating online learners*" (p. 6).

Collaboration as Assessment

All students, whether in face-to-face or online learning environments, get the most from their education when the environment is collaborative, engaging, and purposeful. Promoting collaborative learning allows for students to receive peer-assessments as well as take time to self-assess their learning and ability to apply the materials learned. According to Andrew Marcinek, the Director of Techonology and EducatorU.org Co-founder, "*collaboration can lead to a new audience of constrictive critics and opportunities for new learning connections. Students have the chance to receive constructive feedback in a collegial, safe environment*" (Edutopia, 2011). To enhance assessment through collaboration, present a problem to the students and then follow the five steps:

1. Set clear objectives and tasks
2. Allow for open collaboration
3. Allow access to learning tools
4. Limit explicit direction
5. Define clear expectations

Practicing collaboration as assessment, students are able to achieve real-time assessment feedback in a formative assessment format to enhance learning and material comprehension. We owe it to our students to provide collaboration and promote peer and self-assessment strategies to create that two-way learning environment.

COLLABORATION AS ASSESSMENT

"We must promote dynamic, inquiry driven learning that provokes critical thinking and fosters adaptability. We have the ability to connect and challenge our students. We cannot pretend like the future is coming, the future is now, and we must give our students the best opportunity to learn today."
(Marcinek, 2011)

Challenges to WebEx

Although there are many advantages to using the free version of **WebEx**, there are also many limitations when implementing a technology like this on a larger scale. Before beginning any initiative to utilize new technologies that will require student participation for grades, it is important to evaluate the challenges that will be faced. With **WebEx**, some of these challenges include:

- Pricing: if institutions are interested in packages and services beyond the free option, it can cost up to of $69-$89/month
- Must have reliable Internet connectivity
- Creating synchronous learning schedules with individuals in various time zones and schedules
- Students and teachers not having proper technology (i.e. webcams, microphones, etc.)
- Relying on Cisco tech support for any technical issues
- Initial setup and launch of the technology can be time consuming and restrictive

Although restrictions and challenges persist in any technology platform, the pros and cons must be weighed carefully, and an initial analysis of the pedagogical benefits must be evaluated to determine if collaboration technologies are beneficial in an educational environment.

Application of Use

The following suggestion of use of **WebEx** in an online learning environment relates to a course designed to teach faculty and online teaching staff *Universal Instructional Design*. In the second module of this course, students are expected to achieve the following objectives:

1. List Section 508 and WCAG 2.0 web accessibility standards
2. Discuss how Section 508 and WCAG 2.0 standards affect course design and the challenges of meeting the standards
3. Create a Section 508 or WCAG 2.0 tip sheet through a collaborative activity

Module Activities

- Read required readings provided by the Government-wide Section 508 Accessibility Program and WCAG 2.0 at a Glance
- Discuss and brainstorm with peers in a discussion setting the comparisons and contrasts of the Section 508 and WCAG 2.0 standards; discussions should invoke critical thinking and students are to draw upon examples
- Create a Section 508 or WCAG 2.0 tip sheet through synchronous and asynchronous collaboration strategies and online conferencing tools, **WebEx**.
- Written reflection providing peer and self-assessment for the module's collaboration technique, apply principles learned in collaboration in a real-life setting
- Complete low-stakes, summative assessment for content mastery

Through feedback as assessment by peers and the instructor, students would be given ample feedback to ensure proper mastery of the content. Students would be encourage to adjust the projects and activities prior to final submission. The low-stakes assessment would allow for students to take a self-inventory of the content and repeat the assessment until mastery of the content is achieved.

Conclusion

Pairing pedagogy with social constructivist learning, cooperative learning and collaboration for assessment supports engagement through sociocognitive and constructivist learning theories. In drawing from cognitive theory, these cooperative and collaborative learning allows for students to relate concepts to their own experiences and apply the content in real-life examples (Morrison, 2012). Furthermore, assessment strategies used through cooperative and collaborative learning allow for self and peer-assessment strategies for students to further build upon content mastery and application.

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Conclusion

Assessment serves a variety of purposes in education, and it a necessary part of the learning process. Assessment encourages students to demonstrate mastery of learning targets or objectives, and this can be done in many different ways. Students are no longer limited to pencil and paper tests, and advances in educational technology have brought forth a whole new digital category of assessment tools. Three of these tools have been described here, though there are many more.

Twitter is certainly better known as a social media network than as an instrument for assessing learning, but the program serves both purposes. Creative use of this technology will engage students and provide an excellent venue for immediate feedback and peer collaboration. Twitter's functionality will accommodate a wide variety of formative assessment techniques.

VoiceThread provides a multimedia platform for students to engage in individual or collaborative storytelling and discussion. Students get feedback from peers and the instructor as the artifact takes shape. Frequent formative feedback is a hallmark of this program. The authentic nature of this type of feedback encourages student participation and is especially suited to the online learning environment. If the necessary wireless infrastructure and student devices are in place, VoiceThread can be a powerful device for assessing enhancing learning.

WebEx is a program designed with cooperation and collaboration at its heart. WebEx provides an active learning environment in which students and the instructor can conference and share ideas through a variety of media sources in real-time. The platform is eminently suitable for peer assessment and promotes authentic learning by allowing students to extend the learning environment beyond the walls of the classroom to include participants from around the globe. Learners enjoy the engaging nature of the program, which promotes collaboration along with both peer and self-assessment through frequent formative feedback.

Every educator needs to employ a variety of assessment methods. The tools chosen for consideration in this jigsaw-inspired review allow students to demonstrate learning in ways that are appropriate to a wide range of subject matter, and the methods incorporated in these tools will engage students with the diverse techniques employed. Each of these technologies, VoiceThread, Twitter, and WebEx, is amenable to collaborative assessment and can serve as a powerful tool for formative and summative assessment in both a traditional classroom and online learning environment.