

# Augmented Reality Interactive Storytelling

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TECHNOLOGY

**Augmented Reality Interactive Storytelling, or ARIS for short, is a place-based storytelling and gaming platform that uses servers and mobile devices to engage learners in completing measurable objectives. Content authors use a web-based tool to create experiences using points of interest defined on a map, associating experiences, interactions, and assessment with each location.**

## PURPOSE

- » Supports critical thinking and higher order skills development using active learning techniques.
- » Augments real-world experiences and places with educational content in context.
- » Fosters positive relationships between students, teachers, and the community.

## PROCEDURE

- » Tutorials and guides are available on the ARIS web site to help you understand the ARIS system and get started with creating an interactive story. Links to these resources are on the nwacco.org site.
- » Difficulty developing and implementing in ARIS depends on the complexity of your project.

- » Simple campus tours won't take much time. Complex interactions will take significantly more setup.
- » Once your experience is stable, maintenance is minimal, but will involve keeping devices updated with the latest ARIS software.

## CONSIDERATIONS

- » Network availability/capacity
- » Time (production, participation)
- » Environment (weather, accessibility, etc.)
- » Student access to devices and resources



ADVANCED

Find out more at » [nwacco.org/card/augmentedreality](http://nwacco.org/card/augmentedreality)



<http://www.nwacco.org/card/>

## References – Augmented Reality Interactive Storytelling

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# Backward Design

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### PEDAGOGY

**Backward design is a course development method that starts with the end in mind and promotes organization and active assessment. Instead of the traditional method of designing your course around content or textbooks, ask: what should students *be able to do* after completing the course?**

### PURPOSE

This process helps you design a course based on course goals (competencies that students need to develop) instead of around the content.

### PROCEDURE

1. List your main 5-6 learning outcomes. Make sure they are specific, measurable, performance-based learning goals.
2. For each outcome, determine an activity or experience (and what students will deliver) to demonstrate their mastery of the content.
3. Break down each major learning outcome and activity into logical order, with subtasks and learning goals.

4. Make sure your activities and supporting course materials reflect the kind of critical thinking and enduring knowledge and skill that you want at the heart of your course.

### CONSIDERATIONS

- » Working backwards from goals rather than starting with content or a textbook can be challenging.
- » Retooling a pre-existing course using this method may require removing some extraneous content.



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# Bloom's Taxonomy

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### PEDAGOGY

Bloom's Taxonomy can be used to help develop measurable learning objectives for students. The current version of Bloom's Taxonomy consists of six categories, listed here from higher order to lower order: **Create, Evaluate, Analyze, Apply, Understand, and Remember.** Effective teaching guides students from remembering toward creation.

### PURPOSE

Use Bloom's Taxonomy to create higher order learning objectives that are specific, measurable, and performance-based. Having clear and organized objectives helps teachers to:

- » deliver appropriate instruction;
- » design valid assessments;
- » align instruction/assessment with the objectives.

### CONSIDERATIONS

Identifying learning objectives requires careful, thorough analysis of lectures, lessons, and activities.

### Bloom's Cognitive Taxonomy Hierarchy (2001):

#### HIGHER ORDER



6. Create: Generating, Planning

5. Evaluate: Checking, Critiquing

4. Analyze: Differentiating, Organizing

3. Apply: Executing, Implementing

2. Understand: Interpreting, Exemplifying



1. Remember: Recognizing, Recalling

#### LOWER ORDER



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## References – Bloom's Taxonomy

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# Backward Design: Choosing Tech for Teaching

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### PEDAGOGY

**Develop learning goals before selecting a technology to support teaching and learning. Choose technology that advances instructional goals rather than distracting from them.**

## PURPOSE

Choosing a technology based on specific learning goals allows for the best fit for the activity and leads to less frustration in the long run.

## PROCEDURE

- » **Seek:** What support units exist for faculty to incorporate technology?
- » **Ask:** What should students get out of this activity/experience/assignment?
- » **Ask:** How much time should be devoted to students mastering the technology versus completing the content-based learning objectives? Is the technology easy to use? Is learning the technology part of the goal?
- » To decrease their stress levels, explain to students that this is a new assignment and it might have some glitches, or that they may

experience frustration due to their inexperience with technology tools.

- » When beginning to incorporate technology, start small and scaffold the experience for students. Begin with one tool for one assignment and build up to more over time as you become more comfortable and confident.

## CONSIDERATIONS

- » Software changes rapidly and is sometimes difficult to support.
- » Consider the learning curve before selecting an application.
- » Try not to be seduced by “cool” or trendy technology that doesn’t really advance learning goals.



**BEGINNER**



<http://www.nwacco.org/card/>

## References – Backward Design: Choosing Tech for Teaching

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# Classroom Response System (Clickers)

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TECHNOLOGY

**Classroom Response Systems, or “clickers,” come in the form of personal handheld remote response devices or applications for existing devices (phones, tablets, laptops, etc.). Answers are collected and displayed for instant review in class or stored for later review.**

## PURPOSE

Clickers enable pre-made or on-the-fly quizzing and polling, allowing all participants to actively engage with the presented material. Anonymous polling is also useful to elicit participation from those who would otherwise be hesitant to speak.

## PROCEDURE

Generally, clickers are best for short, multiple-choice quizzes and to stimulate discussion and engagement. Also:

- » Poll a class in real time to gauge comprehension of concepts and determine how much review is needed.
- » Conduct introductory, non-graded polling to take class attendance.
- » Use class poll responses as a discussion prompt to engage

participants with one another's opinions.

- » Assign clickers for the term, and use them to replace paper quizzes.
- » Since clicker software is often proprietary, check with your campus technology support to see if your institution supports specific manufacturers.

## CONSIDERATIONS

- » Requires students to have access to, and in some cases to purchase and/or register, devices.
- » Clickers are dependent on some sort of signal to work, such as an internet connection.



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Find out more at » [nwacco.org/card/classroomresponse](http://nwacco.org/card/classroomresponse)



<http://www.nwacco.org/card/>

## References – Classroom Response System (Clickers)

- » “7 Things You Should Know About Clickers.” EDUCAUSE Homepage. ELI, 15 May 2005. Web. 27 June 2014.
- » Bruff, Derek. Teaching with classroom response systems: creating active learning environments. San Francisco: Jossey-Bass, 2009. Print.

# Team-based Learning

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### PEDAGOGY

**Group projects are an active learning strategy that help students move beyond passive receipt of information. Team-based learning allows students to participate in their own knowledge construction, to apply their knowledge to real-world situations, and to deepen the learning experience.**

### PURPOSE

Choose a team-based approach when a project is too complex to complete independently.

### PROCEDURE

- » Design the project to enable everyone to contribute equally. Group projects that are too small can result in one or two people completing all the work.
- » Assign groups of 4-7 students.
- » Assign group roles, or allow group members to determine roles.
- » Balance the group by pairing weak and strong skills together.
- » Ensure that teams start their first meeting by making a contract or charter.
- » Check in regularly to ensure groups are making progress.

- » Add peer assessment to alleviate fears of unfair grading practices.
- » Allow enough time to complete the group project, and consider having fewer course objectives.

### CONSIDERATIONS

Instructors need to set up group projects carefully and have a plan to facilitate and assess each project; it may be necessary to sacrifice goals like covering all the desired content.



**INTERMEDIATE**



<http://www.nwacco.org/card/>

## References – Team-based Learning

- » Fink, L. Dee. "The Key Ideas of Team Based Learning." Team-based Learning: A Transformative Use of Small Groups. Ed. Larry K. Michaelsen, Arletta Bauman, Knight, and L. Dee Fink. Westport, CT: Praeger, 2002. N. pag. Print.

# Creating a Welcoming Online Community

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### PEDAGOGY

**A welcoming community allows students to learn through social negotiation (asking and answering questions, showing empathy and concern, etc.).**

### PURPOSE

- » Create a community of learners who are connected to one another, as well as to the instructor
- » Create opportunities for student-to-student interactions

### PROCEDURE

- » Consult with campus technology support for details on how to make both informational pages and discussion groups or blogs within the campus learning management system or preferred website builder (Google Sites, WordPress, Weebly, etc.).
- » Create a welcome page on the course website to orient students to the course layout and expectations.
- » Create a page about yourself. Include a picture or short video and post details of your academic interests and research focus, along with personal interests.

- » Use a tool such as a discussion board or blog and have students introduce themselves and explain what they hope to gain from taking the class, along with their personal interests.
- » Make a separate discussion area for students to talk about non-course topics.
- » Consider using a variety of “icebreaker” games to spice up the introduction process.

### CONSIDERATIONS

- » “Introduce yourself” activities can easily get stale for both you and students. Mix it up with a variety of activity types.
- » For online activities, up-front netiquette expectations and active moderation are important.





<http://www.nwacco.org/card/>

## References – Creating a Welcoming Online Community

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# Google Maps

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### TECHNOLOGY

**Google Maps is an interactive web service that provides detailed geographical information. It is a familiar tool used to view maps and as a route planner for drivers, bikers, walkers, and public transportation. Google Maps also includes street and satellite views of many places. With a Google account, you can create your own maps and add additional data, such as traffic information, photos, and annotations.**

### PURPOSE

Google Maps can be used to compile, organize, and present a variety of location-related information. Map projects are interactive and can be used for storytelling: students can gather and communicate geographical information, interact with and distinguish between relevant geographical data, use images for nonverbal communication, and gain knowledge of historical, geographical, political, cultural, social, and economic perspectives.

### PROCEDURE

1. Sign in to Google Maps (requires Google account).

2. Click *My custom maps* at the top left panel.
3. Click *Create*.
4. Google Maps will open *Maps Engine Lite* in a new tab.
5. Use Google Maps editing features to add or edit places, lines, and shapes.

### CONSIDERATIONS

- » Students must have a Google account to create and save maps.
- » Privacy concerns with place-based identification and student data/information
- » Google can update or eliminate services unexpectedly.



**INTERMEDIATE**



<http://www.nwacco.org/card/>

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# Journaling / Blogging

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TECHNOLOGY

**Blogs are a quick and easy platform for individuals or groups to publish content, collaborate, build and disseminate knowledge, or participate in scholarly discourse.**

## PURPOSE

Blogging prepares students for discussion, promotes sharing of ideas, and fosters learning. Examples include:

- » **Individual Academic Blog:** students create personal blogs to reflect on their learning. The blogs may be private, shared with the instructor or group, or fully public. Threaded commentary promotes dialogue between learners and their classmates, instructors, or the broader community.
- » **Course Website:** the blog site functions as a course website and may include pages for resources, news and announcements, or forums for discussion. This can be used as an alternative to the learning management system.
- » **Learning Communities:** allow sharing of students' coursework with a larger learning community.

- » **E-Portfolios:** students maintain e-portfolios containing work samples and evidence of learning.
- » **Magazine, Journal, Newspaper Publication:** collaboration for student-produced content.

## PROCEDURE

- » Determine the learning objective or the purpose of the blog.
- » Find the tool supported by your institution.

## CONSIDERATIONS

- » If blogs are not integrated thoughtfully, students can perceive them as busywork or irrelevant.
- » Best practice requires the instructor to read and comment on the blogs, which takes time.



**BEGINNER**

Find out more at » [nwacco.org/card/blogging](http://nwacco.org/card/blogging)



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## References – Journaling / Blogging

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# Robert Gagné's Nine Events of Instruction

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PEDAGOGY

**A way of structuring an instructional experience to maximize the amount of learning taking place.**

## PURPOSE

Most instructors say, "Students need to learn about x," or, "I need to cover x amount of information with my students." But the mind is not a vessel to be filled, the way you can fill a pitcher with water. The great educational theorist Robert M. Gagné (1916-2002) discovered that learning happens most effectively and efficiently when the mind is activated and attention is sustained in certain ways. He created a structure that he called "the nine events of learning" to describe how this process takes place for most learners.

## PROCEDURE

1. Gain attention.
2. Tell learners the learning objective.
3. Stimulate recall of prior learning.
4. Present information.
5. Provide learning guidance.
6. Elicit performance (provide practice).
7. Provide feedback.
8. Assess performance.
9. Enhance retention and transfer to other contexts.

Students learn most from events 6 and 7: practice and feedback. Instructors who focus on providing practice and feedback to their students realize the largest gains in learning.



**BEGINNER**

Find out more at » [nwacco.org/card/nineevents](https://nwacco.org/card/nineevents)



<http://www.nwacco.org/card/>

## References – Robert Gagné’s Nine Events of Instruction

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# Mind Mapping

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### PEDAGOGY

**Mind maps are a type of diagram used to visually display information about a central topic in a relational way. They are most effective when they incorporate color and images, which stimulate the brain and aid memory. They can be used to organize any type of information in any subject matter.**

### PURPOSE

Mind maps can be useful for making decisions/problem-solving, organizing ideas (your own or other people's), creative thinking, brainstorming, improving memory and imagination, and facilitating collaboration.

### PROCEDURE

1. Pick a topic to be the central theme of the mind map.
2. Write that topic in the center of the writing space (including a relevant sketch/image is helpful).
3. Record free-form ideas as keywords surrounding the central topic, connecting them back to the central concept with branches. Try not to censor or moderate.
4. Continue adding branches from the central topic or subtopics until all ideas are included.

5. Now go back to study and refine the connections/relationships created.

### CONSIDERATIONS

- » Mind mapping can feel uncomfortable/unnatural to people unaccustomed to working in a non-linear structure. It takes practice to get used to.
- » Not good for organizing very large amounts of text
- » Personalized maps can be confusing to outside viewers.



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## References – Mind Mapping

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# Engaging Learners in Online Discussions

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### PEDAGOGY

Hosting an online discussion helps to enhance engagement and to create a vibrant learning community.

#### PURPOSE

- » Learners achieve deeper critical thinking as they incrementally develop group engagement, which challenges and encourages each participant's thinking.
- » Learners develop a sense of safety within the group by experiencing a high level of commitment in the community.
- » Instructors have more opportunities to give feedback that helps learners continuously improve.

#### PROCEDURE

- » **Focus the discussion** by providing guiding questions in advance and sharing ground rules for online etiquette.

- » **Establish a schedule** for the entire online discussion. Within that schedule, give deadlines to:
  - 1. Prepare:** Complete assigned reading, viewing, researching, etc.
  - 2. Initiate:** Begin the group discussion with an initial post to give the group a strong start.
  - 3. Converse:** Reply to peers. In a large group, have learners reply to a specified small number of colleagues so that the task does not overwhelm.
  - 4. Synthesize:** Participate in an instructor-guided synthesis.

#### CONSIDERATIONS

Students can engage inauthentically by echoing other posts.





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## References – Engaging Learners in Online Discussions

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# Screencasting

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### TECHNOLOGY

A screencast is a recording of the actions occurring on a computer screen and generally includes audio narration of the on-screen actions. Built-in microphones and webcams on modern laptops allow for convenient screencasts. Professional projects may require higher-quality webcams, microphones, and software.

### PURPOSE

**For teaching:** Screencasts are often used to describe a step-by-step process, for lab or specialized software tutorials, for online lecture delivery, and for instructional videos.

**For an assignment:** Students can create screencasts for projects such as a digital story, online presentations, tutorials, and documentation.

### PROCEDURE

- 1. Create a script or outline.** Define the topic and learning objectives to open the narration.
- 2. Test audio and video equipment.** For higher-quality screencasts, use commercial screencasting software and a headset or microphone designed for podcast recording.
- 3. Practice!**

- 4. Prepare your desktop for recording.** **IMPORTANT:** *Close applications that may contain confidential information before recording!*
- 5. Record your screencast.** Keep in mind screen resolution and size.
- 6. Publish your video** in a format easily accessible to your students (YouTube, your course web page, etc.).

### CONSIDERATIONS

- » Underestimating the time involved for a professional-quality project
- » Choosing software that is either too simplistic or overly complicated for your project
- » Poor-quality recordings due to poor location and substandard webcam/microphone



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## References – Screencasting

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# Compressing Video for Sharing



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TECHNOLOGY

Cameras and mobile devices often record very large video files by default. To make these files more manageable and shareable, reducing file size by 16 times or more, use a conversion tool like Handbrake.

## PURPOSE

Convert large videos created by video recording equipment (smartphones, video recorders, laptops, etc.) to a standard format and size that can be shared and uploaded easily.

## PROCEDURE

1. Install Handbrake.
2. Open a large video file using Handbrake.
3. Adjust settings to meet your needs.
4. Output (transcode) the video into a smaller format that's better for distribution.
5. Keep the original file for editing or archival purposes.

## CONSIDERATIONS

- » You can tweak Handbrake's settings to meet your needs. Generally, the "average bitrate" will have the greatest impact on file "picture quality and file size."
- » Don't delete the original, large file unless you're certain you won't need it later for editing or archival purposes.
- » Handbrake is not designed for ripping copyrighted DVDs.
- » If the video is still too large, consider posting on YouTube and sharing the link.



ADVANCED

Find out more at » [nwacco.org/card/shrinkvideo](https://nwacco.org/card/shrinkvideo)



<http://www.nwacco.org/card/>

## References – Compressing Video for Sharing

- » “HandBrake The Open Source Video Transcoder.” HandBrake: Open Source Video Transcoder. <<http://handbrake.fr/>>.
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# Social Media

## T

### TECHNOLOGY

**Social media refers to interaction among people in which they create, share, and/or exchange information and ideas in virtual communities and networks. In a learning environment, social media provides learners with a broader context in which to understand the course material and their discipline as a whole.**

### PURPOSE

- » Understand how to use social media platforms for academic and professional purposes (beyond casual/personal use).
- » Foster collaborative learning experiences in and outside the classroom.
- » Build ongoing community and network with peers and mentors.
- » Provide a guided opportunity for learners to create and manage their digital identities.

### PROCEDURE

- 1. Decide the purpose** for which you want to incorporate social media into your curriculum (as a backchannel, a collaboration tool, a resource collector/organizer, part of a project assignment, and/or a communication tool).

- 2. Choose a platform** based on the features you desire. If uncertain, get advice from your campus technology support.
- 3. Stay connected.** Social media is most effective with ongoing interaction/communication.

### CONSIDERATIONS

- » Requires active participation to be effective
- » Choosing an appropriate platform can be confusing for social media novices.
- » Experience does not guarantee expertise; learners require guidance in developing good digital citizenship and effective use of social media for academic purposes.



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## References – Social Media

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# Wikipedia Editing



When students are asked to edit Wikipedia articles, they become knowledge contributors rather than knowledge consumers. “[This] can encourage students to analyze what they read, ask questions, and engage in reflective, creative learning.”<sup>1</sup>

## PURPOSE

- » Learn to write neutral, expository text.
- » Experience writing in a peer-reviewed setting.
- » Hone information and technology literacy skills.
- » Practice research skills: Wikipedia articles are evaluated by references to reliable sources.

## PROCEDURE

- » **Identify** content that needs contributors.
- » **Practice and peer review.** A private test wiki can help build confidence by providing a peer support group to review contributions before publishing to Wikipedia. If this is not possible, Wikipedia User pages work well as a sandbox.
- » **Publish.**

## CONSIDERATIONS

- » Student changes to public pages may be quickly removed or edited by existing page editors.
- » Students are working in a public forum, not a private site.



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1. “7 Things You Should Know About Wikipedia | EDUCAUSE.edu.” Accessed June 25, 2014. <http://www.educause.edu/library/resources/7-things-you-should-know-about-wikipedia>.



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# Gamification / Badging

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### TECHNOLOGY

**Badging is a form of feedback on concepts and skills gained. In the classroom, badges provide a tangible and familiar way to reward and incentivize learning.**

### PURPOSE

- » Increase student engagement.
- » Provide extrinsic rewards for intrinsic achievements.
- » Involve the pleasure center of the brain.
- » Foster community.
- » Provide instant feedback on progress.

### PROCESS

1. Determine which skills are going to be represented with specific badges.
2. Some suggestions: attendance, commenting on posts, sharing resources, leading a group, creative solutions, presentation skills.
3. Design a digital badge for each skill using either a badge design site or (if you want to get creative) software such as Photoshop or Illustrator.

4. Decide on a deployment system (class web page, learning management system, badging site, stickers).
5. Define for students the steps necessary to receive each badge.
6. Award badges as students acquire skills.

### CONSIDERATIONS

- » It can be hard to find a balance between ease of achievement and value.
- » Since leaderboards expose student information, they can raise FERPA concerns.





<http://www.nwacco.org/card/>

## References – Gamification / Badging

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# HTML Editing



**HTML stands for HyperText Markup Language and is widely used to create and format web pages.**

## PURPOSE

When using web-based tools with text editors (e.g., popular learning management systems and blogs), a basic understanding of HTML and commonly used tags can be helpful to complete certain formatting functions.

## PROCEDURE

- » An HTML element contains three main parts: a start tag, the content, and the end tag.
- » Tags are delineated by <, >, and /. When you view the HTML version of a web page, elements look like this: <tag name> contents </tag name>. You can add attributes to elements to further refine formatting.
- » Attributes are housed within the start tag and consist of a name and a value, separated by an equal sign (=).

## CONSIDERATIONS

Failure to format and close your tags properly could result in strange formatting or improper page display. Make a test version first.

## EXAMPLE HTML PAGE

```
<html>
<head>
<title>Page Title</title>
</head>
<body>
<p>Paragraph Content</p>
<ul>
<li>List Item 1</li>
<li>List Item 2</li>
</ul>
</body>
</html>
```





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## References – HTML Editing

- » “HTML.” W3Schools Online Web Tutorials. N.p., n.d. Web. 27 June 2014. <<http://www.w3schools.com/>>.
- » “HTML Tutorial.”. html.net, n.d. Web. 27 June 2014. <<http://html.net/tutorials/html/>>.

# Slide Presentation Design Basics



**Well-designed slide presentations can be an effective way to communicate information.**

## PURPOSE

Slide design is critical for maintaining audience engagement and content retention.

## PROCEDURE

- » Stick to key concepts. Slides should support content, not deliver it.
- » Keep slide density low. 20 words or less per slide is ideal.
- » Use large font sizes (no less than 28 point).
- » Use a limited color palette (3-5 colors).
- » Slide contrast should be high (dark background with light text).
- » Avoid bullet points where possible. Varying slide layout will help maintain audience attention.
- » Avoid overwhelming audience with visual clutter and animations.
- » Use high-quality images and avoid stock themes. Stock themes tend to incorporate distracting visual

elements that will compete with your content.

- » Know when to add content to a slide and when to create a separate handout for your audience. Printed slides should not be a substitute for a handout with additional details or resources.

## CONSIDERATIONS

- » Adding multimedia elements to a slideshow may require you to test their display and playback on the machine you will be presenting from.
- » Slide presentations may appear differently on different operating systems (Windows vs. Mac).
- » For maximum compatibility between computers, avoid nonstandard fonts and themes.



**BEGINNER**

Find out more at » [nwacco.org/card/presentationSlides](https://nwacco.org/card/presentationSlides)



<http://www.nwacco.org/card/>

## References – Slide Presentation Design Basics

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# Advanced Google Searching



**Google search features improve search results and return more relevant information.**

## PROCEDURE

### **Search vs. I'm Feeling Lucky:**

Search returns a list of results. I'm Feeling Lucky takes you directly to the top result.

**Find exact terms:** Use quotation marks around the "word or phrase".

**Exclude terms from your search:** use a minus sign immediately in front of the -word.

### **Explore the Settings page:**

Visit [www.google.com](http://www.google.com) and click on "Settings" in the bottom right corner of the browser window.

**Search Settings** creates personal search preferences associated with your Google account.

- » Filter for explicit results.
- » Receive instant search results as you type.

**Advanced Search** allows you to refine search parameters to refine results.

- » Find pages with exact words or phrases, filter to exclude specific terms, include specific terms, or find ranges of numbers.

### **Narrow results by**

- » **Language/region:** useful to find non-English or international results.
- » **File type:** find only sound files, PDFs, or Word documents.
- » **Usage rights:** very useful to find open source or Creative Commons materials for educational uses.

## CONSIDERATIONS

- » Advanced operators are powerful, but take time and effort to use effectively.
- » When searching for media, not all content is properly tagged for sharing, reuse, or modification.
- » Google can update or eliminate services unexpectedly.



**BEGINNER**

Find out more at » [nwacco.org/card/advancedsearch](http://nwacco.org/card/advancedsearch)



<http://www.nwacco.org/card/>

## References – Advanced Google Searching

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support.google.com/websearch/](https://support.google.com/websearch/)>.
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<[https://support.google.com/  
websearch/answer/136861?hl=en](https://support.google.com/websearch/answer/136861?hl=en)>.



# ADDIE Instructional Design Model

P

PEDAGOGY

The acronym ADDIE describes a five-step instructional design model for creating effective instruction: **Analysis, Design, Development, Implementation, Evaluation.**

## PROCEDURE

**Analysis:** High level analysis and definition of course objectives and sequencing of the lesson/course within broader context. Consider prior learning challenges and strengths.

**Design:** Utilize Backward Design (see Backward Design card) to construct the learning process.

1. Identify desired outcomes or learning objectives (see Bloom's Taxonomy card).
2. Determine how students will demonstrate mastery.
3. Break down and scaffold learning; identify intermediate steps to build toward mastery.
4. Create structured sequence of learning activities (see also Gagné's 9 Events of Instruction card).

**Development:** Build complete lesson/course on the structured sequence developed during the design phase.

**Implementation:** Deliver the course. Consider techniques to maximize efficiency of instructional time and student engagement.

**Evaluation:** Both formative and summative assessments are part of this model, including what students learn, effectiveness and engagement of the learning activity, and student perception.



BEGINNER

Find out more at » [nwacco.org/card/addie](https://nwacco.org/card/addie)



<http://www.nwacco.org/card/>

## References – ADDIE Instructional Design

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# Browser Basics



**A web browser is the application used to access the Internet. Common browsers include Chrome, Firefox, Internet Explorer, Safari and Opera.**

## CONCEPTS

**Page:** a single document on the Internet.

**Site:** a collection of pages.

**Window:** the framework browsers uses to display pages.

**Tab:** a window nested into another browser window.

## NAVIGATION

**Web Address or URL (Uniform Resource Locator):** address of a page, often prefaced with http:// https:// and/or www.

**Address Bar:** area that displays the current URL.

**Navigation buttons:** actions like Back, Forward, Refresh/Reload, Home.

**Links:** text or images that jump to another page or site.

**Bookmark/Favorite:** a method of directly linking to a frequently visited page.

**History:** a list of all pages visited since the last time the browser history was cleared.

**Cache:** a snapshot of a page the browser stores on your hard drive.

**Cookies:** a piece of code the browser saves on your hard drive to store information as you navigate within a site.

**Plug-ins:** allow you to view different kinds of media.

## CONSIDERATIONS

- » WiFi/ethernet network connection required.
- » If a page/site doesn't function well, switch browsers.
- » Don't ignore browser security updates.
- » Only download files from a reputable source.



**BEGINNER**



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## References – Browser Basics

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# Copyright and Fair Use Basics

## P

### PEDAGOGY

**Copyright is a form of intellectual property that provides the creator exclusive rights to use and distribute the work. It is applicable to any form of creative work, for the duration of the creator's lifetime plus 50 to 100 years. Fair use provides an exception to the exclusivity of distribution rights by allowing limited use of excerpts of the copyrighted work.**

### PURPOSE

Understanding fair use helps instructors and students make informed decisions about what content they should or should not use without permission, avoiding copyright infringement and potential lawsuits.

### PROCEDURE

Four main factors determine fair use of copyrighted material:

1. Purpose and character of use.
2. Nature of the copyrighted work.
3. Amount and substantiality of the copyrighted work to be used.
4. Effect on the value or potential market of the original work.

### CONSIDERATIONS

If a copyright owner disagrees with your interpretation of what constitutes as fair use of their work, it is possible the dispute will need to be resolved legally.



**BEGINNER**



<http://www.nwacco.org/card/>

## References – Copyright and Fair Use

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# Course Design Strategies for Blended Teaching (or Learning)

## P

### PEDAGOGY

**Blended teaching often refers to courses where a portion of the seat-time is replaced with out-of-class or technology-facilitated learning.**

### PURPOSE

When considering reducing face-to-face class time, that which cannot be done well out-of-class using instructional technologies becomes the emphasis for the face-to-face class sessions.

### PROCEDURES

1. Start with measurable learning objectives and course materials.
2. Plan, chronologically, the learning units: course materials, learning activities and assessments.
3. Explore, identify, refine and clarify the use of instructional technologies for out-of-class learning, assessments and homework.
4. Consider the best use of face-to-face time. What might students struggle with that could be addressed in person? Can

group work facilitate greater collaboration in learning?  
Can all learning objectives be accomplished by weaving together the in-class and out-of-class elements?

5. Evaluate and review the course design before, during and after teaching to determine whether students are accomplishing the learning objectives.

### CONSIDERATIONS

- » This “reversed” course design (considering use of instructional technologies before deciding on face-to-face class session planning) is less intuitive.
- » Those who prefer less use of technology will not be inclined to consider it before the in-class experience.



**INTERMEDIATE**



<http://www.nwacco.org/card/>

## References – Course Design Strategies for Blended Teaching (or Learning)

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# Creating Instructional Video

## T

### TECHNOLOGY

**Instructional videos can lead to increased student engagement with course materials, as well as increased retention of the content. Online and hybrid/blended classes are read/write heavy so utilizing alternative instructional approaches to the content using video/visual elements can be helpful.**

### PURPOSE

There are a variety of uses of video including the following:

- » Talking head
- » Faculty introduction, lecture, end of week summary.
- » Demonstration of skill/technique.
- » Video/audio assignment feedback.
- » Screencasting
- » Orientation to a course/LMS.
- » Instructions for in-class assessment.
- » Visual representation of a white board.
- » Use of software particular to the class.
- » Voice over powerpoint narration.

A variety of software can be used to create instructional video:

- » Camtasia (<https://www.techsmith.com/camtasia.html>)

- » YouTube (<https://www.youtube.com>)
- » Jing (<https://www.techsmith.com/jing.html>)
- » Screencast-o-matic (<http://www.screencast-o-matic.com>)
- » Smart phone or tablet apps

### CONSIDERATIONS

- » Use a script.
- » Be aware of file formats.
- » Tie to learning outcomes/objectives.
- » Keep length to around 5 minutes per video.



INTERMEDIATE/ADVANCED



<http://www.nwacco.org/card/>

## References – Creating Instructional Video

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# Digital Image Compression

## T

### TECHNOLOGY

**Image compression technologies work to minimize the file size of digital images. The three common compression formats used for images on the web are JPEG, GIF and PNG.**

### PURPOSE

Finding the best compression format for an image yields the highest image quality with the smallest file size.

### PROCEDURE

1. Open the image in the image editing tool.
2. Save a copy of your file using the best compression format for your image and needs:
  - » JPEG: best option if transparency or animation aren't needed.
  - » GIF: used for small images or illustrative images with blocks of the same color. Supports animation and transparency.
  - » PNG: good for images with uniformly colored areas. Uses lossless compression which results in a higher quality image, but files sizes are larger. Supports transparency.

3. Tune compression settings to lowest acceptable quality level with optimal file size reduction.

### TOOLS

- » Desktop apps: Photoshop, Gimp, or iPhoto.
- » Web-based/mobile processing: Pixlr.
- » Compressors: gifsicle, jpegtran, optipng, pngquant.

### CONSIDERATIONS

- » Keep copies of your original uncompressed images.
- » Only compress your images once.
- » For online projects, "Save for the Web" or "Optimize for the Web" option found in most image editing tools.



**BEGINNER**

Find out more at » [nwacco.org/card/photocomp](http://nwacco.org/card/photocomp)



<http://www.nwacco.org/card/>

## Resources – Digital Image Compression

- » <http://www.html5rocks.com/en/tutorials/speed/img-compression/>
- » [https://en.wikipedia.org/wiki/Image\\_file\\_formats](https://en.wikipedia.org/wiki/Image_file_formats)
- » <https://developers.google.com/web/fundamentals/performance/optimizing-content-efficiency/image-optimization?hl=en>

# Digital Image Editing Basics

T

TECHNOLOGY

**Fundamentals of creating, editing and sharing digital images.**

## PURPOSE

Digital images originate from a variety of sources (digital cameras, scanned images, saved images from the web, or screenshots from a computer) and are useful for courses.

### Key concepts

- » Digital images are composed of a grid of pixels (diminutive illuminated squares)
- » Resolution - number of pixels per displayed inch (ppi) or dots per inch (dpi) of a printed image
- » Image size or pixel dimensions convey total number of pixels used in an image. An image used on a web page may only be 300 px wide, while an image suitable for print might be closer to 3000 px wide
- » Start big - you can always scale down.
- » Common tasks: cropping, rotating,

resizing, enhancing images, creating montages or saving to the web.

## PROCEDURE

Tools for working with digital images:

- » Photoshop - industry standard image editor
- » Gimp - free and Photoshop-like
- » Mac users - OSX comes with Photo app
- » Cloud based - Pixlr, Google Photo

Storing images: Flickr, Google Photo, iCloud

Sharing images: Instagram, Flickr

## CONSIDERATIONS

Web photos may be copyrighted. Consider Creative Commons licensed photos. Be sure to indicate clear usage rights when sharing.



**BEGINNER**

Find out more at » [nwacco.org/card/imagebasics](http://nwacco.org/card/imagebasics)



<http://www.nwacco.org/card/>

## References – Digital Image Editing Basics

- » Cofield, Melanie. "Digital Imaging Basics - Introduction." Digital Imaging Basics. UT Austin, 2005. Web. 10 July 2015. <<https://www.ischool.utexas.edu/technology/tutorials/graphics/digital/>>.
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# FERPA

## P

### PEDAGOGY

**The Family Educational Rights and Privacy Act (FERPA), a federal law, and its corresponding regulations give students certain rights to privacy of their education records and rights of access to these records.**

#### PURPOSE

Student educational records (other than directory information) are considered confidential and may not be released without students' written consent. The exception is directory information unless the student asks to have this information restricted. Student information stored electronically, including use of educational technology that creates a record of student activity, must be secured and available only to those with a need to know.

#### PROCEDURE

- » Follow your institution's FERPA policy.
- » For online instructional activities, use services provided by your institution or contracted provider.

- » Make sure content accessible online is protected by login. In most cases online work should be viewable only by members of the class.
- » Check terms and conditions and privacy agreements of external online services you use.
- » When requiring students to publicly post information caution them about posting personal information.
- » Never provide lists or other information about students enrolled in classes for a commercial purpose.

#### CONSIDERATIONS

- » Ask for student consent before releasing information.
- » Check data governance policies.



**BEGINNER**



<http://www.nwacco.org/card/>

## References – FERPA

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# Finding Creative Commons Media



Learn how to find and use media licensed under Creative Commons.

## PURPOSE

Content creators use Creative Commons to set clear guidelines for using and distributing their work. With usage rights pre-established, requests to use the work are not required, provided the terms of the Creative Commons license are followed.

## PROCEDURE

Searching resources such as <https://search.creativecommons.org/>. Check/uncheck search options for allowed use such commercial, modification, adaptation, etc. Don't forget to check if attribution is necessary.

When searching for media using a search engine (ie Google Image Search), restrict search results to those with a creative commons

license. Double-check the source to verify the media is covered by a creative commons license. If the license permits, follow instructions to download a copy of the media for offline use. Most browsers also allow you to download images and other media to your hard drive.

## CONSIDERATIONS

Public domain works may be shared or modified freely, but provide attribution of the work. If the media is not licensed under Creative Commons or in the public domain, consult Fair Use guidelines or contact the copyright holder for permission.



**BEGINNER**

Find out more at » [nwacco.org/card/ccmedia](https://nwacco.org/card/ccmedia)



<http://www.nwacco.org/card/>

## References – Finding Creative Commons Media

- » What Do Public Domain & Creative Commons Mean? Harvard Law School Library, 4 July 2015. Web. <<http://guides.library.harvard.edu/content.php?pid=500088&sid=5125914>>.
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# Finding Open Educational Resources (OER)



TECHNOLOGY

**OER is a framework for providing high quality, no-strings-attached education resources that are free to use.**

## PURPOSE

OER is a framework for providing high quality, no-strings-attached education resources that are free to use.

## PROCEDURE

OER must either be in the Public Domain or released with an open license CC (Creative Commons). Open Washington maintains <http://www.openwa.org/find-oer/>, a convenient search guide with categories including open textbooks, open course materials, open videos, and open images. Visit <http://www.openwa.org/module-5/> for instruction.

YouTube.com is another resource for CC licensed videos. Include a Creative Commons filter during the search

or look for license information in the “About” and “Show More” areas of the video’s description. If a video is CC licensed, it will say **Creative Commons Attribution license (reuse allowed)**. If it says **Standard YouTube license**, proper permission from the author must be obtained.

## CONSIDERATIONS

YouTube and Google Video have significant amounts of copyrighted material, and some may upload content to YouTube and falsely claim it is theirs or covered by certain usage rights. The burden for compliance is on the user, so when in doubt, contact the creator or do a little more research.



**BEGINNER**

Find out more at » [nwacco.org/card/oer](http://nwacco.org/card/oer)



<http://www.nwacco.org/card/>

## References – Finding Open Educational Resources (OER)

- » “Creative Commons Wiki.” Creative Commons. Web. 10 July 2015.
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# Presentation Options

T

TECHNOLOGY

**Research before choosing software strengthens your presentation, maximizes meaning and minimizes the risk of unforeseen technical difficulties.**

## PURPOSE

Research before choosing software strengthens your presentation, maximizes meaning and minimizes the risk of unforeseen technical difficulties.

## PROCEDURE

Before choosing a tool, consider the following:

- » Type of content being presented.
- » Ideas to be presented.
- » Audience interaction with the presentation.

Possible list of tools available:

- » **PowerPoint:** Industry standard desktop presentation software from the Microsoft Office suite. Includes a lite version available online.
- » **Keynote:** The Apple alternative to PowerPoint tailored to Apple devices, and saved in PowerPoint format. Uses iCloud to sync across devices.

- » **Google Slides:** Web based collaborative presentation tool offered through Google..
- » **Prezi:** Web-based tool where presentations are built on a large canvas, rather than individual slides. Generally not transferable to other presentation formats.
- » **Haiku Deck:** Web-based and strongly visual, relying on images with minimal text.

## CONSIDERATIONS

- » **Know limitations:** Internet access, cost, accessibility, and collaboration capacity.
- » **Research:** Learn the software, understand capabilities, and be able to solve common problems.
- » **Be prepared:** Have a PDF or PowerPoint backup saved to portable storage if possible. If using own laptop bring all required cables.



**BEGINNER**

Find out more at » [nwacco.org/card/presopts](http://nwacco.org/card/presopts)



<http://www.nwacco.org/card/>

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# Makerspaces

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TECHNOLOGY

**Makerspaces** comprise a community of collaborative creative spaces equipped with resources, ideas, and physical tools for building and making. They promote DIY culture, artistic exploration, entrepreneurship, and hands-on experiential learning.

## PROCEDURE

There is no set formula or equipment list for creating a Makerspace, but there are several critical features. It requires flexible space to function as laboratory, woodshop, workbench, and gathering place, as well as a collection of tools and resources to support a range of activities.

## CONSIDERATIONS

**Function:** Makerspaces are great for self-directed learning, but can also be an integral part of more formal learning. What community and function will the Makerspace serve?

**Funding:** Your campus or community may already own a lot of the tools needed for a Makerspace. Look for donations of seldom-used equipment from your community.

**Roles and Ownership:** Establish clear ownership, roles, and responsibility. Does the Makerspace belong to a department, the library, or is it independent of your institution? Who is responsible for supervision, funding, and maintenance?

**Safety and security:** Consider how to control access to dangerous and/or expensive equipment, as well as provide training and supervision.



**BEGINNER**

Find out more at » [nwacco.org/card/makerspaces](https://nwacco.org/card/makerspaces)



<http://www.nwacco.org/card/>

## References – Makerspaces

- » “What Do You Need to Know to Get Your Makerspace up and Running?” What’s a Makerspace? N.p., n.d. Web. 10 July 2015. <<http://spaces.makerspace.com/>>.
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# Online instruction using videos:

## Selecting instructional videos



**Instructional videos can be used in fully online, hybrid/blended and flipped courses. Including captions supports hearing impaired or English as a second language students.**

### PURPOSE

Instructional videos can be used in fully online, hybrid/blended and flipped courses. Including captions supports hearing impaired or English as a second language students.

### PROCEDURE

It can be an overwhelming task to get started if you're not familiar with some of the types of resources available. Options include:

- » publishers (videos bundled with the textbook).
- » library-restricted resources such as the database Films on Demand.
- » the web-PBS, Khan academy, TED talks, YouTube, MERLOT, etc.

[www.MERLOT.org](http://www.MERLOT.org)

[www.TeacherTube.com](http://www.TeacherTube.com)

[www.PBS.org](http://www.PBS.org)

<https://www.youtube.com/user/khanacademy/videos>

[www.Ted.com](http://www.Ted.com)

[www.YouTube.com](http://www.YouTube.com)

*Include "cc" in YouTube video searches for captioned videos.*

### CONSIDERATIONS

- » Tie videos to student learning outcomes/objectives and inform students.
- » Tie video to discussion, assignment or assessment.
- » Closed captioning support students needing accommodations, as well as students with various learning styles.
- » Check links periodically and have backup plans.



**BEGINNER**

Find out more at » [nwacco.org/card/findvideos](http://nwacco.org/card/findvideos)



<http://www.nwacco.org/card/>

## References – Online Instruction using videos: Selecting Instructional Videos

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# Skills Badges & Transcripts



**Badging is used to recognize achievements or skills not usually represented by grades or transcripts. Issued as digital tokens or logos, badges are saved in a “backpack” or online profile. Badging systems can serve as a parallel transcript, providing information not represented on the academic transcript.**

## PROCEDURE

- » Determine the set of skills or achievements to be certified with badges and whether you intend to provide a formal supplementary academic credential or informal evidence.
- » Depending on the scope of the project, decide if you will create badges independently or use a badging service. A number of badging services offer a complete toolkit for creating, issuing, verifying, and managing digital badges. Popular options include Mozilla’s Open Badges Infrastructure (OBI), Credly, and BadgeOS.

## CONSIDERATIONS

- » Creating a dozen discrete skills badges is a simple task. Creating a system with multileveled and scaffolded achievements is a much more complex undertaking which requires significant preparation and development time.
- » Standards used and the reputation of the issuer impacts the validity of the badge.
- » Badges may work best as a supplement to traditional credentials as they have not yet gained widespread acceptance.



**BEGINNER/INTERMEDIATE**



<http://www.nwacco.org/card/>

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# So you think you want a website?



T

TECHNOLOGY

**Building a website for your professional presence or course can be a satisfying endeavor and has become easier than ever with newer web authoring tools.**

## PURPOSE

A professional site can help colleagues and prospective students learn more about you, while a course website can free you from the constraints of the LMS and bring your materials to a broader audience.

## FORMULATING QUESTIONS

Some questions to consider before getting started:

- » What is the primary purpose of your site?
- » Who is your target audience?
- » What content will you include?
- » What options/tools are provided by your institution?
- » Do you want dynamic content or will the content be mainly static?
- » How interactive do you want your site to be?
- » Do you plan to embed media (youtube, flickr, etc.) on your site?

## CONSIDERATIONS

- » Does your institution have templates to help get you started?
- » Be conscious of posting student data on a public site that may conflict with FERPA policies.
- » How accessible is your site? Does it work well on mobile devices?
- » Does your content adhere to copyright and intellectual property policies?



INTERMEDIATE

Find out more at » [nwacco.org/card/wantwebsite](http://nwacco.org/card/wantwebsite)



<http://www.nwacco.org/card/>

## References – So you think you want a website?

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# Remote Telepresence Robots

T

TECHNOLOGY

Telepresence robots are tablets integrated with a robotic carrier, either stationary or on wheels, in order to participate in a “classroom” from another location. The remote participant drives/controls the robot from another device (tablet, phone or desktop computer) so it can turn to look at a speaker or can move around the room, (if on wheels). The tablet on the robot displays a live video of the remote participant so they appear to actually be in the room.

## PURPOSE

Telepresence robots have several educational uses. Students who are homebound or temporarily away from class can use a telepresence robot to fully participate in a class or field trip. Instructors could continue to teach while traveling, particularly if used in conjunction with a video stream of the entire classroom. Additional uses include guest lecturers and test proctoring.

## PROCEDURE

1. Purchase a telepresence device. Consult technology department for assistance.
2. Set up a tablet on the telepresence robot and install necessary software.
3. Have remote participant download the software or app on their computer or device to control the robot.
4. Transport the robot to the classroom.
5. Connect.

## CONSIDERATIONS

- » WiFi network
- » Physical room configuration
- » Expense



BEGINNER

Find out more at » [nwacco.org/card/telepresence](http://nwacco.org/card/telepresence)



<http://www.nwacco.org/card/>

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# Web Conferencing Considerations

## T

### TECHNOLOGY

**Web conferencing (using video cameras and microphones built into smartphones, tablets, and computers) allows remote guests to connect with classrooms.**

### PURPOSE

- » Replace informal face-to-face.
- » Allow guest speakers, students and faculty to participate remotely.

### PROCEDURE/HOW-TO

- » Work with web conference tools supported and recommended by your institution.
- » Use equipment appropriate for your need. While built-in webcams/microphones are fine for informal video chats, check with your institution for check-out options and recommended high quality webcams, microphones and displays for more formal conferences.
- » Plan ahead: current classroom or special web conferencing room.
- » Verify the software is installed and works as expected and test.
- » Test audio.
- » Close programs on computer not being used.

- » Internet connection quality is key.
- » Arrive early! Start your software at least 5 minutes early to avoid last minute glitches.
- » Have a backup plan.

### TIME TO IMPLEMENT AND DIFFICULTY

Skype, Google Hangout or Apple's Facetime are quickly accessible and easier to use. Services that provide a virtual classroom for multiple remote participants will require more planning and practice.

### CONSIDERATIONS

Don't underestimate the time involved in learning and using systems.

Require everyone tests.



**BEGINNER/INTERMEDIATE**

Find out more at » [nwacco.org/card/webconf](http://nwacco.org/card/webconf)



<http://www.nwacco.org/card/>

## References – Web Conferencing Considerations

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# Writing Measurable Learning Outcomes

## P

### PEDAGOGY

**Building a website for your professional presence or course can be a satisfying endeavor and has become easier than ever with newer web authoring tools.**

#### PURPOSE

A professional site can help colleagues and prospective students learn more about you, while a course website can free you from the constraints of the LMS and bring your materials to a broader audience.

#### FORMULATING QUESTIONS

Some questions to consider before getting started:

- » What is the primary purpose of your site?
- » Who is your target audience?
- » What content will you include?
- » What options/tools are provided by your institution?
- » Do you want dynamic content or will the content be mainly static?
- » How interactive do you want your site to be?
- » Do you plan to embed media (youtube, flickr, etc.) on your site?

#### CONSIDERATIONS

- » Does your institution have templates to help get you started?
- » Be conscious of posting student data on a public site that may conflict with FERPA policies.
- » How accessible is your site? Does it work well on mobile devices?
- » Does your content adhere to copyright and intellectual property policies?



Find out more at » [nwacco.org/card/measureoutcomes](http://nwacco.org/card/measureoutcomes)



<http://www.nwacco.org/card/>

## References – Writing Measurable Learning Outcomes

- » “7 Things You Should Read About Video Communication.” Educause Learning Initiative (2013): n. pag. Educause Library. Educause, March 2013. Web. <<https://net.educause.edu/ir/library/pdf/ELI7094.pdf>>.
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