Augmented Reality Interactive Storytelling

T
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

Backward Design

P

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.

BEGINNER

Bloom's Taxonomy

P

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

BEGINNER

Backward Design: Choosing Tech for Teaching

P
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

Classroom Response System (Clickers)

T
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.

BEGINNER

Team-based Learning

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

Creating a Welcoming Online Community

P
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.

BEGINNER

Google Maps

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

Journaling / Blogging

T
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

Robert Gagné's Nine Events of Instruction

P

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

Mind Mapping

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.

BEGINNER

Engaging Learners in Online Discussions

P
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.

INTERMEDIATE

Screencasting

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

INTERMEDIATE

Compressing Video for Sharing

T

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

Social Media

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.

INTERMEDIATE

Wikipedia Editing

TECHNOLOGY

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." [1]

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.

INTERMEDIATE

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.

Find out more at » nwacco.org/card/editwikipedia

Gamification / Badging

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.

ADVANCED

HTML Editing

T TECHNOLOGY

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>
```

INTERMEDIATE

Slide Presentation Design Basics

T
TECHNOLOGY

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

Advanced Google Searching

T
TECHNOLOGY

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

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 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

ED TECH DECK

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

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