Virtual Field Tours: A User Guide

360 panorama of Kelly Park in Birmingham, Alabama featuring a statue of Dr. Martin Luther King.

KENNESAW STATE UNIVERSITY
NORMAN J. RADOW COLLEGE OF HUMANITIES AND SOCIAL SCIENCE
Office of Academic Innovation

Overview

Acknowledgement:

This guide is the result of the expertise of The ETX Center at ASU, which brings science educators, technologists, artists, and ASU faculty and researchers together to design and build cutting-edge digital learning experiences.

Through their partnership with KSU's Radow College's Office of Academic Innovation, our teams have sought the creation of new learning experiences built on the idea of education through exploration as a central approach to learning design that promotes high-impact learning.

Disclaimer:

This guide is a living document and will continue to evolve as faculty and other stakeholders offer input and engage with this resource. The information in this guide is subject to change. Every effort will be made to ensure the information in this guide is accurate and up to date; however, there is no guarantee, explicit or implied, regarding the information presented in this guide.

Updates:

This guide is provided by the Office of Academic Innovation and is dedicated to enhancing student learning through evidence-based approaches in the humanities and social sciences. We foster exploration and active participation in cutting-edge educational methods, curriculum design, student support tools, and educational research. Through these efforts, we aim to create innovative practices and educational opportunities that will shape the future of learning.

Please email any errors, omissions, or suggestions to: OAI@kennesaw.edu

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PART I
GETTING STARTED WITH VFTS

What is a virtual field tour?

A virtual field tour is a digital, immersive learning experience that enables students to visit and explore places, events, or concepts without leaving their physical location. These experiences use multimedia elements like 360-degree photography, videos, podcasts, recorded commentary, and ambient sound to recreate the feeling of a real field trip, making learning accessible and engaging without the limitations of physical travel. A Virtual Field Trip is similar to a tour but more robust. It is an immersive learning experience but includes assessments and adaptive feedback built into the module.

360 AI generated panorama of New York City in the 1790s

What are benefits of virtual field expereinces?

Virtual field tours and trips (VFTs) are immersive digital experiences that let students explore locations, events, or concepts through 360-degree visuals, audio narration, and interactive media. These platforms remove physical barriers to learning and can include both real and fictional environments. By positioning students as explorers, VFTs foster engagement, spark curiosity, and make abstract ideas more memorable through active discovery and reflection.

Immersive Experiences of Real-World Settings

Virtual field expereinces to locations around the globe offer several advantages for both students and educators. They provide an immersive and interactive learning environment that and easier to understand. By eliminating the need for physical travel, virtual field tours increase accessibility and equity, allowing all students to participate regardless of location or resources. When combined with technologies like VR and 360-degree videos, they boost student engagement and motivation. Research also shows that virtual immersive expereinces can have a significant positive impact on academic performance and support a variety of learning styles, making them a versatile tool in modern education.

Immersive Experiences in Fictional Environments

Fictional environments also offer unique cognitive, emotional, and pedagogical values. Unlike real-world locations, imaginary environments remove prior knowledge, cultural bias, and uneven background familiarity, creating an equitable learning context in which all students engage from a common starting point.

Immersive Experiences in Fictional Environments

Continued

By engaging in a neutral environment, students can develop hypotheses and think based on evidence instead of depending on memorized information or pre-existing beliefs. Additionally, designed worlds allow precise alignment between environmental features and instructional goals, enabling faculty to embed targeted concepts that can be difficult or impossible to isolate in real settings.

360 AI generated panorama of an alien lab

Generated environments enable safe exploration of complex or high-risk scenarios, encouraging inquiry and intellectual risk-taking without real-world consequences. By making abstract concepts interactive and accessible, learners can visualize theories that are difficult to grasp in traditional settings. Immersive simulations allow learners to actively engage with scenarios, integrate knowledge across disciplines, observe outcomes, and reflect on their choices - fostering critical thinking and problem-solving skills.

The embodied nature of VFTs, where students make choices and see immediate consequences, anchors abstract ideas in memory and encourages real-world connections. Ultimately, VFTs **transform passive learning into active exploration**, promoting lasting conceptual change, inclusive pedagogy, and expanded access to **high-impact experiential learning** at scale.

Accessing Tour It

KSU currently uses TourIt as a free, browser-based program. To get started with building a VFT: Navigate to **https://infiniscope.org** and click the person icon in the upper right corner. *See Figure 1*

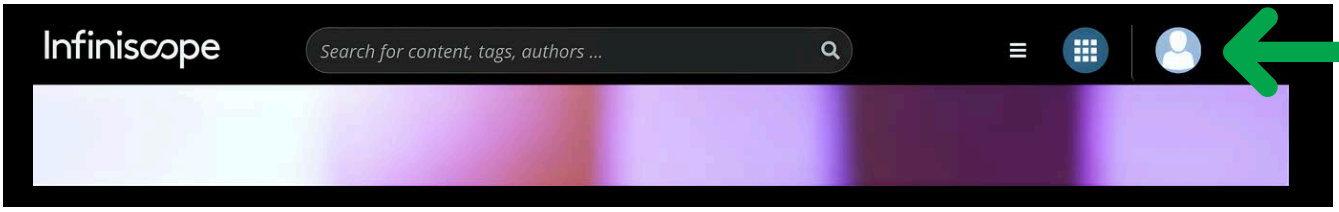


Figure 1

Username: oai@kennesaw.edu | Password: RadowSO5086!

Then click the Icon next to the Login (yellow arrow) and select Tour It Virtual Tours (black arrow). *See Figure 2*

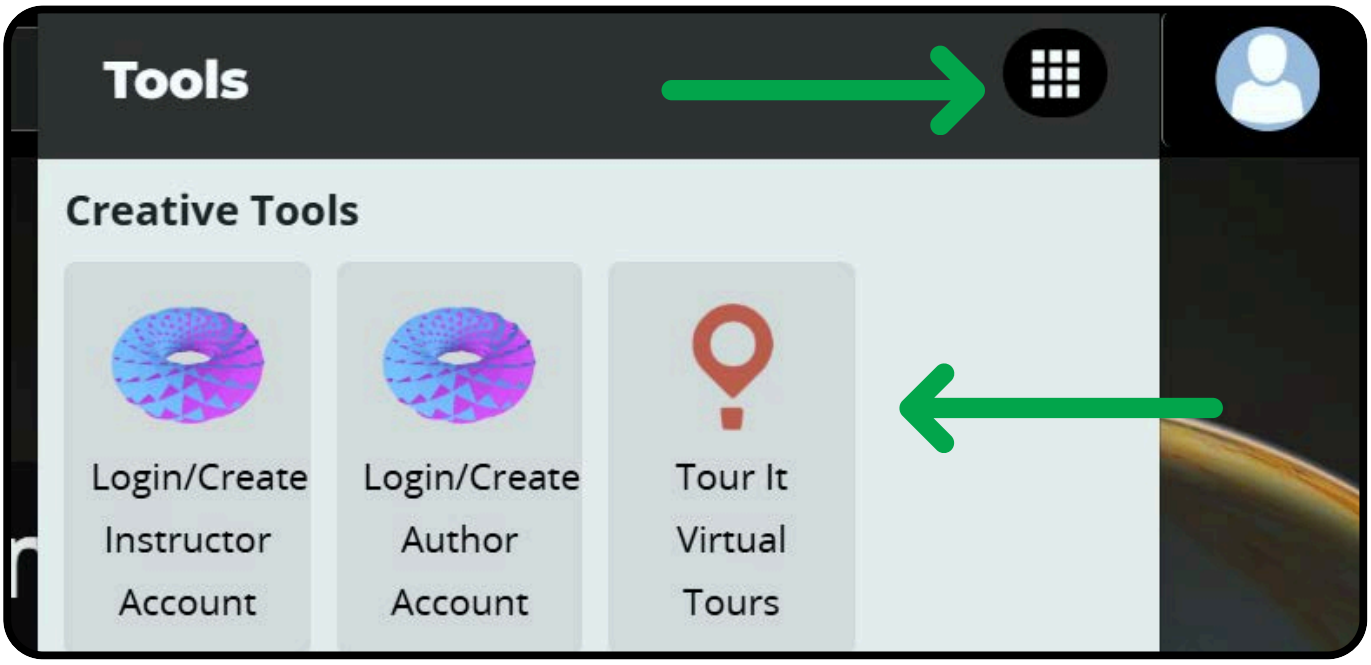


Figure 2

Tour It automatically saves your work. However, that also means if **something is deleted it is gone forever.** This is a shared site with other people's projects. When viewing other's items, **do so only in preview mode, not edit mode, so as not to modify or delete items.**

Use the + sign in the top left menu to start building a new project. *See Figure 3*

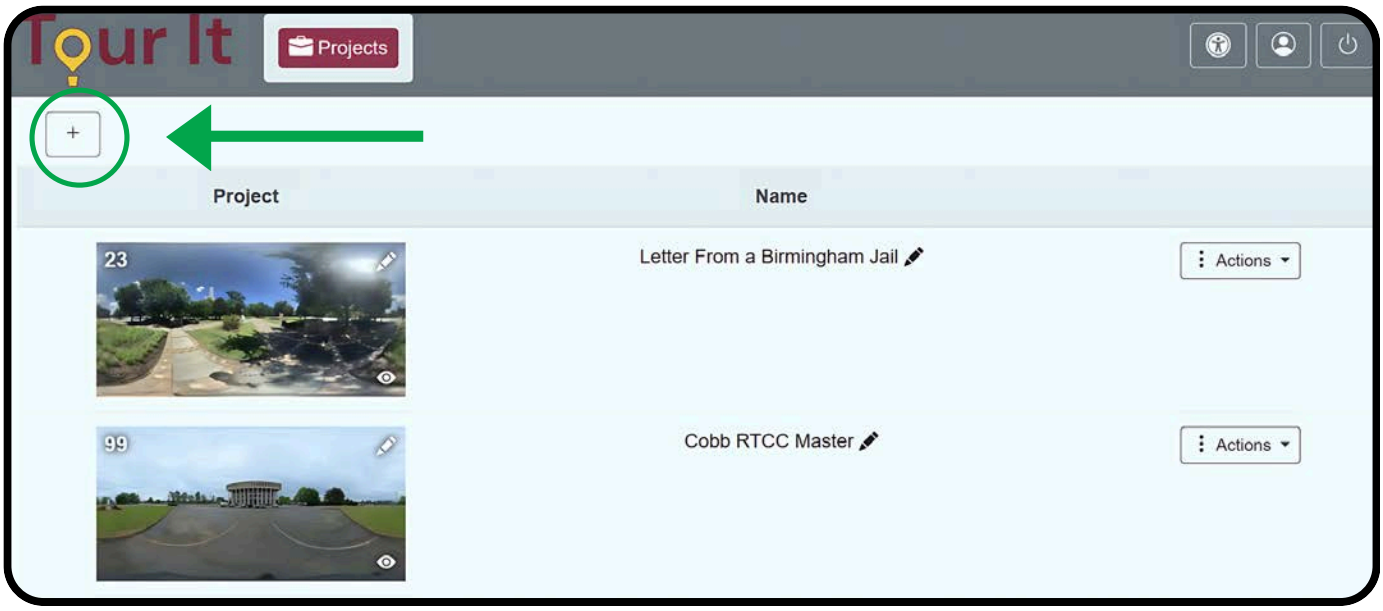


Figure 3

VFT Quick Start Shooting Guide

When first shooting with the Insta360 V4, the following settings will help you to get the best output:

1. Turn on the Insta360 Camera using the power button on the right side.

2. Swipe up on the screen to access the resolution feature. *See Figure 4*

NOTE: You can also select the timer for the camera from this menu.

Figure 4

3. Select 18MP.
See Figure 5

Figure 5

4. *Press on the two boxes icon for camera settings.*
See Figure 6

Figure 6

5. *Select HDR Photo setting.*
See Figure 7

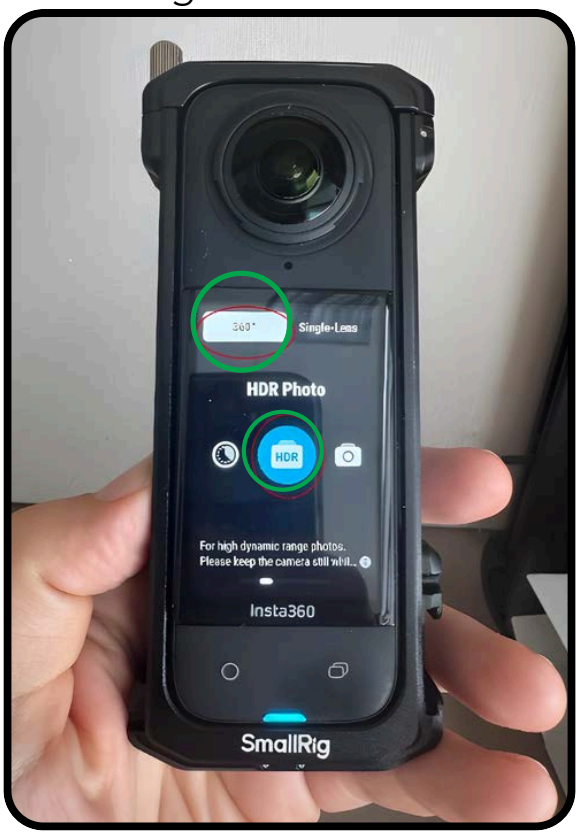


Figure 7

6. Select 360-degree photo setting (not single lens).

7. When you are ready to take a photo, either press the circle button on the camera or utilize the app.

Notes for shooting:

- We recommend that you use a tripod for stabilization.
- You can take photographs with the stick or manually hold the camera, but you will catch yourself as a subject in the shot. The blind spot on the camera is on the sides, but the lenses will capture you in the periphery if you hold the camera while shooting.

Export Your 360 Degree Photos Using Insta360 Studio

After shooting your 360-degree photographs, you will need to export them for use on Tourit. By default, Insta360 takes photographs in a proprietary ".INSP" format. These files must be exported to .JPG.

1. Download and install Insta360 Studio from: https://www.insta360.com/

   NOTE: You will need the camera's serial number to install the app.

2. Either insert the microUSB card into the slot on your computer or plug the Insta360 camera to your PC using a USB-C adapter. *See Figures 8 and 9*

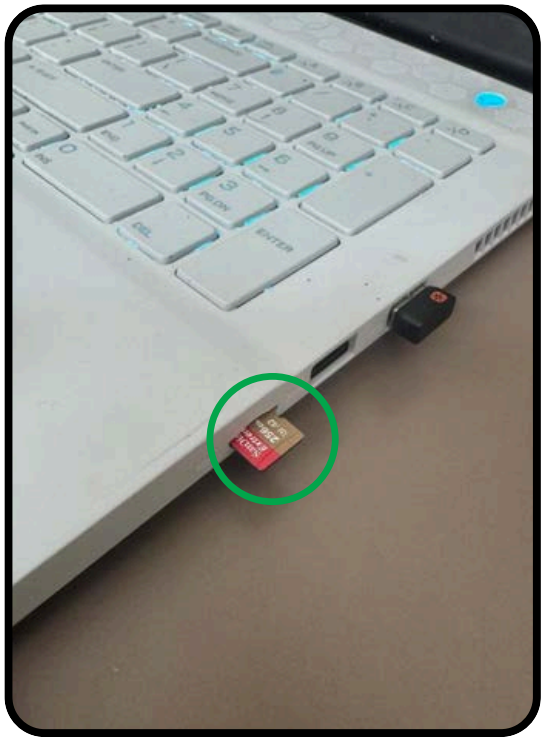


Figure 8

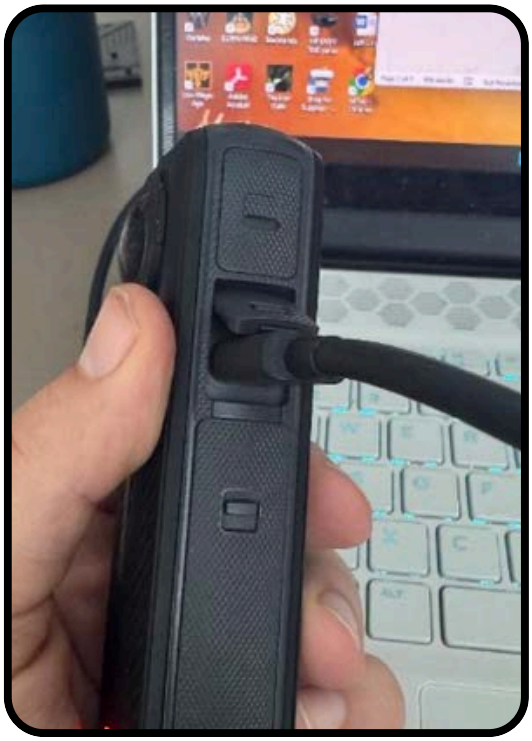


Figure 9

Note: The little protective door slides up to access the cable port.

On the left-hand side of the screen, select a ".INSP" file that you would like to export. *See Figure 10*

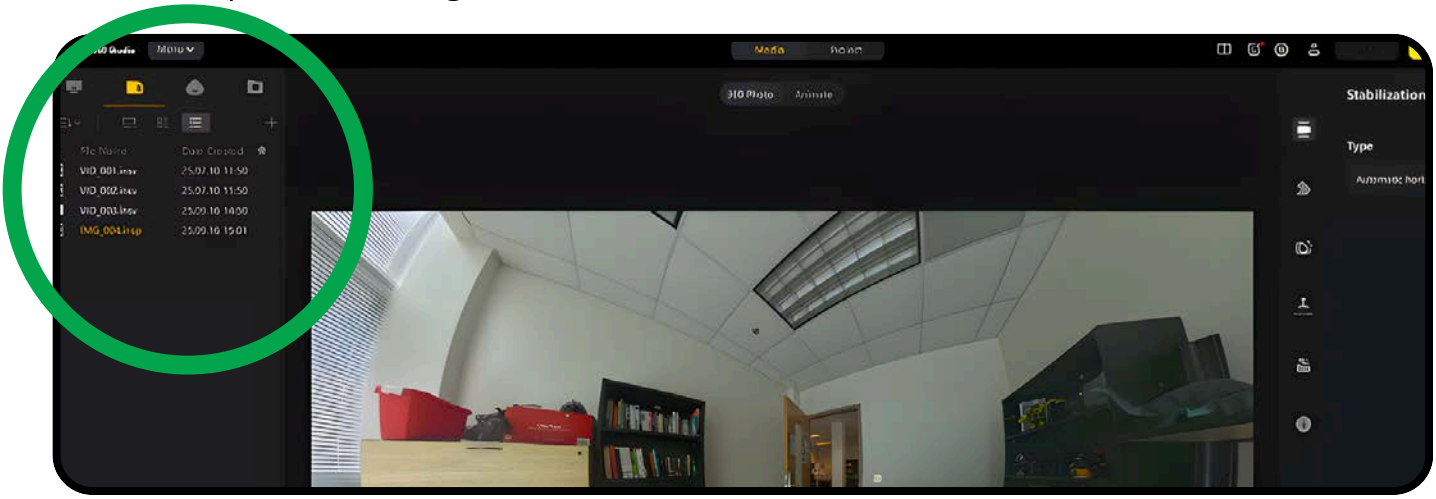


Figure 10

4. Right click and select "start export." *See Figure 11*

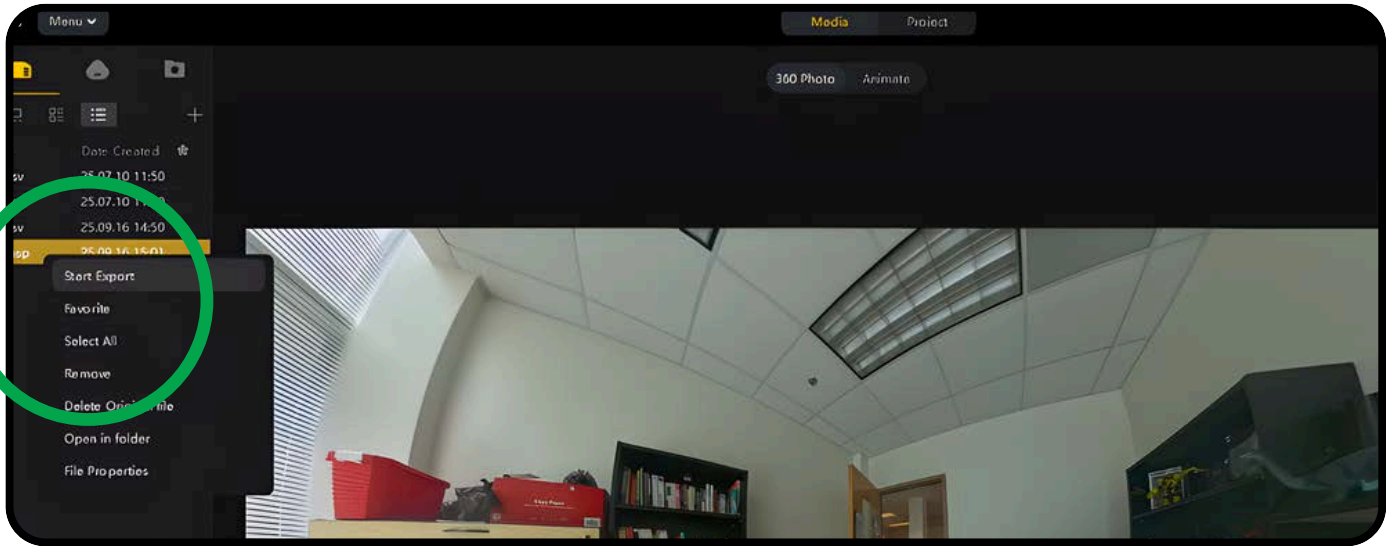


Figure 11

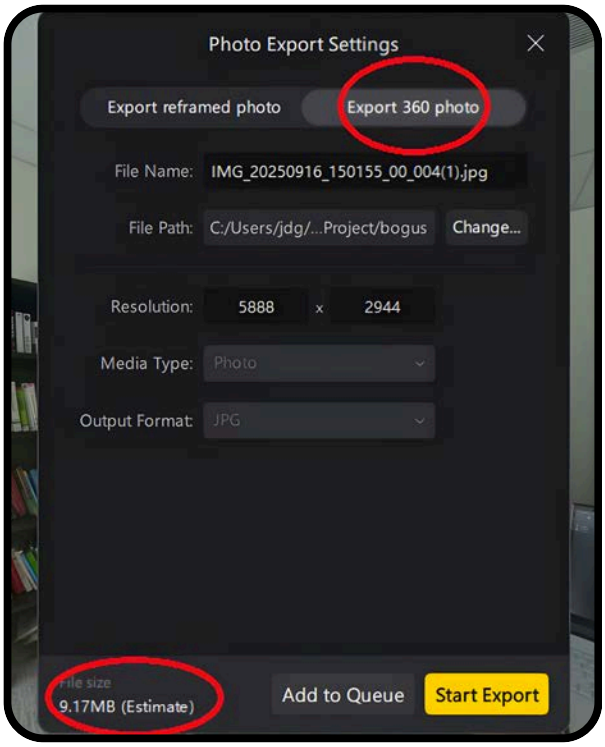


Figure 12

The photo export settings will pop-up. Make sure that have selected "Export 360 photo" selected. See Figure 12. You will hear a sound when the file is successfully exported.

NOTE: Also check the file size. TourIt will not accept **any panoramas over 15mb.** You may have to **export the photo at a lower resolution to reduce the file size.**

5. In the upper right-hand corner, select the task center. *See Figure 13*

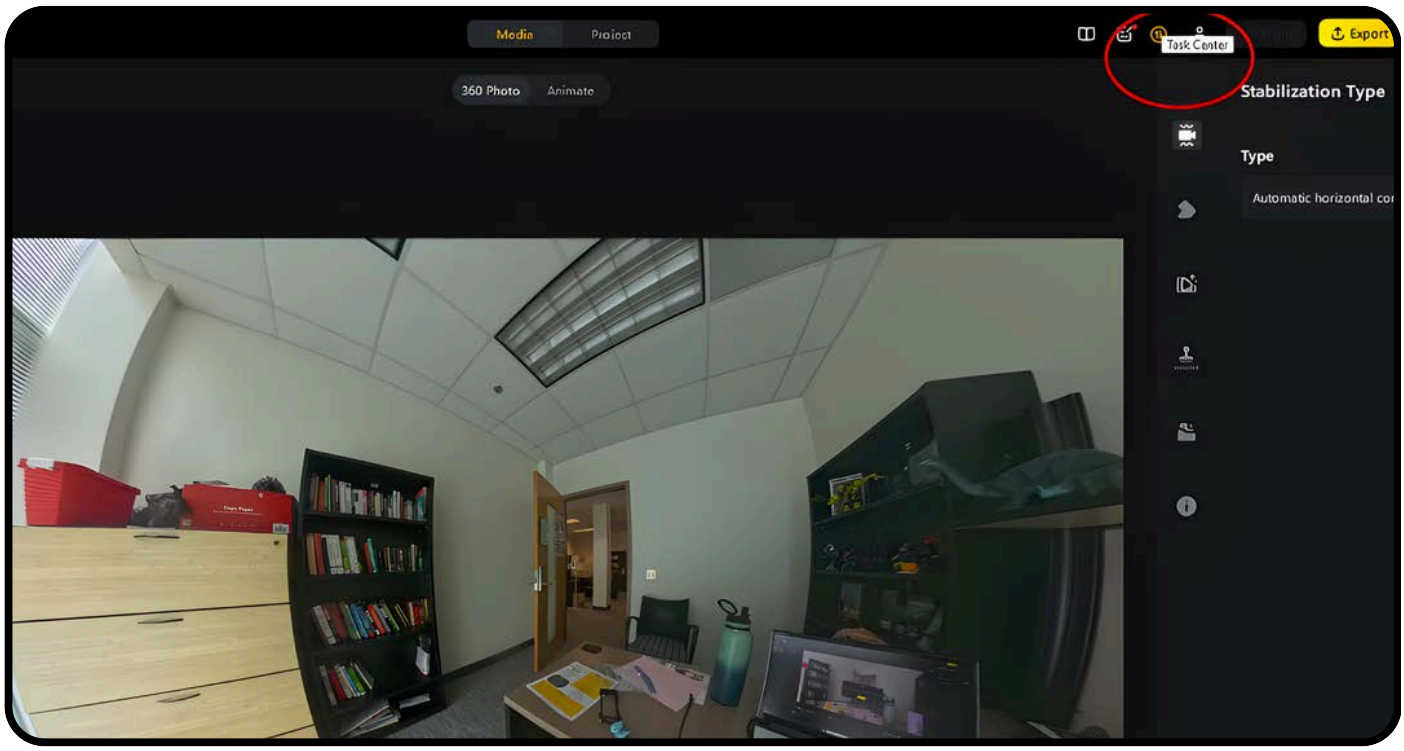


Figure 13

Check the task center to make sure that the export **was completed successfully.** *See Figure 14*

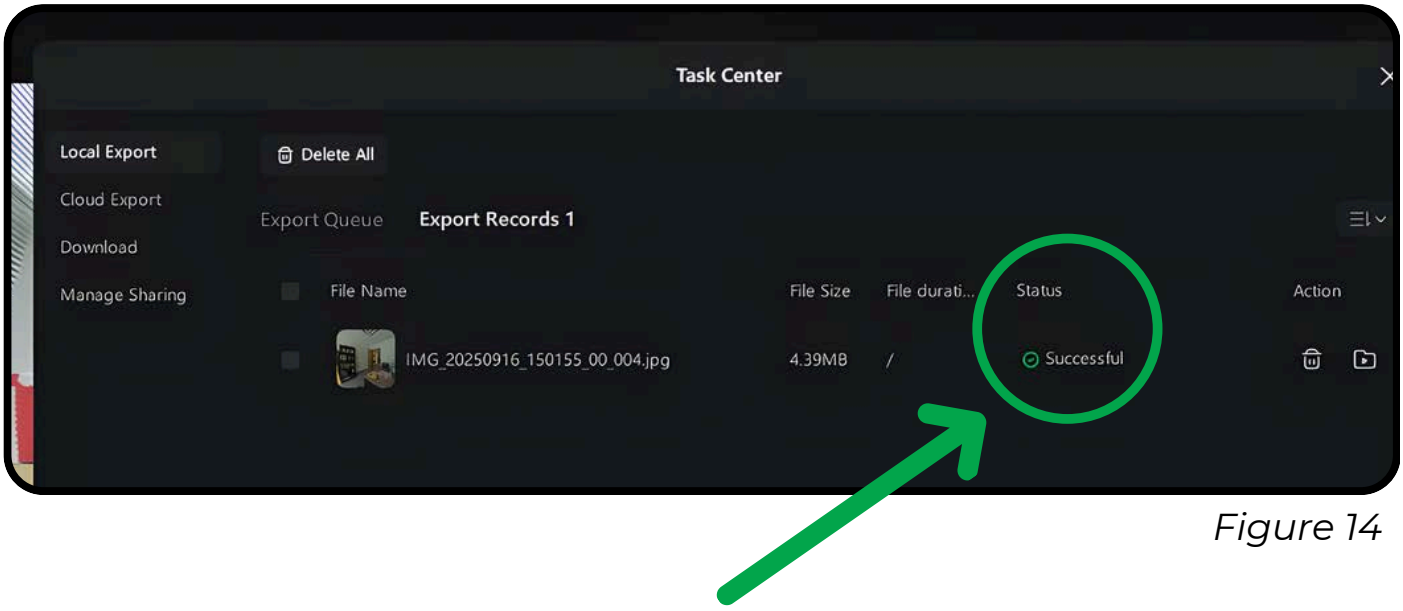


Figure 14

Using Google Maps to make a 360 panorama

An alternative to in person camera images

Sometimes uisng a 360° Street View panorama can be a good subsitution for a physical image you have taken. The steps below outline one supported method using Street View Download 360.

1. Go to the location in maps.google.com and enter Street View using the Pegman icon.
2. Navigate to the specific Street View panorama you want (note: the download will always be a full 360° image).
3. Copy the URL from the browser.
4. Open Street View Download 360 (https://svd360.com/) and paste in the URL.
5. Select the desired resolution (highest resolutions require the Pro version).
6. Choose a local save location.
7. Download the panorama.

Google Street View imagery is subject to Google's Terms of Service. Faculty should **use downloaded panoramas for instructional and educational purposes only** and avoid public redistribution or commercial use without appropriate permissions.

Example:

1. Go to https://maps.google.com and search for Eiffel Tower, Paris, France
2. Enter Street View. Drag the yellow Pegman icon onto the map and release it near the Eiffel Tower to enter Street View mode. *See Figure 15.*

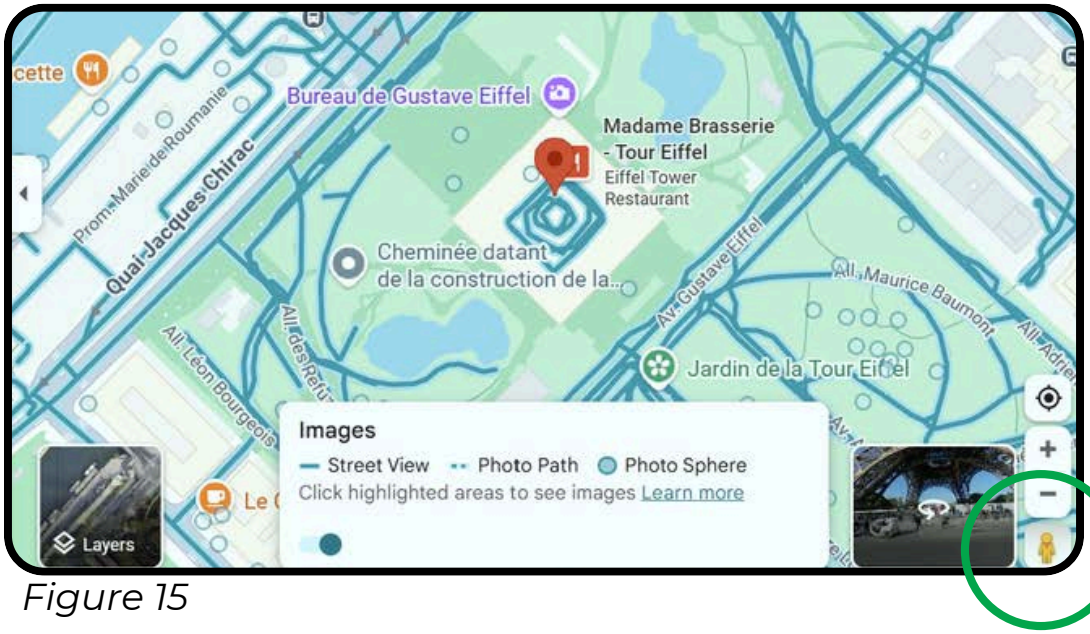


Figure 15

Example continued:

1. Navigate to the desired viewpoint you want to explore. Note: The downloaded image will always be a full 360° panorama, regardless of the direction you are facing on screen.
2. Copy the full URL from the browser address bar while you are viewing the selected Street View panorama.
3. Download and launch Street View Download 360 from https://svd360.com/
4. Paste the copied Google Maps Street View URL into the application.
5. Select the folder on your computer where the panorama file should be saved. Click Download. See Figure 16

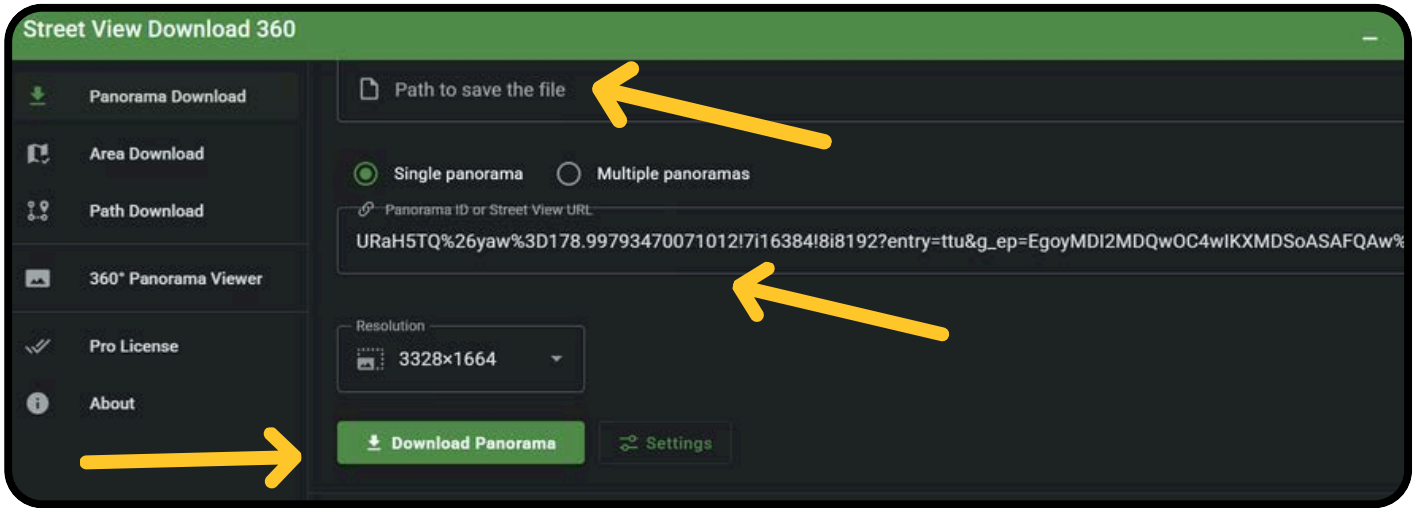


Figure 16

8.The software will save a complete equirectangular 360° image file. See Figure 17

Figure 17

Making a 360 panorama with Generative AI

An alternative to in person camera images

Generative AI does not directly create an interactive 360 viewer. Instead, it generates a single equirectangular image that you can create using aspect ratios to mimic a 360 degree image. To devleop an image the reflects a 360 panorama, you will have to include in your prompts the following instructions:

- **Use the term "Equirectangular Projection."** This is the precise mathematical term for mapping a sphere onto a rectangle. Use this first. It tells the AI, "Make the edges connect."
- **Insruct it to create a 360 Degree Panorama.** A generic but vital descriptor for telling the AI to create a full, wrapped view.
- **Use term "Full Panorama / Seamless Wrap."** This direction reinforces the idea that the left edge must perfectly blend with the right.
- **Require a "2:1 aspect ratio"** All standard equirectangular panoramas must have a width that is exactly twice the height. You must explicitly set this in your AI tool.

Ensure you have defined these for your panorama:

- Environment
- Example: "historic academic quad," "modern humanities classroom," "outdoor campus green"
- Point of View

Example Basic Prompt:

"Create a 360-degree equirectangular projection, full panorama, with a seamless wrap in a 2:1 aspect ratio. Image is inside an active volcano, glowing lava rivers, molten rock walls, cinematic, dramatic lighting, immersive environment, seamless horizon. Ensure Seamless edges, No duplicated or warped objects." Results in Figure 18.

ChatGPT Result:

Google Gemini Result:

Figure 18

Sample Detailed Prompt:
Create a 360-degree equirectangular projection, full panorama, with a seamless wrap in a 2:1 aspect ratio.

- Viewpoint: Standing at the center of a university humanities quad, eye-level, as if the viewer is physically inside the space.
- Environment: Historic red-brick academic buildings surrounding a landscaped quad, pathways, benches, mature trees, and students casually walking or sitting.
- Lighting: Bright late-morning natural sunlight with soft shadows.
- Style: Highly photorealistic.
- Constraints:
  - Must be a true 360-degree equirectangular panorama
  - 2:1 aspect ratio
  - Seamless wrap on all edges
  - No visible seams, distortions, duplicated people, or stretched architecture
  - No text, signage, branding, or watermarks

ChatGPT Result:

Google Gemini Result

Figure 19

Generative AI Common Issues and Correction Prompts:

Issue: AI tends to place the camera too close to objects:

- This causes warping, especially at the poles (sky/ground)
- Nearby objects get duplicated or stretched
- People look distorted when they cross stitching boundaries

Correction Prompt: Explictly prompt the camera to be 1.5 m off the ground and against a wall, or “camera stands in an open area, not near walls, furniture, or people.”

Issue: Some scenes just do not want to be 360 in AI:

- Items appear distorted or too close together. At times 270° panoramas may work better, especially when the image is primarily forward facing.

Correction Prompt: “Design the primary visual interest within a 270-degree forward-facing arc. The rear portion should be minimal, neutral, or visually simple.”

Generative AI Common Issues and Tips

continued

Issue: The left and right edges do not align when wrapped, creating a visible seam because the model treats the image as flat, not cyclical.

- This causes sudden lighting shift at edges
- Objects might be cut in half (trees, buildings, people)

Correction Prompt: “true equirectangular panorama with perfect horizontal wraparound continuity, no edge discontinuities”

Issue: Items, people, or objects appear repeated unnaturally:

- You notice identical people in multiple places or repeating architectural elements
- Symmetry that feels artificial

Correction Prompt: “avoid symmetry and repetition artifacts typical of wide-scene generation”

Issue: Image looks fine until you put it in Tour It:

- The image looks fine flat but breaks when loaded into a VR/360 viewer. This is because subtle projection errors only show when mapped onto a sphere.

Correction Prompt: “true 360-degree equirectangular panorama, seamless wraparound, consistent perspective, single fixed viewpoint, physically continuous environment, no distortions, optimized for VR viewing”

Prompt to Use:

“A true 360-degree equirectangular panorama captured from a single fixed viewpoint at the exact center of the scene, eye-level perspective.
The environment forms a fully continuous, spatially coherent 360° space with logically connected elements in all directions.
Lighting is globally consistent with a single light source and uniform shadow direction across the entire panorama.
The image must have perfect horizontal wraparound with seamless left and right edges, no visible seams or discontinuities.
Geometry remains stable with minimal distortion at the top and bottom poles, and a consistent horizon line throughout.
No duplicated or repeated people, objects, or patterns. Natural variation only. No text, signage, logos, or artifacts.
Strict 2:1 aspect ratio, optimized for VR equirectangular viewing.”

Making a 360 panorama with Generative AI

Setting the Project Start

Once you have decided on your first panorama, you will need to set the project starting point, *see Figure 20*. The project start is the default starting panorama for the project—the first location the viewer will see on your virtual tour.

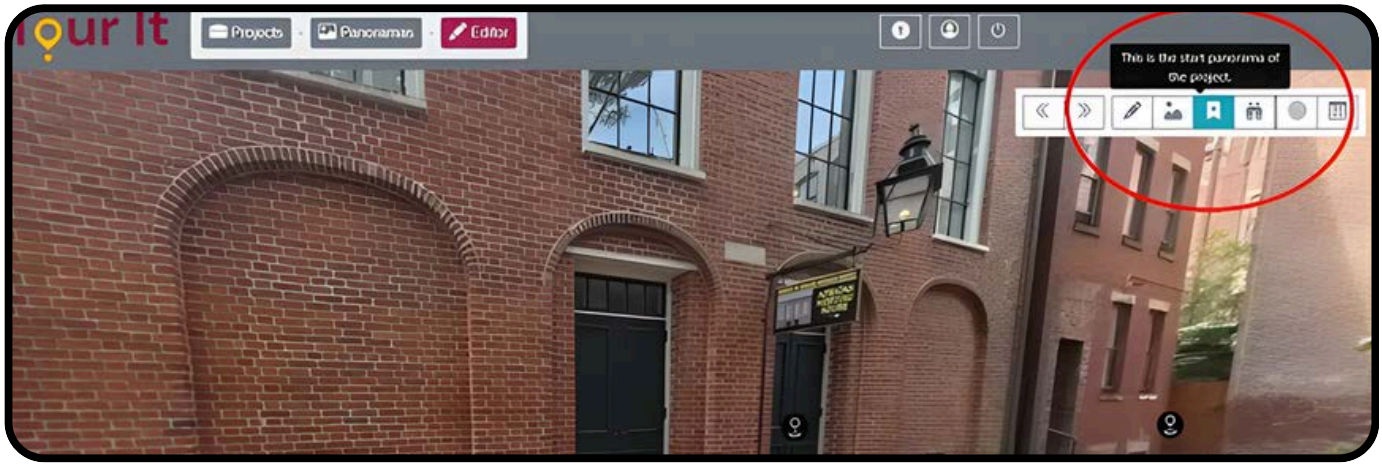


Figure 20

Setting the Default Camera View

Each panorama also needs a **default camera view**. The default camera view decides the focus of your panorama upon loading (the default viewpoint/angle). After clicking and dragging to the correct angle and zoom for the viewer, you can then set the default camera view for the panorama. *See Figure 21*

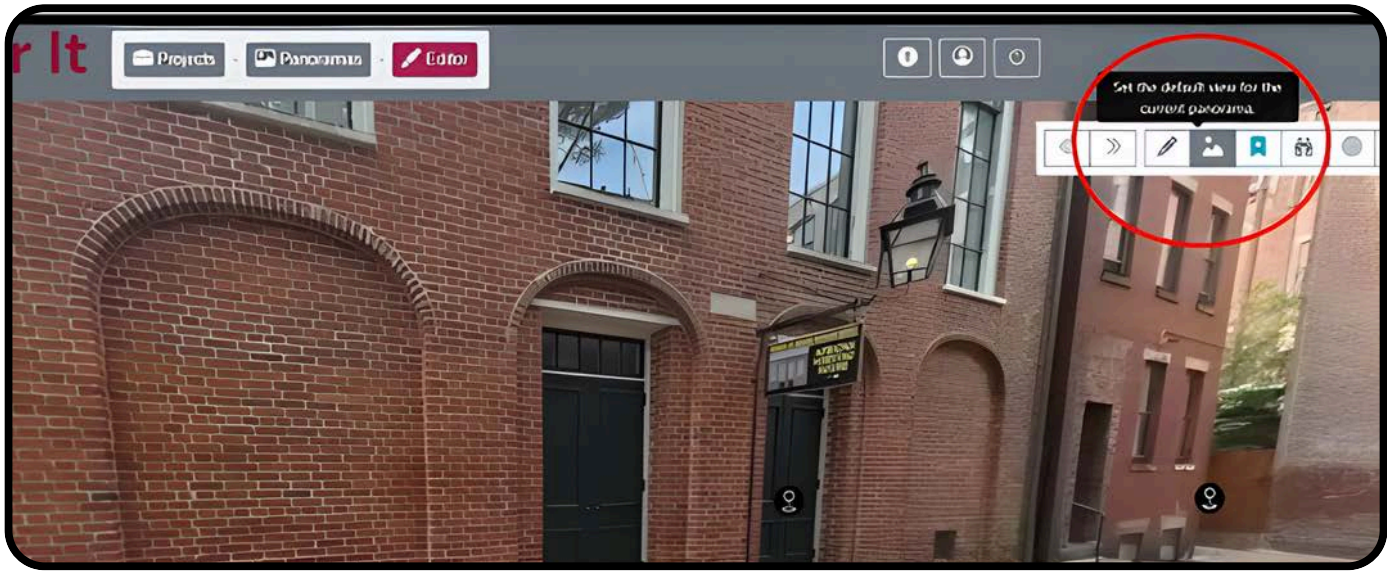


Figure 21

Editing the Panorama Properties

Properties can be set for each panorama individually, *see Figures 22 and 23*. From here you can select a title, a description, and if you like, upload background sound or ambient noise as an mp3 file. Background sound will play on a loop by default.

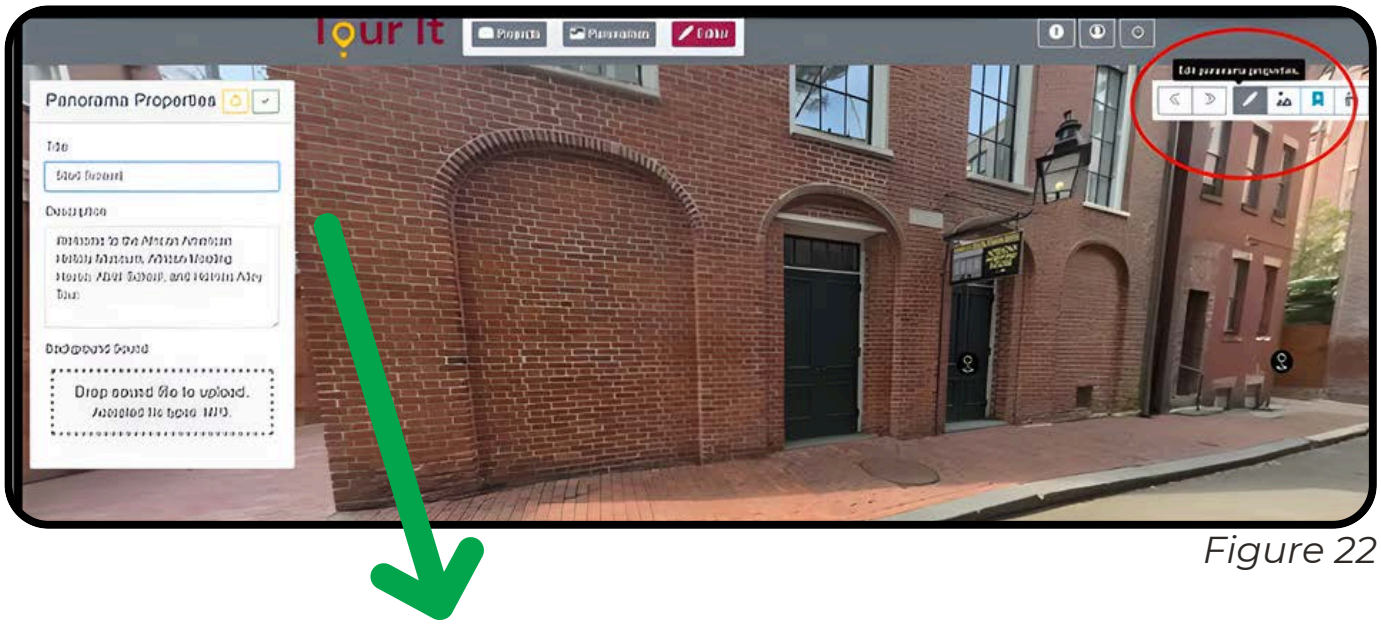


Figure 22

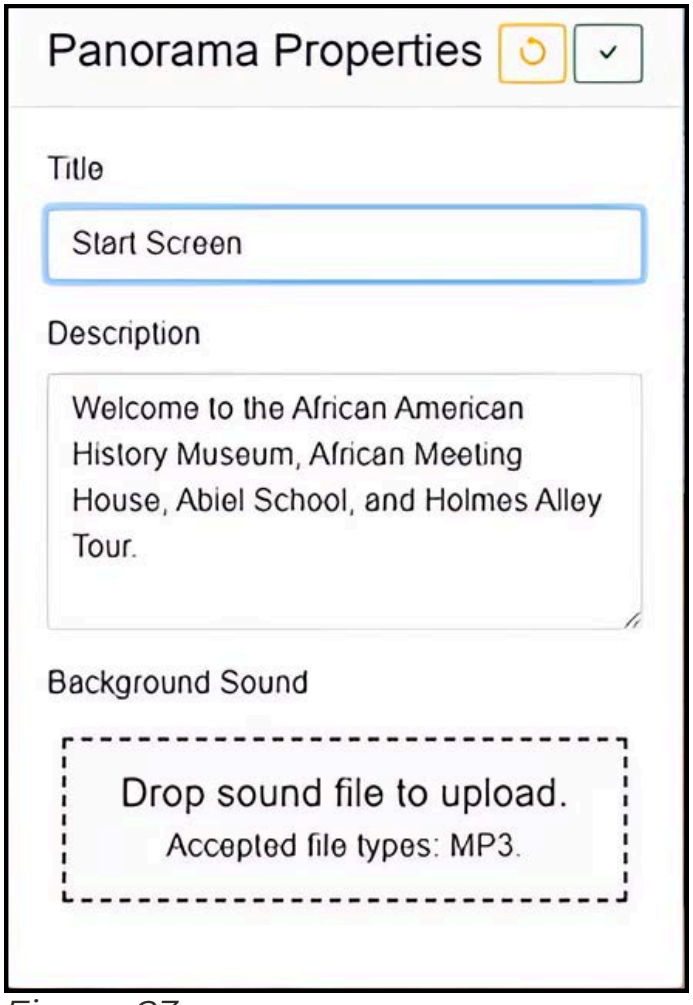


Figure 23

Adding a Hotspot

Besides panoramas, virtual tours are built primarily on hotspots, *see Figure 24*. Hotspots are clickable sections on a panorama that allow the user to learn more information, traverse to other panoramas, access outside media/materials, and more.

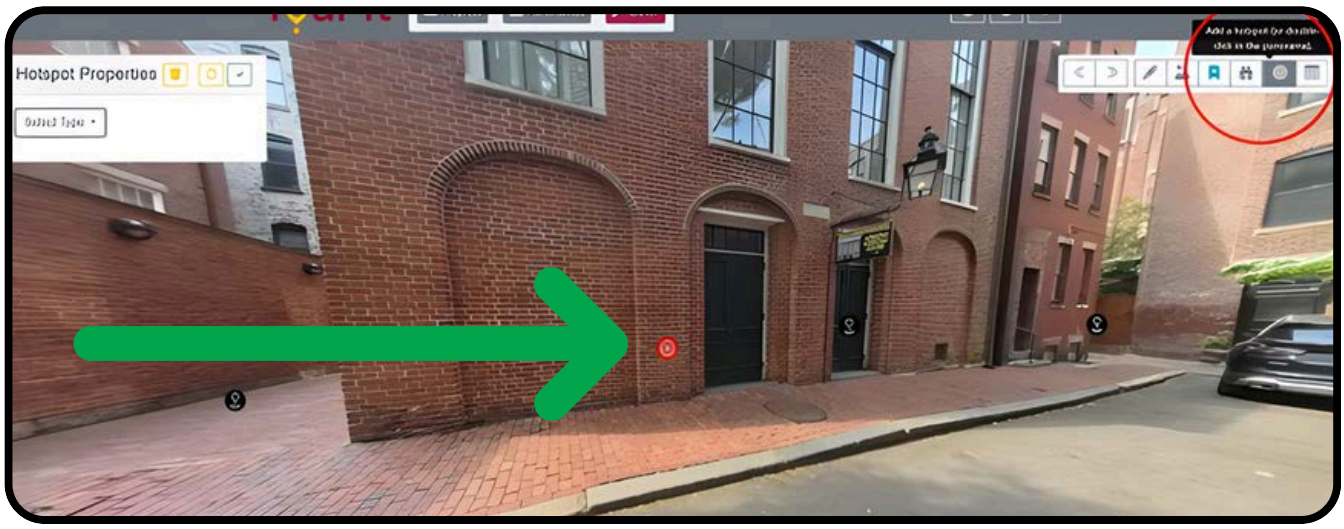


Figure 24

When first created, hotspots appear at the very center of the screen. You can then drag the hotpot to the location of your choosing and then set a hotspot title, caption, alt-text, and type.

You will select a hotspot "type" from the following:

- External URLs
- Other Panoramas you have uploaded). NOTE: These need to be uploaded to TourIt before selecting them
- PDFs
- Streaming video URLS.

Note: Streaming video runs on the default setting for the site, *see Figure 25*

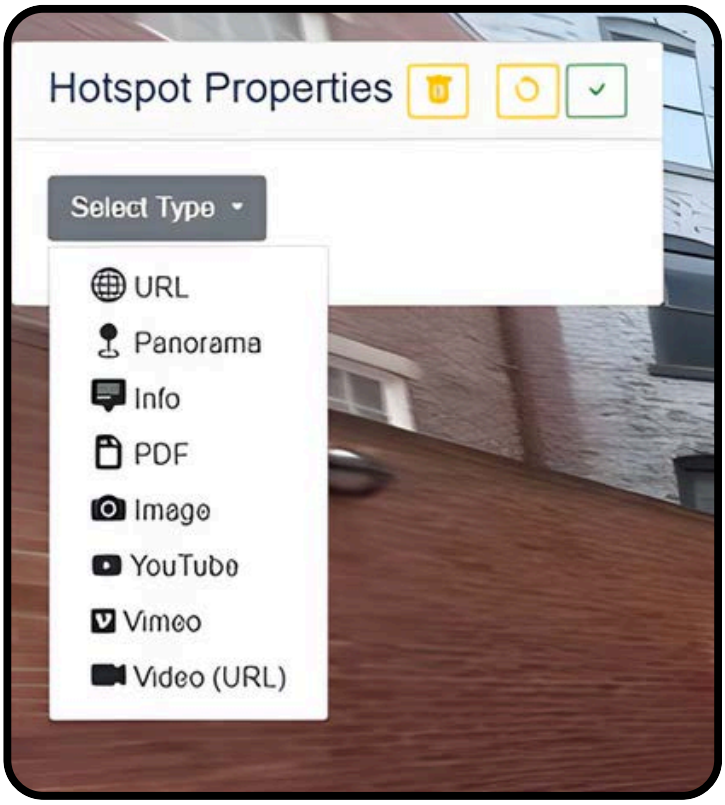


Figure 25

At any point you may select the “Hotspot Table” to view any hotspots in the current panorama. *See Figure 26*

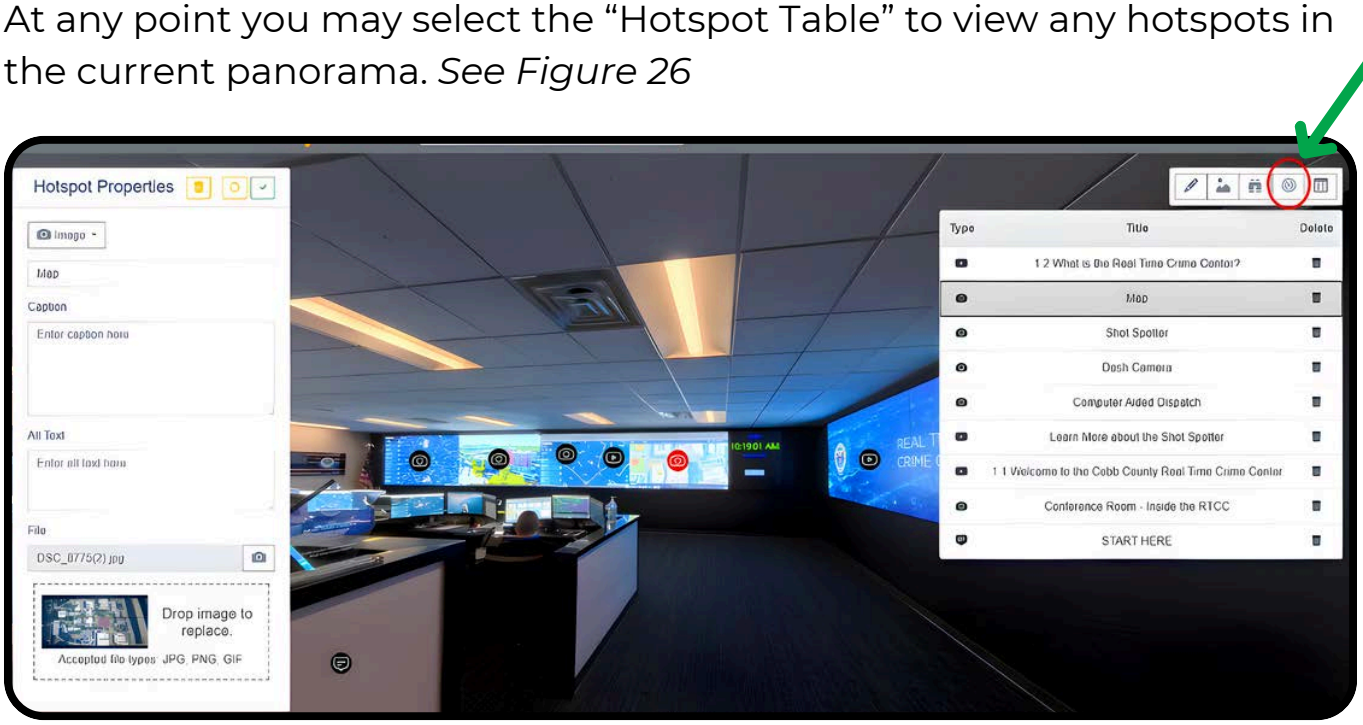


Figure 26

In the project menu, select “share.” You will then receive a URL that can be shared freely. *See Figure 27*

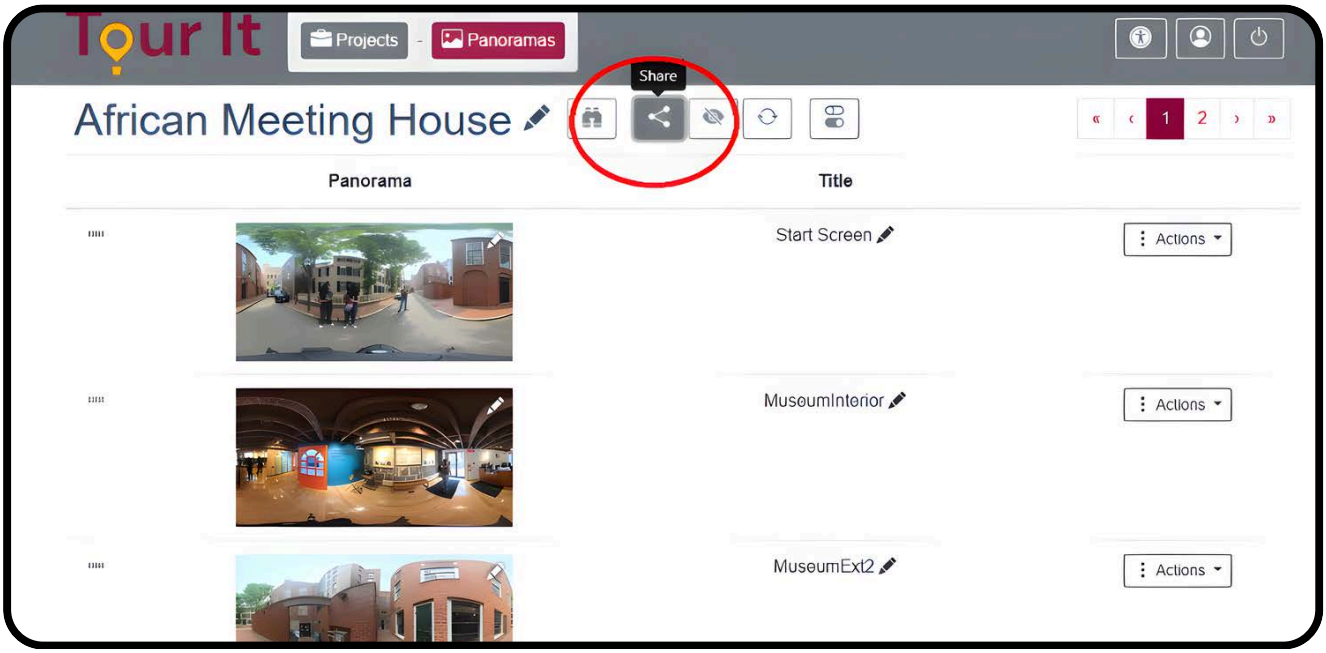


Figure 27

Ensuring Accessibility in your VFT

Panoramic Scenes

In your Panroama on your action menu, click “Edit Panorama Properties.” *See Figure 28*

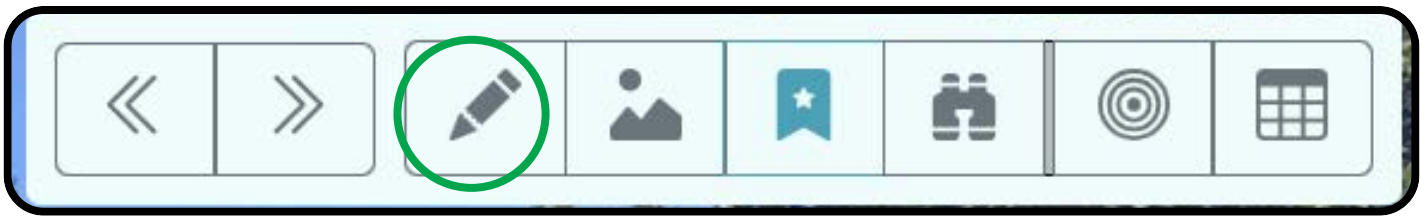


Figure 28

Enter a Scene Title

Add a Scene Description, *see Figure 29*

Functionality (Why This Matters)

The Scene Title is the first thing announced by screen readers when a scene loads. The Scene Description orients learners to:

- What they are seeing
- Why it matters.
- What they should do next
- This reduces cognitive load and prevents disorientation for screen reader users and learners with attention or memory challenges.

Best Practice

- Title: Short, concrete, descriptive.

Rule of thumb

- Every Screen Title should answer:
- What is this?
- Why does it matter?
- What should I do?

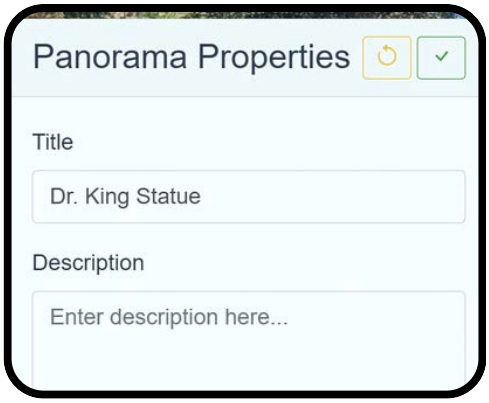


Figure 29

Copilot Prompt Shortcut:

- “Create a descriptive scene title and a one sentence description that explains what learners will explore and why it matters.”

Images, Videos, and PDFs

Using the Hotspot function, insert images, videos, or audio into the scene. *See Figure 30*

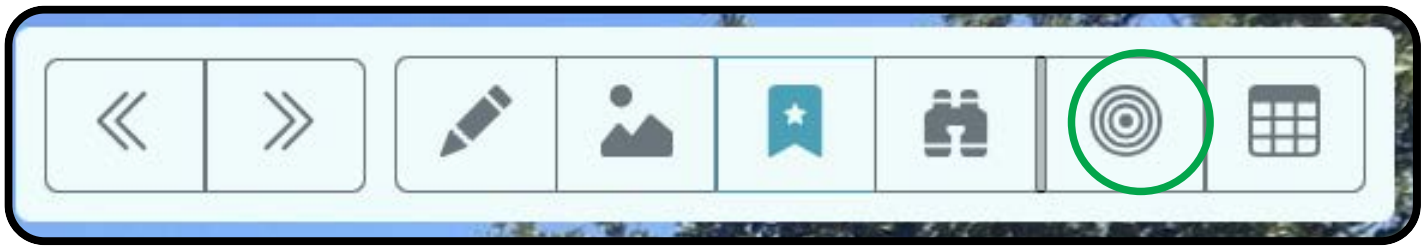


Figure 30

Add alt text in the box provided. *See Figure 31*

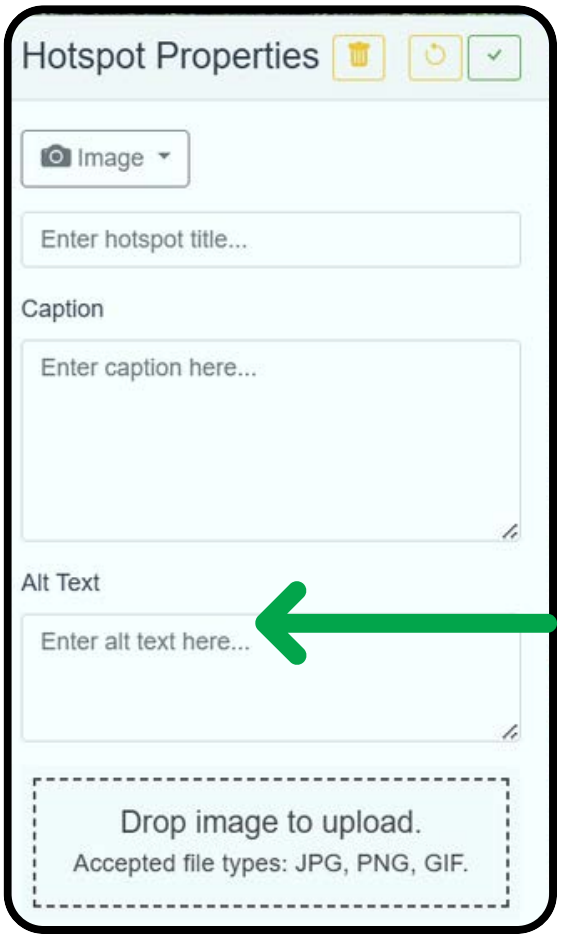


Figure 31

The "Toggle hotspots table" button displays a menu listing all hotspots added to the current panoramic image. In it you can see the order of the items in your panorama. *See Figure 32*

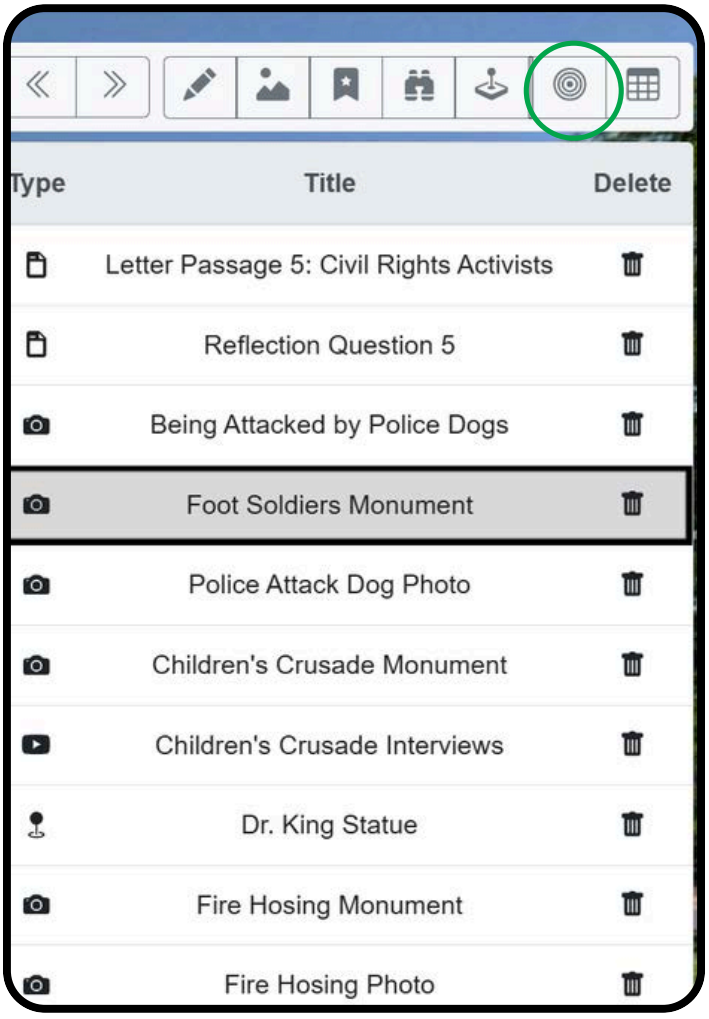


Figure 32

Images, Videos, and PDFs

continued

Functionality aka Why This Matters:

- Screen readers read alt text aloud.
- The content is still accessible if the image fails to load.
- Communicates meaning, not aesthetics.
- Captions support deaf and hard-of-hearing learners.
- Transcripts benefit all learners, including those who prefer reading.

Best Practice:

- Describe what the image is teaching, not what it looks like.
- Mark decorative images as decorative.
- Avoid jargon unless defined.
- Ensure all videos have subtitles and transcripts.
- Include speaker labels.
- Include meaningful sound cues.
- Example: [door slams], [bird calls], [chimes]

Copilot Prompts for Support:

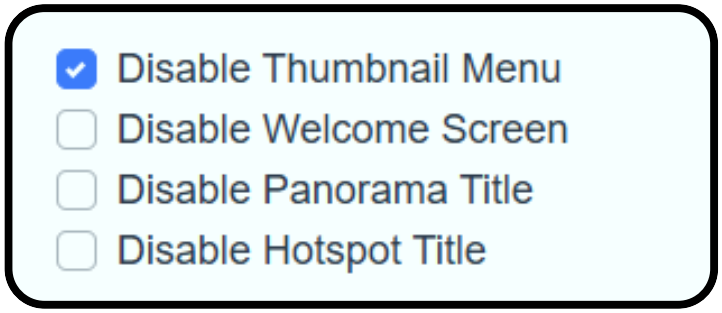
- “Generate concise WCAG 2.2 AA compliant alt text for this image. Focus on meaning, not visual detail.”
- “Generate concise a WCAG 2.2 AA compliant alt text explaining the key information in this (PDF/image/video) for learners who cannot see it.”
- “Create a WCAG 2.2 AA compliant captions with speaker labels and sound cues.”

Ensure Lables are Enabled

Go to your Project Settings at the top of your main page. *See Figure 33*

Figure 33

Under the Welcome Message and Credits Boxes, there are four checkboxes. *See Figure 34*



Ensure that you do not disable the Panorama Title, Hotspot Title, or Welcome Screen.

Figure 34

Functionality, aka Why This Matters:

- Keyboard users know the purpose before activating.
- If you disable these items, it removes the labels of their titles and prevents screen readers from reading all titles.
- The welcome screen includes directions for navigation, which will also be disabled.

Best Practice:

- Labels should describe the action, not the location.
- For example, “Next Panorama” or “Video Interview with Scientist Dr. Bob Smith.”

Ensure Keyboard Accessibility

IOn the Tour It projects page, the accessabilty option should be on by default. You can check by clicking the image of a person in a circle at the top of the page. *See Figure 35*

Figure 35

Functionality, aka Why This Matters:

- The accessibility options that allow navigation by keyboard. In the welcome screen, the
- Navigate using: Tab or Shift + Tab or Enter

Best Practice:

- To ensure that this is functioning correctly, always test your panorama by using the Tab and Shift + Tab to make sure that the naviation is in a logical order and that all interactions are working properly.

Common Accessibility Mistakes (and How to Avoid Them)

Missing or Poor Alt Text

What the Mistake Looks Like:

- Images with no alt text.
- Alt text that says:
  - “image123.jpg” or “picture of a screen”

Why This Is a Problem:

- Screen reader users rely on alt text to understand images. Without it, vital information is completely lost.

Who Is Affected:

- Blind and low vision learners
- Learners using screen readers due to concussion, fatigue, or temporary injury.

How to Fix It:

- Always add alt text when you add an image and ensure your Alt text describes what the image is teaching, not what it looks like visually. *See Figure 36*

Example:

“Mars rover positioned near layered sediment, illustrating evidence of ancient water,” versus “A picture of Mars.”

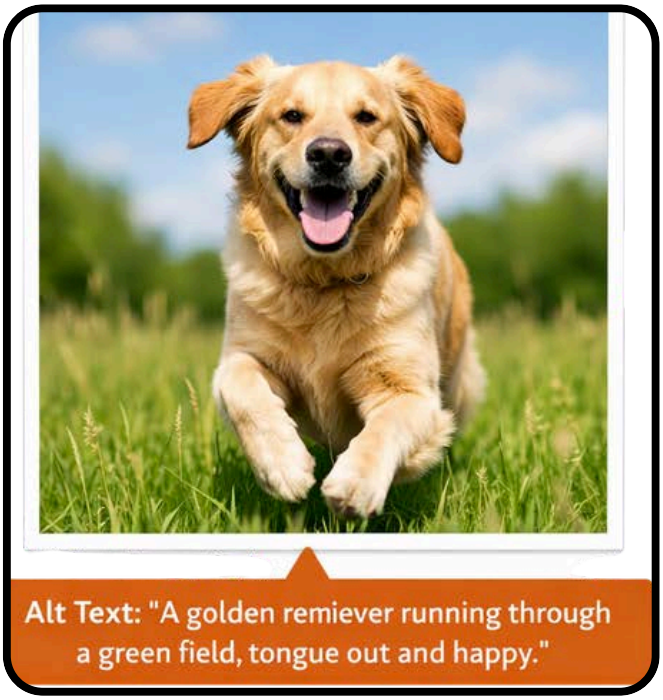


Figure 36

Vague or Nondescriptive Hotspot Labels

What the Mistake Looks Like:

- Hotspots labeled:
  - “Image”
  - “PDF”
  - “Info”
- Icons with no accessible name.

Why This Is a Problem:

- Screen readers and keyboard users hear the label without visual context.
- Vague labels make the interface unusable.

Who Is Affected:

- Screen reader users.
- Keyboard only users.
- Learners with cognitive disabilities

How to Avoid It:

- Label what the action does, not where it is.
- Example: “Opens volcano cross-section diagram” versus “More.” *See Figure 37*

Figure 37

Hover Only Interactions

What the Mistake Looks Like:

- Information or actions that appear only when a mouse hovers.

Why This Is a Problem:

- Hover interactions do not work for keyboard users.
- Hover interactions are unreliable for screen readers.
- Hover interactions cause problems for users with motor impairments.

Who Is Affected:

- Keyboard only users
- Screen reader users
- Users with motor or fine control limitations

How to Avoid It:

- Always ensure the accessabilty options are on.
- Test by navigating with the keyboard only.

Color Used as the Indictor of Meaning

What the Mistake Looks Like

- Instructions such as: “Click the red button.”

Why This Is a Problem:

- Color-only meanings fail for:
  - Colorblind users
  - Screen readers
  - Users in low contrast environments

Who Is Affected:

- Colorblind and Low vision learners
- Screen reader users.

How to Avoid It:

- Instead use:
  - Text labels
  - Icons
  - Patterns
  - Shapes

Missing Captions or Transcripts for Video

What the Mistake Looks Like:

- Videos with audio, but no captions

Why This Is a Problem:

- Audio-only information is inaccessible to many learners.

Who Is Affected:

- Deaf and hard-of-hearing learners
- Learners in noisy or quiet environments

How to Avoid It:
Always provide a transcript.

Treating Accessibility as a Final Checklist Item

What the Mistake Looks Like:

- Accessibility reviewed only at the end
- Alt text, captions, and labels added as an afterthought.

Why This Is a Problem:

- Retrofits are more error-prone and often incomplete.

Who Is Affected

- Everyone who relies on consistent, intentional design

How to Avoid It

- Build accessibility into every step
- Build your tructure first, content second, and interaction third

Most **accessibility failures** come from:
assuming everyone navigates visually,
designing for mouse users only,
prioritizing aesthetics over clarity,
and adding accessibility after content is complete.

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Makransky, G., Terkildsen, T. S., & Mayer, R. E. (2022). Adding immersive virtual reality to a science lab simulation causes more presence but less learning. Educational Psychology Review, 34, 59–85. https://doi.org/10.1007/s10648-022-09675-4

AI replica 360 panorama of the Biblioteca do Conventro in Marfa Portugal

PART II
IMMERSIVE LEARNING AS A HIP

Virtual immersive experiences have the potential to significantly enhance student learning, provided they are thoughtfully designed. This section of the guide is dedicated to assisting you in developing clear learning outcomes and assessments, ensuring your VFT is not simply an innovative activity but a true High-Impact Practice (HIP). The objective is to help you create purposeful learning experiences that closely align with your course objectives.

Immersive learning activities can be considered HIPs if they contain certain essential elements that drive student engagement and long-term learning. According to Kuh and O'Donnell (2013), these include:

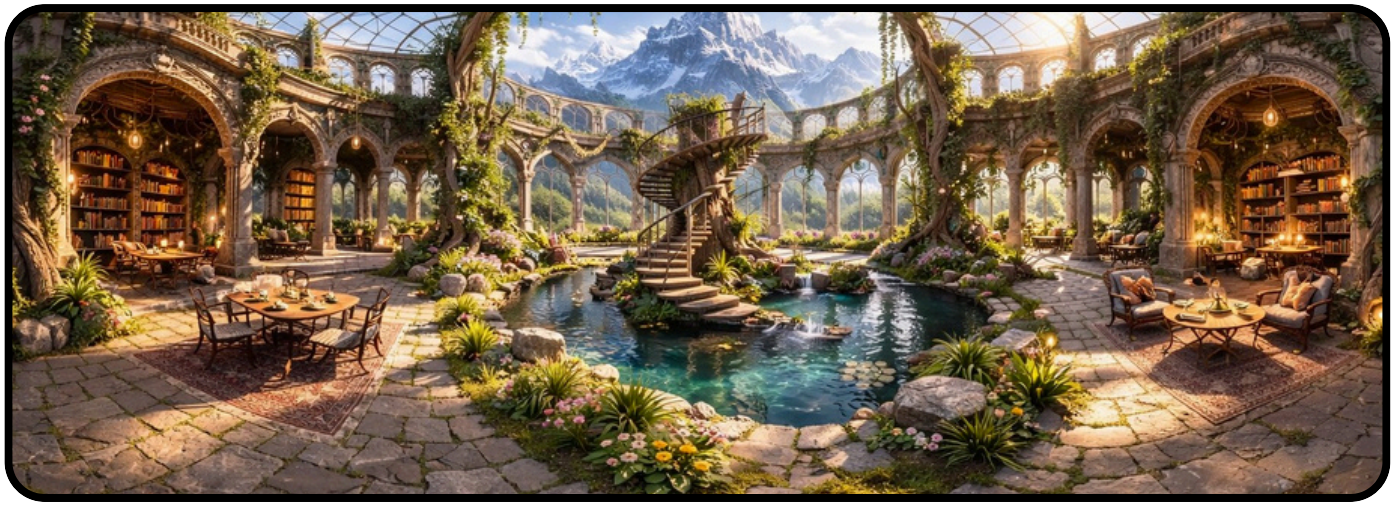
- Performance expectations set at appropriately high levels – students are challenged.
- Significant investment of time and effort over an extended period.
- Interactions with faculty and peers about substantive matters.
- Experiences with a variety of perspectives, context, or content.
- Frequent, timely, and constructive feedback from multiple sources.
- Structured opportunities for reflection to integrate learning.
- Real-world applications that extend learning beyond the classroom.
- Public demonstration of competence, where students show what they know to an audience.

When these elements are built intentionally into a VFT, students experience not just exposure to content, but deep engagement, authentic application, and opportunities to demonstrate mastery.

To support this, we have created an Immersive Learning HIP Taxonomy that outlines how attributes such as challenge, time, interaction, and feedback can move from high to highest impact. This taxonomy is a tool to assist with gauging the depth of your design choices and to strengthen the outcomes and assessments you build.

This taxonomy serves as a comprehensive framework to assess and enhance the quality of immersive learning experiences. By examining each attribute across a spectrum, you can identify specific design features that foster deeper engagement and more meaningful learning outcomes. For example, the level of challenge or expectation may start with tasks that require higher order thinking skills like application and analysis.

As you move toward higher impact, students are asked to synthesize information, evaluate sources, and solve problems independently. At the highest impact level, learners confront complex, ambiguous challenges that mirror real-world scenarios, demanding sophisticated problem-solving and critical thinking.



AI generated panorama of a nature themed library

Similarly, the taxonomy encourages you to consider how time and effort are invested throughout the activity, how interactions with faculty and peers can become more substantive, and how feedback is provided not just frequently and constructively, but also from multiple perspectives. Structured opportunities for reflection and the integration of real-world applications further enrich the immersive experience, culminating in public demonstrations of competence where students showcase their mastery to authentic audiences.

By using this taxonomy as a guide, you can intentionally design immersive learning activities that maximize student engagement and learning. It allows you to gauge the depth and rigor of your instructional choices, ensuring that each element contributes to stronger learning outcomes and more robust assessments.

Immersive Experience HIP Taxonomy

Attribute	High Impact (baseline)	Higher Impact	Highest Impact
Reflection	Students complete guided reflection after immersive sessions.	Reflection is iterative and explicitly connects immersive experiences to course concepts.	Reflection is scaffolded culminating in synthesis that demonstrates disciplinary integration.
Authentic Application	Immersive experience mirrors real-world problems.	Immersive experience requires students apply knowledge to solve real-world issues.	The immersive experience extends beyond course sessions; off-campus stakeholders evaluate deliverables.
Public Demonstration	Students deliver their outcomes within the classroom setting.	Students share work with audiences beyond the classroom (e.g., campus events, forums).	Students publish, present, or engage with external stakeholders to demonstrate mastery and real-world impact.
Higher order Thinking Expectations	Requires students to apply and analyze.	Requires students to evaluate, synthesize, and engage in independent problem-solving.	Requires students to address multifaceted, real-world challenges that involve ambiguity and require analysis of various dimensions and complex consequences.

Immersive Learning HIP Taxonomy

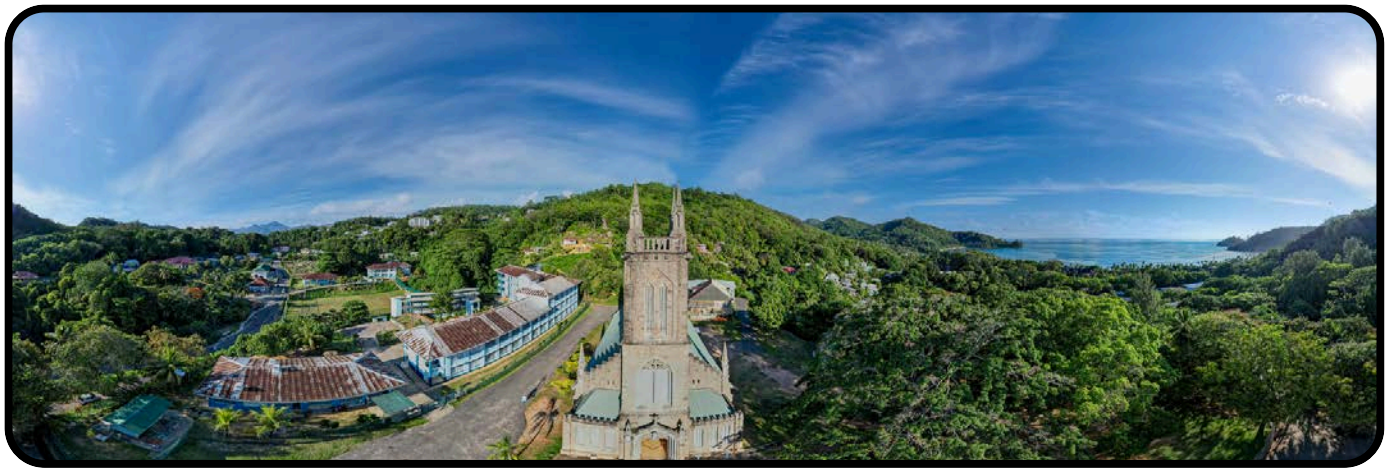
Attribute	High Impact (baseline)	Higher Impact	Highest Impact
Time/Effort	Engagement spans several sessions.	Engagement spans multiple phases, requiring consistent effort.	Immersive elements are integrated throughout the course, requiring sustained effort and iterative development.
Interaction	Faculty facilitates discussions on immersive content to guide understanding.	Students engage and/or collaborate with peers during immersive experiences as part of project expectations.	Students engage with peers, faculty, and/or external stakeholders as part of project experience.
Multiple Perspectives	The immersive experience incorporates multiple perspectives or narratives.	The immersive experience incorporates critical engagement with multiple perspectives and an exploration of potential implications.	The immersive experience involves critically analyzing various perspectives, issues of authority, perspective, identity and overlooked viewpoints.
Feedback	Faculty provides feedback at key checkpoints.	Feedback is continuous and includes peer and self-assessment.	Ongoing multi-source feedback (faculty, peers, stakeholders) informs real-time decisions and iterative revisions.

Process

Developing Learning Outcomes

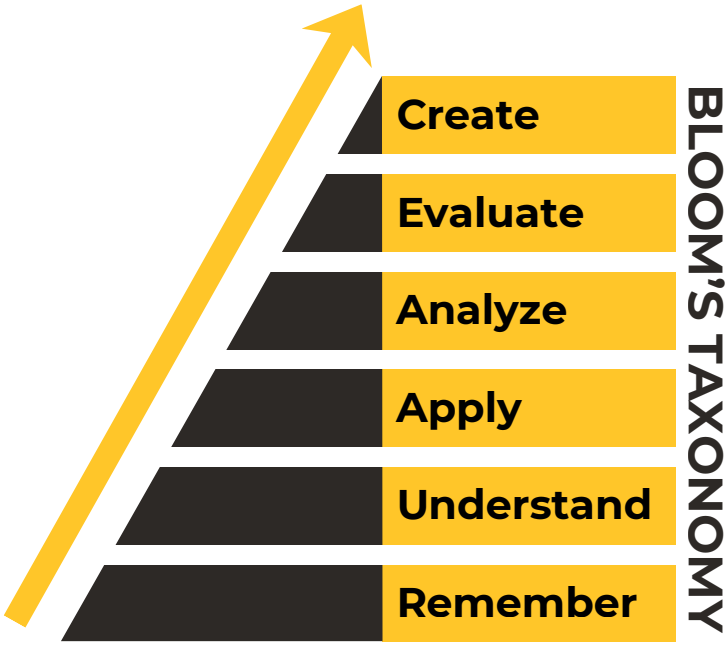
Frameworks for Learning

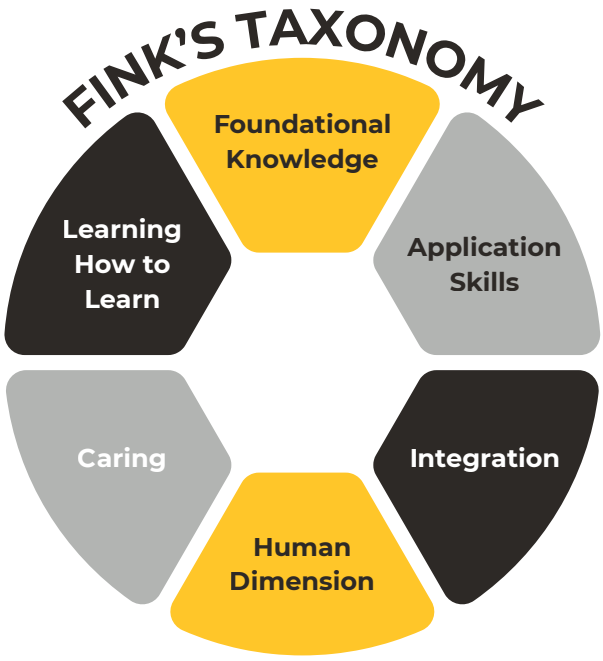
Writing strong learning outcomes is the foundation of designing an effective Virtual Field Trip (VFT). Outcomes clarify what you want students to achieve, guide the immersive design choices you make, and determine how learning will be assessed.



360 Panorama of Saint Francis of Assisi Church ariel view, Seychelles

Two useful frameworks for shaping outcomes are Bloom's Taxonomy (focusing on cognitive complexity) and Fink's Taxonomy of Significant Learning (focusing on holistic, transformative learning).





Bloom's Taxonomy organizes learning objectives according to levels of cognitive complexity, ranging from lower-order skills such as remembering and understanding, to higher-order skills like analyzing, evaluating, and creating.

Bloom's Taxonomy:
Bloom's Revised Taxonomy provides a hierarchy of cognitive processes. It encourages faculty to move beyond simple recall toward outcomes that require higher-order thinking.

- Remember / Understand: Identify features of the immersive site; explain main ideas.
- Apply: Use course concepts to interpret what is observed during the VFT.
- Analyze: Distinguish relevant from irrelevant details; compare multiple perspectives.
- Evaluate: Judge the effectiveness of practices or policies seen in the immersive environment.
- Create: Propose solutions, interventions, or new interpretations based on the VFT.

Tip: Virtual immersive experiences are especially well suited for Analyze–Evaluate–Create level outcomes, since the immersive context provides complexity and nuance that invite deeper thinking.

360 Panorama of underwater coral reef

360 AI generate panorama of spaceship interior

Fink's Taxonomy of Significant Learning expands on this by emphasizing holistic and transformative learning experiences. It encourages educators to consider not only foundational knowledge and application, but also integration (connecting ideas), the human dimension (learning about oneself and others), caring (developing new feelings, interests, or values), and learning how to learn. By drawing on Fink's framework, you can craft outcomes that reach beyond cognitive gains to include personal growth, real-world relevance, and the development of lifelong learning skills.

Fink's Taxonomy:

Fink's framework expands the scope of outcomes beyond cognition, highlighting dimensions that create significant learning experiences.

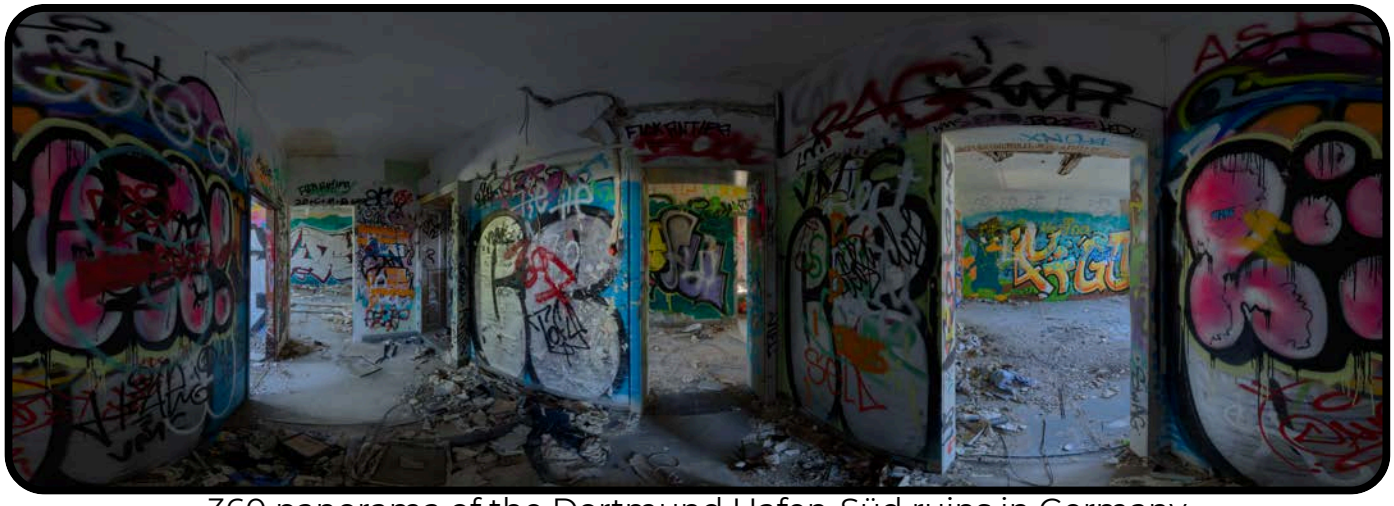
- Foundational Knowledge: Identify core terms, ideas, or frameworks students need to bring into the VFT.
- Application: Practice problem-solving, decision-making, or analysis within the immersive setting.
- Integration: Connect insights from the VFT to theories, other courses, or real-world contexts.
- Human Dimension: Understand oneself and others in new ways (e.g., equity, privilege, lived experiences).
- Caring: Develop new interests, values, or commitments sparked by the VFT.
- Learning How to Learn: Strengthen capacity for future inquiry or self-directed learning.

Tip: VFTs often shine in the Integration, Human Dimension, and Caring categories, since they expose students to multiple perspectives and authentic contexts.

To ensure your Virtual Field Trip (VFT) learning outcomes are clear, measurable, and aligned with broader goals:

1. Write 2–3 measurable outcomes specifically tied to the VFT.
    - Examples: Analyze the environmental impact of local conservation efforts observed during the VFT; Apply concepts from the course to interpret cultural artifacts encountered in the immersive experience.
2. Check that each outcome connects to the broader course goals (or program goals if the VFT stands alone).
    - For instance, if your course goal is to foster critical thinking about environmental sustainability, the outcome "Analyze the environmental impact..." directly supports that goal. If the program aims to develop intercultural competency, "Apply concepts from the course to interpret cultural artifacts..." aligns by encouraging cross-cultural analysis.
3. Use action verbs (e.g., analyze, evaluate, create, connect, reflect). Action verbs clarify expectations and support assessment.
    - For example: Evaluate the effectiveness of conservation strategies observed during the VFT.
4. Confirm outcomes are specific enough to assess and appropriate for the length/scope of the VFT. Outcomes should indicate what students will do and how success will be measured. Avoid vague statements.
    - For example: Connect at least three observations from the VFT to course concepts in a written reflection of 500–750 words.

By following these steps and using clear, measurable outcomes, you ensure that the VFT experience is purposeful, assessable, and relevant to your overall instructional goals.



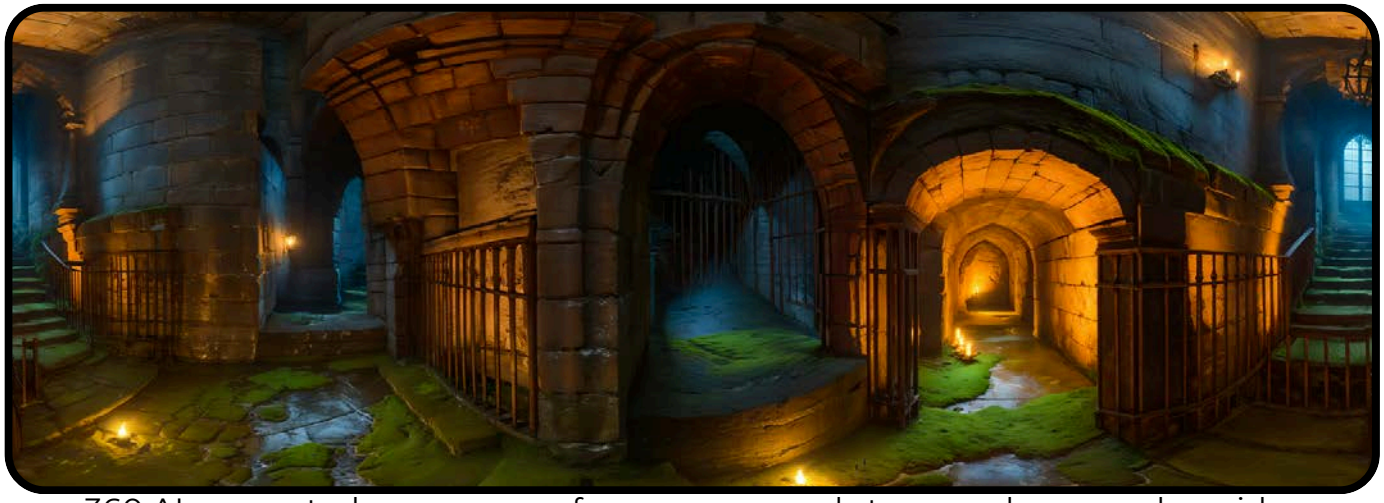
360 panorama of the Dortmund Hafen-Süd ruins in Germany

Tips for Developing Effective VFT Learning Outcomes

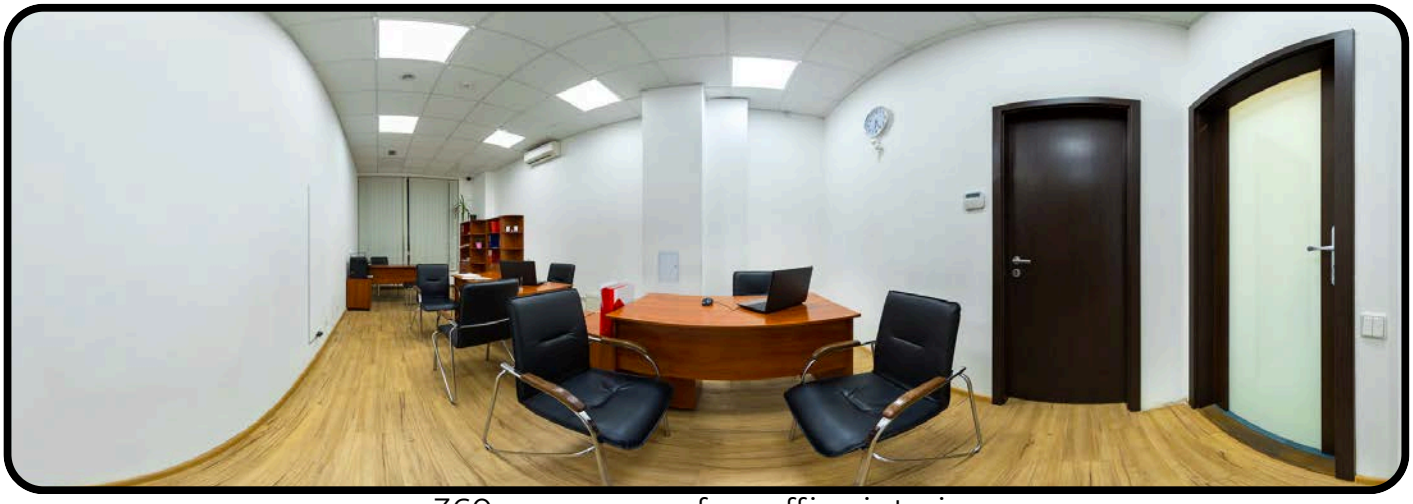
Clarify Desired Outcomes: Begin by clearly articulating what you want students to accomplish after participating in the VFT. Consider the specific knowledge, skills, or perspectives you expect them to gain. For example, do you want students to analyze environmental impacts, apply theoretical concepts to real-world scenarios, or interpret cultural artifacts?

Ensure Outcomes Are Measurable, Specific, and Appropriately Scaled: Formulate outcomes that can be assessed objectively. Each outcome should specify what students will do and how success will be evaluated. Use action verbs (such as analyze, evaluate, create, connect, reflect) to set clear expectations. Outcomes should be suitable for the length and scope of the VFT, avoiding vague statements. For instance, “Connect at least three observations from the VFT to course concepts in a written reflection of 500–750 words.”

Use Backward Design Principles: Review how your VFT outcomes support broader course learning goals. Start with your desired results and design the VFT experience to achieve those objectives. If the VFT is embedded within a course, ensure each outcome aligns with and reinforces the course or program outcomes. For standalone VFTs, define overarching goals for immersive learning, such as fostering critical thinking, intercultural competency, or problem-solving abilities.



360 AI generated panorama of a moss-covered stone underground corridor



360 panorama of an office interior

If the virtual immersive learning experience is not embedded within a specific course, the goals should focus on broader educational outcomes that go beyond direct alignment with course objectives. Consider the following overarching goals for using immersive learning in standalone contexts such as:

- **Foster Critical Thinking:** Enable students to analyze complex scenarios, interpret data, and draw thoughtful conclusions from their observations during the immersive experience;
- **Develop Intercultural Competency:** Expose students to diverse perspectives, cultures, and environments, encouraging empathy and understanding of global issues;
- **Enhance Problem-Solving Abilities:** Challenge students to identify problems, evaluate possible solutions, and propose innovative approaches based on real-world contexts encountered during the VFT;
- **Promote Reflective Learning:** Encourage students to connect their experiences to personal growth, societal issues, or professional interests through reflective writing or discussion;
- **Support Lifelong Learning Skills:** Build transferable skills such as digital literacy, adaptability, and self-directed learning that students can apply in future academic or professional settings. These outcomes should be measurable and tailored to the scope of the VFT, supporting significant learning and personal development for students.

By designing **clear, measurable, and aligned outcomes,** you ensure the VFT is both p**urposeful and assessable**, maximizing its **relevance** to your instructional goals and students' learning journeys.

Identify Necessary Outcomes

Once outcomes are set, the next step is to determine what artifacts and resources are needed for students to meet them. In this context, “artifacts” means the materials, locations, people, or media that students will encounter in the VFT. These elements form the foundation of the immersive experience: they provide the raw content students will engage with, reflect on, and analyze. Without carefully chosen artifacts, outcomes risk remaining abstract. For example, if your outcome is for students to evaluate different perspectives on community–police relations, you might need video interviews, policy documents, or access to a simulated Real-Time Crime Center. Identifying these resources up front ensures your design is intentional and aligned.

Here are the steps detailed:

1 Brainstorm a list of places, people, videos, documents, or websites needed to support each outcome.

To effectively support learning outcomes, begin by brainstorming a comprehensive list of potential artifacts. Consider places such as museums, historical sites, or local organizations; people like subject matter experts or community members; media including videos, podcasts, or news articles; and digital documents such as research studies, infographics, or interactive simulations.

2 Check for alignment: Does each resource clearly support at least one outcome?

For each outcome, match artifacts that directly support the skill or knowledge students are expected to demonstrate. Each artifact should support at least one learning goal, and together, they should provide sufficient opportunities for students to demonstrate the desired outcome. By intentionally selecting and organizing artifacts, you create a purposeful and assessable VFT that meaningfully supports students’ learning journeys and maximizes instructional impact.

3 Prioritize authenticity — real-world, diverse, and credible sources of information.

Evaluate each resource for authenticity, diversity, and credibility. Prioritize artifacts that offer real-world perspectives and represent multiple viewpoints, ensuring students encounter complex scenarios rather than simplified or biased accounts. Authenticity is critical for fostering engagement and deeper understanding, while diverse sources challenge students to think critically and develop intercultural competency.

4 Prioritize authenticity — real-world, diverse, and credible sources of information.

Determine what permissions, access rights, or technology platforms are required to secure and present each artifact. Will students need internet access, special software, or accounts for restricted websites? Are there copyright or privacy issues to address? Anticipating these needs early in the design process helps avoid disruptions and guarantees a seamless immersive experience.

5 Plan immersive elements.

Once your outcomes and artifacts are clear, decide how the VFT will achieve them. High-impact practices are built around elements such as challenge, time on task, interaction, multiple perspectives, feedback, reflection, authentic application, and public demonstration. Not every VFT will emphasize all these equally, but you should be intentional about which ones you want to highlight. The Immersive Learning HIP Taxonomy can guide you in thinking about how deeply each element is built into your design.

- Determine the HIP elements that your VFT will emphasize and document how each will be represented in the design, (for example, reflection as guided journal prompts or interaction as structured peer discussion).
- Use the taxonomy to push at least one element toward “higher” or “highest” impact.
- Make sure each selected element supports at least one of your outcomes.

Keep in mind that all HIP elements do not need to be assessed using subjective instructor grading. You can include high-impact components even in an asynchronous online activity.

Examples of Immersive Experiences Chart

The table below illustrates examples at all levels of the taxonomy for each of the HIP elements. It is not exhaustive but provides examples of how each HIP element can be included.

Attribute	High Impact (baseline)	Higher Impact	Highest Impact
Reflection	Students complete an auto-graded survey with short prompts to reflect on the immersive experience.	Students write structured reflections explicitly tied to course concepts.	Students reflect multiple times using different formats, such as text, video, or infographics, and share their reflections with peers to deepen understanding.
Authentic Application	Students develop questions about the immersive experience that remain unanswered or pertain to the future.	Students design a solution for a question presented in the immersive experience using course concepts.	Students create a deliverable, such as a policy brief, campaign, or report. for an external organization (real or simulated).
Public Demonstration	Students share short responses or artifacts within the class.	Students present their work in a digital showcase or poster session open to campus or external stakeholders.	Students publish their project on a public-facing platform and respond to external feedback.
Higher Order Thinking Expectations	Students complete a scenario-based quiz with “best choice” options.	Students review a case study and identify a problem, examine evidence, and make a recommendation.	Students navigate a branching simulation where each decision impacts multiple outcomes.

Examples of Immersive Experiences Chart

Attribute	High Impact (baseline)	Higher Impact	Highest Impact
Time/Effort	Students engage in an immersive simulation and reflection.	Students complete a multi-step project or immersive case study with checkpoints spanning several class meetings.	Students revise their work through multiple feedback rounds, including input from external organizations, and complete a final project with a reflection.
Interaction	Students post at least one response comment and one question on a discussion board (text or video reply).	Students tag peers or identify themes on a shared board such as Padlet.	Students take part in debates or video discussions from assigned roles and work together to create a shared summary document that includes contributions from everyone.
Multiple Perspectives	Students complete a compare or contrast exercise across two perspectives.	Students develop a structured comparison table of three or more sources with guided questions.	Students critically analyze equity, bias, power, and privilege across several artifacts, integrating multiple viewpoints.
Feedback	Students complete an auto-graded quiz with explanations for incorrect answers or a test bank requiring mastery.	Students complete a self-assessment against a provided rubric with reflection on improvement areas.	Students engage in ongoing multi-source feedback (self, peer, faculty, external stakeholder) to inform revisions.

Strategies for Incorporating HIP Elements

- Use auto-graded or structured scaffolds so students stay engaged without needing subjective scoring.
- Use structured templates (note-taking forms, reflection prompts, infographics) to reduce subjectivity.
- Keep rubrics binary or checklist-based (e.g., “Complete/Incomplete” or “Includes required elements”).
- Use D2L tools (auto-graded quizzes, surveys, or group submission galleries) to streamline assessment.
- Keep it simple — one required comment or question, scored as “done/not done.”
- Focus on effort and engagement rather than subjective quality for low-stakes HIP tasks.

Examples:

- Pre-VFT: Auto-graded readiness quizzes about key terms.
- During VFT: Guided note-taking template with specific questions (“List one policy observed, one stakeholder, one technology”).
- Post-VFT: Polls or discussion boards with clear expectations (“Post one insight; reply with one question to a peer”).

Design Assessments

To determine whether learning outcomes have been met, you need evidence of student learning. For VFTs, the strongest evidence comes from authentic deliverables that show what students can do with what they have learned. At the same time, assessments should be designed to minimize subjectivity and workload for faculty. Simple checklists and binary rubrics (present/not present, complete/incomplete) can ensure consistency while still capturing meaningful learning.

- List each learning outcome and identify the grading item or artifact that will show evidence of it.
- Choose appropriate assessment methods (quiz, rubric, presentation, reflection, peer review).
- Decide on feedback sources: Faculty, peers, self, or external stakeholders.
- Align the complexity of assessment with the level of the outcome (e.g., evaluation outcome = rubric-based analysis or argument, not just recall).

Reflection: Collect evidence through structured journals, guided reflection prompts, surveys, or multi-modal posts (such as short videos, voice memos, or visual artifacts). These allow students to articulate connections between their experiences and course content, demonstrate personal growth, and synthesize their learning in diverse ways.

Interaction: Track how students engage with each other through collaborative documents, like co-written notes or shared concept maps, as well as peer review comments, online debates, or discussion board posts. This approach gauges not just participation but also the quality of conversations and how students build knowledge together.

Multiple Perspectives: Use comparative charts, tables, or concise analysis briefs to show how students have considered, contrasted, and integrated different viewpoints encountered during the VFT. Encourage students to reference specific stakeholders, policies, or technologies observed, and reflect on how these perspectives challenge or reinforce their assumptions.

Feedback: Incorporate multiple feedback sources by using self-assessment checklists, peer evaluations, and automated feedback tools. These create iterative learning cycles, helping students identify areas for improvement and recognize their progress over time.

Authentic Application: Assign deliverables that require students to apply their knowledge in realistic contexts, such as policy briefs, infographics, case analyses, or project proposals. These tasks should mirror real-world professional practices and demonstrate the practical transfer of course concepts.

Public Demonstration: Provide opportunities for students to share their work with a broader audience through digital posters, recorded presentations, or uploads to a shared class gallery or public platform. Sharing publicly increases accountability, celebrates learning, and invites feedback from external stakeholders.

Examples:

- Students use a rubric to self-assess their engagement and provide constructive feedback to a peer's case analysis.
- As a final product, students design an infographic that summarizes their main findings and recommendations from the VFT, which is then displayed in a virtual class exhibition.
- After a VFT, students submit a reflection journal responding to prompts about key observations, connections to theory, and personal insights.
- Students participate in an asynchronous debate forum, posting arguments and responding to peers with evidence from the immersive expereince.
- Each student creates a comparative analysis table contrasting two stakeholders' perspectives on a policy issue encountered during the VFT.

Connecting **assessments back to High-Impact Practice (HIP) elements is essential** to ensure they actively support and reinforce the objectives of immersive learning experiences such as Virtual Field Trips (VFTs). By aligning assessment evidence with HIP principles, educators can **deepen student engagement**, **foster critical thinking,** and make learning outcomes more meaningful and transparent.

360 panorama of the Neptune fountain in Piazza Maggiore in Bologna, Italy

The Importance of Reflection

Reflection is not an “add-on” to a Virtual Field Trip — it is what transforms the experience into learning. Without structured opportunities to pause and process, students may remember what they saw but fail to connect it to course concepts, real-world applications, or their own growth.

Reflection serves a number of important functions:

- **Integration:** Reflection helps students link immersive experiences to readings, theories, and broader course goals.
- **Metacognition:** Reflection encourages students to think about *how* they are learning, not just *what* they learned.
- **Perspective-taking:** Reflection prompts students to consider multiple viewpoints and examine assumptions.
- **Personal Growth:** Reflection opens spaces for students to connect the experience to their values, commitments, and professional identity.

Reflection can take many forms and does not have to be burdensome or subjective. Structured prompts, checklists, short surveys, or guided peer exchanges can make reflection both scalable and high-impact.

Quick Examples of Reflection Prompts

- Before the VFT: “What do you expect to notice? What questions do you have going in?”
- During the VFT: “List one thing that surprised you and one thing that confirmed what you expected.”
- After the VFT: “How does what you saw connect to [X theory]?” or “What perspective was missing from this VFT, and why does that matter?”

No matter what evidence or assessment you choose, always build in reflection. It is the bridge between the immersive experience and deeper, lasting learning.

Examples of Evidence & Assessments for VFTs

Written Deliverables

- Structured reflection journal with 2–3 guiding prompts (Reflection)
- Short policy brief (1–2 pages) recommending an action based on VFT content (Authentic Application)
- Synthesis memo connecting the VFT to at least one reading or theory (Integration)
- Case study worksheet: Problem, evidence from VFT, proposed recommendation (Challenge, Authentic Application)
- Stakeholder role-play analysis written from the perspective of a community member, policymaker, or practitioner (Multiple Perspectives)
- Curated resources: List three supplemental resources with one-sentence rationale for each (Learning How to Learn)

Visual Deliverables

- Infographic or one-page fact sheet summarizing a process, problem, or solution (Authentic Application, Public Demonstration)
- Annotated screenshot or labeled image identifying tools, features, or actors in the VFT (Challenge)
- Timeline or process map showing how a system or event observed in the VFT works (Foundational Knowledge, Integration)
- Digital poster (single-slide format) uploaded to a shared gallery (Public Demonstration)

Interactive Deliverables

- Discussion board post + required peer reply with structured prompts (Interaction, Reflection)
- Collaborative Padlet/Google Doc where each student adds one observation and one question (Interaction, Multiple Perspectives)
- Peer review checklist of another student's artifact (Feedback, Interaction)
- Gallery walk of posted artifacts (infographics, posters, videos) with peer comments (Interaction, Public Demonstration)

Multi-Modal Deliverables

- Short video or audio reflection (2–3 minutes) responding to two prompts (Reflection, Caring)
- Recorded presentation (slides + narration) uploaded to the LMS (Public Demonstration)
- Asynchronous poster session with short, recorded overview and peer Q&A (Public Demonstration, Interaction)

Auto Graded or Structured Deliverables

- Multiple-choice or branching quiz tied to VFT content (Challenge, Feedback)
- Comparison chart or table contrasting 2–3 stakeholder perspectives (Multiple Perspectives)
- Survey response comparison: Complete a pre- and post-VFT survey, then briefly note changes (Reflection, Feedback)
- Self-assessment rubric: Students rate their own work using simple criteria (Feedback)

Next steps

No matter how you design your virtual expereince, remember that reflection is the heartbeat of immersive learning. Even if you do not plan to grade it formally, building in a brief reflective activity ensures that students pause, process, and connect what they have experienced. This might be as simple as a one-question poll, a short discussion board post, or a quick checklist asking students to identify one new insight and one lingering question. These approaches still give students the opportunity to step back and integrate their learning.

Equally important is providing feedback. Feedback does not always have to come in the form of a grade. It can be informal, short, or conversational. A comment acknowledging a thoughtful observation, peer-to-peer replies, or automated quiz feedback can all signal to students that their engagement matters. Even a small amount of timely feedback can validate student effort and encourage deeper investment.

By ensuring that every VFT includes both reflection and feedback, however brief, you transform the experience from a one-time event into a high-impact practice that fosters critical thinking, personal growth, and meaningful applications beyond the classroom.

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