

MIXING REALITIES: **A Primer for Producing Virtual and Live Events**

Successful interactive events can create: *a sense of connection, *greater immersion, *natural interfaces, * easy conversation and *a more complex internal relationship with data maps, networks and ideas. Some of these goals are best achieved in adaptable virtual spaces that allow for 3D walkthroughs, interactivity and international dialogue with embodied characters or [AVATARS](#).

What is Mixed Reality (MR)?

A live event blended with a virtual event including live multiplayer gameplay in World of Warcraft, virtual meetings in Second Life or any interactive web streaming exhibition. Examples include game or holographic projections on trade show floors, international dialogues with avatar speakers or live production for video and virtual films: [MACHINIMA](#) or machine animation created together while working together in a classroom. The experience feels like you are in more than one world at once, providing space for imaginative conversation and pre-visualization for dynamic development projects.

What is the experience in the real room?

Connection and sense of contact vary widely depending on the type of projection/screens and types of interactivity available between spaces. If video is streaming in both directions the participants in your live room will see screens where avatars may be engaged in an activity while watching both rooms via video screens, there can be a feedback loop of video or audio connecting both spaces for dialogue and demonstration. Being able to speak and be heard without latency requires a technical team with preparation time and tested bandwidth.



TechSoupGlobal Summit in San Francisco & Second Life

What is the experience on the web?

Streaming video on the web is common for remote viewing of events; add participation through chat windows and tagging for public discussion on various social media channels. Depending on the format of the presentation questions may be taken from chat directly to a panel or speaker at the podium in the live room. Audio chats may be hosted on Skype or using Google tools.

What does it look like in virtual space?

Worlds with advanced chat tools allow users to speak freely and be heard while watching the live human proceedings from the comfort of their avatar chairs at any location -- home, office or any cafe with wifi. Virtual gathering spaces are adaptable: large or small, indoors or outdoors, in outer space or inside a human brain. In worlds where you have control over the content you can choose to have meetings in more mission-centric settings: the board for your Coral Reef Society can choose to meet underwater surrounded by virtual reefs to simulate environmental threats. Ability to stream video depends on bandwidth availability and may not be applicable in all settings.

MR PRODUCTION TECHNIQUES:

I. Multiple screen surfaces at many angles

Projection may include tabletops, 3D holographic/transparent screens or the common projector and pull-down screen found in most conference rooms.

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Ask: Do you want to focus attention on one set of actions?
Do you need to show multiple perspectives on the same action?
Will you be showing interactivity and workshopping or preparing a presentation?
How large is the room and what size screens would be most efficient and visible?

Tools: Projectors and screens exist that fill rooms, LED screens can fill a stadium with light. 3D systems are growing in popularity and work well with some virtual spaces. Urging your partners to think about energy conservation while forging through the equipment list will help all departments within your organization more happy. Pico and microprojectors may not give you the quality you desire so consider your space and projection size limitations; most traditional conference room projectors will work for basic interactivity with a laptop but there are many advanced tools available to make your demonstration more tangible.

2. Natural interfaces for easy collaboration

Using touchscreens, haptic technologies, augmented reality tools, new peripherals and hybrids like table screens allow for a unique mix that may delight and/or confuse your participants. It is wise to offer both traditional laptop and mouse connections and new access technologies; it may take participants some time to get used to moving with a 3D mouse, joystick or glove.

Ask: Do you need to create a new way to get inside information?
What kinds of programming interactivity do you need with your content?
Do you have participants with accessibility issues (vision, physical disabilities) that require alternate displays or peripherals?

Tools: Playmotion is one company pioneering motion capture sensors for gameplay that allow movement to dictate the video and game programming on large screens. There are countless new peripherals, helmets, 3D technologies and opportunities to change perspectives such as the new EON tools that allow for virtual meetings and photorealism in a true 3D development environment. Basic interfaces such as keyboard and mouse are still common and should be utilized whenever participants will handle the controls directly. For more information on how to prepare for accessibility visit www.virtualbility.org.

3. Mixing many worlds at once

If your screens are independent you can bring in many perspectives on the same action, show multiple types of actions at once or even show interaction across worlds, sharing chat bridges and sometimes designs from one world to another. This is helpful for international dialogue and global events where information can be shown in many environments at once.

Ask: How much bandwidth can you afford and how many participants are expected?
What time does your audio/video stream start, for how many hours?
Is your audience already participating from more than one virtual space?
Do you have the technical team available to monitor chat and dialogue across multiple rooms and worlds?

Tools: With many worlds going at once it is essential to have a robust hardwired connection(s) or a

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splitter that allows 4 or more computers to share cable. You will need at least one computer for every world you are using on site plus one computer to maintain your streaming content from your live space. Plan for a room full of laptops/towers if you are seeking to bridge worlds for an event like [AvatarCamp](#) or similar advanced mixed reality events for multiple platforms. Wireless broadband cards may help overcome temporary access issues in a pinch.

4. Connection and Conversation

Sound and video quality help make it easier for your participants in all spaces to feel more closely connected and engaged in action. If global conversation is the goal and you're working in a large conference room look for good mobile microphone applications that allow you to get questions from your live space easily. Sound can be mixed from the board and blended into the video streaming mix controlled by one computer with a robust processor; this [diagram link](#) explains the technical details.

Ask: Do you plan to take questions from your live event (microphone and camera?)
What camera angles do you want your videographer to focus on for streaming?
For small events, can you use a video camera and onboard microphone with a laptop?
Are there firewalls that may block any of your applications (java chat, streaming video)?
Who needs to be notified of your event and is a team in place to handle all logistics?

Tools:

Mac laptops are the easiest way to get a quicktime streaming .mov file up through Streamcaster and available into Second Life with less than 5 seconds latency in good bandwidth environments. Most universities are set up for streaming through Microsoft .wmv viewable by most on the web but not streamable in many virtual worlds. If there is no on-site tech team available to answer questions about internet firewalls, bandwidth, power sources, sound boards and other native equipment hire a full-service production team and bring in everything you will need to create the connection you seek. Most venues will oversell their ability to help you and allot twice as much time as you would expect to overcome site hurdles that may arise.

Sample Equipment List

Total Number of Projector(s):
Total Number of Laptops/Towers:
Keyboard and Mouse Additional:
Chairs/Tables for Tech Team:
Screens or Alternate Displays:
Microphones for Sound Quality:
Video Camera for Video Streaming:
Splitter for Cable Access Sharing:
Additional Power Strips/Cords:
Adapters for Projectors/Microphones:
Remotes for Projector, Screens, Sound, Video:
Additional Lightning for Speakers:



Mixed Reality with [Nonprofit Commons](#) at NetSquared, San Jose

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Example Workflow & Roles

- One producer oversees flow & integration of all spaces
- Host(s) speaking in live spaces and/or virtual spaces may moderate chat
- Event leaders in each world/space for dialogue/demonstration (may be virtual)
- Videographer and streaming tech onsite feeds content to web
- Avatar presenters connect to projector for large screen demonstration/perspective
- Virtual space developer provides 3D space setup, posters, streaming media testing
- Photographer and machimatographer(s), live and virtual
- Event attendants assist with outreach, security and participation access
- Social media coordinator encourages #tagging and tracks responses across all media
- A web guru integrates the active streaming URLs on all relevant websites

THE FUTURE OF MIXED REALITY

[Allosphere](#) at UC Santa Barbara is one example of the power of full immersion. This three story dome allows for complete soundproof experiences where scientists are able to get inside theories, chemical compounds and biological movements to determine root causes and solutions. Full sensory experiences surround and transport participants into new mental states allowing for complex ideas to be illustrated and expanded quickly. With unique 3D displays from helmets and laser keyboards to 3D screens and projection systems the future looks like a serious of media bubbles, large and small, allowing us to live in multiple worlds at once and see many different perspectives. With the next generation of immersion technology avatars will feel like extensions of ourselves and machinima will be a common word for [INWORLD](#) media animation.

There are many reasons to choose MR production tools for your event:

global interactivity and a close sense of connection are more easily achieved through avatar embodiment or full video streaming so that faces can be associated with presenters and their ideas. For dialogues with broad circles of participants it helps to have many channels and points of access, just in case one method is unavailable. While video streaming may be hard to access from mainland China you can create chat bridges through virtual worlds that break down existing barriers to progress in business, education and development.

Whatever method you choose research carefully and watch [tutorial videos](#) on how to bring your streaming content into some virtual spaces. Keep in mind that every media may not work in every world and virtual platforms are rarely quick to expand their integration opportunities.

Test out your plan and seek guidance from professional MR consultants available from most virtual development firms.

This paper reflects 40+ months of MR production experience by Evonne Heyning [@amoration](#), aka the avatar **In Kenzo** in Second Life and producer of events and machinima for [USC](#) Annenberg School for Communication, [TechSoupGlobal](#), USHMM & the International Humanities Center. For more information on MR services contact evoamo@gmail.com [@amoration](#) or visit us around the web, [CV](#) and calendar of events available online or by email.