

EXHIBITION DESIGN

Equipment Procurement

Acquiring equipment can often be one of the most difficult tasks for small organizations. The availability of devices, game consoles, and computers may be extremely limiting regarding the types of interactive work you are able to present. For those getting started with game exhibition, some options are listed below:

- **Purchasing:** While initially the most cost-prohibitive, acquiring machines for repeat use is the ideal scenario for most curatorial practices. Having a collection of mid-range or low-range PCs, while potentially having 2-3 higher-end machines for complex or graphically intensive work is a great start to having a lasting repository. However, there can be additional considerations to make regarding the best devices to buy. MiniPCs are great for low-end options, providing fanless devices which can be easily obfuscated and installed. These are especially great for long-term interactive installations, as many of them have customizable BIOS which will allow them to turn on and off automatically when given power, reducing facilitation time when opening or closing an exhibition. If an interactive art exhibition needs to be modular, portable, and easy to set up, the advantage of having laptops as a mid-range device can be significant, as they can be used as-is, are easily hidden for cable management in long-term installations. Plus, Windows laptops which are a few years old are available for lower prices, often have factory-refurbished models available for even cheaper, and will have more information available regarding longevity and other usage questions. High-end machines will always be expensive, but the best option is often either a small service who custom-builds PCs from parts, or self-modifying a workstation tower, ones that are either designed for gaming or video-editing. If storage and/or presentation within an exhibition space are an issue and a full-sized tower is unwieldy, smaller-scale “gaming” MiniPCs will often have enough performance for game exhibition, but can significantly increase in price when additional power is needed, and are more difficult to repair/modify/upgrade than a more traditional tower PC.
- **Rental:** There are a variety of companies worldwide who can rent and ship computers and mobile devices to even more rural locations. Rental gives you the benefit of having machines with similar operating systems and updates, making pre-installation computer setup easy. Many of these businesses usually cater to either temporary offices or conventions, making pricing for short-term events or longer installations available. However, these services can be quite cost prohibitive, and consume a significant amount of an event’s budget, especially if non-profit discounts are not available. However, for shows showing older games, there may be a computer recycling business or non-profit (such as FreeGeek in the United States), who offer short-term rentals of machines for free or low cost.
- **Donation/In-Kind Partnership:** A creative way to source devices can be from collaborating with sponsors or partners. Especially for smaller organizations doing shorter-term exhibitions, other local businesses such as cybercafes, universities, or offices may be interested in providing equipment to sponsor an event when they are financially unavailable to do so. Local game studios, media production companies, or entertainment venues might have higher-end machines that would otherwise be cost-prohibitive, while being mutually beneficial to promote their business (via signage or in-person presence). Sometimes community members or institutions are happy to donate machines when they are upgrading, provided you can come pick them up. Putting out the word that you take donations can lead to opportunistic scores

over time.

In terms of accessories, always seek the simplest version of the device needed. For example, wireless gamepad controllers, keyboards, and mice not only increase the chance of theft, but also need to be charged and synced, which increases the need for facilitation. Purchasing cables online via a wholesale retailer is always a sound investment, as having a repository of power, display, audio, and input cabling is easy to store, and difficult to damage. Over-the-ear headphones are similarly beneficial to handle audio bleed between interactive stations and can be sourced cheaply. For displays, mid-scale TVs within the 32" range are affordable for new purchases, but are often available second-hand online, via community marketplaces, or in thrift stores. While projectors can be cost prohibitive, they are easily storable, and are an easy way to create large-scale displays. Projector rental however, can be relatively cost-effective based on the region, as their smaller size make them much easier to ship, and higher-end ones can often be rented for far below the cost of the device if purchasing them is not a possibility.

Layout

Layout considerations can vary based on the type of event, how communal the space is meant to be, and the aesthetic of the presentation. But overall, the absolute most important considerations for any public exhibition are addressed below:

- **Player Count:** The number of players who are needed/desired for any given piece of interactive media will have significant influence on the layout of the space, but also can be used as visual highlights of the presentation of an exhibition. Taking any piece where four or more players may be playing at one time and laying them out first will give an ideal start to how a space can be laid out, given these game stations will affect the other categories below most. High player-count games will need extra room, 3 square feet per player is ideal, though is definitely not always available. The multiplayer aspect can also make headphones an unwieldy option, as additional cables can tangle and be messy, hinder communication between groups playing together, and be unappealing to those less familiar with games and interactive art. Therefore, these games will often be auditory "hot spots" due to their need for speakers, which is further explained below. However, putting these larger scale games on projectors or larger displays can make them visual "twinkies" (high visibility icons and attractions which can draw people to a certain space), which can help theme and separate areas of the exhibition.
- **Audio:** Audio is the most important overall consideration when planning an interactive arts space. Without resources to fully control the auditory ambience of a space (via sound-isolating speaker domes or high-end headphones), consideration must be made on how two curated pieces may compliment/conflict with each other. Games that prefer speakers may be ones with high player counts, or ambient music that compliments a space. Overall, it is ideal to only have one game with audible music be on speakers in an enclosed area, high-energy spaces may want a game that has engaging music, or lower-energy spaces may want an ambient score of relaxing sound effects. Any games with repetitive noise or loud audio should be isolated by headphones, for the sake of audio bleed to other game's players, and for anybody facilitating the exhibition. While it can take time to ideally place games for ambient noise, the simplest golden rule is to never make anything overly audible that somebody working in the space could not stand hearing for more than 3 hours.
- **Visuals:** Like any art exhibition, the visual presentation of a work within a space will define the aesthetics of any show. Consider the screen space which is ideal to present the work. Games

that require detailed observation should be placed on more intimate displays and in lower-traffic areas. Higher energy or visually powerful games can be great attractors for crowds to certain spaces if on a large screen, or occupying a large space, but may also be distracting if curating a more relaxed setting. Plan for space around high-movement, bright, or graphically intensive work, as those pieces are more likely to draw multiple people to view it at the same time and create traffic roadblocks in a layout. Spacing these experiences out or placing them on the same wall can prevent blockage of a main central path through the area. Also, a consideration of what games are best played sitting down or standing up can help define a space. Games that require a longer period to be involved with can often be combined into a row of tables, as they are easily isolated by more intimate screens and headphones. Shorter term experiences are great for standing presentations, as the audience around a player can easily cycle in and take their turn with the work, as opposed to a sitting station. To help attendants maintain the space and avoid damage to equipment, ensuring there is visual language and space throughout the exhibition where the objects that will be handled by visitors can be safely returned is another important consideration. Hooks, shelves and well-placed podiums can make up their cost quickly by preventing damage to objects like controllers and headphones, and also prevent trip hazards from the cords falling on the floor or extending across pathways. Indicating these areas with, for example, a silhouette of the object or an eye-catching colour is also helpful. If possible, markings on the floor that subtly denote through ways and places to gather and interact with the displays can also help with crowding and maintaining the space.

- **Logistical Concerns:** This includes considerations like furniture, seating, and power. If possible, be aware of the available power in all parts of the space, interactive art equipment can be very power intensive and multiple stations in a single outlet has the capacity to blow a fuse or switch a breaker. Always plan for a continuous pathway around your space, the ideal flow of traffic, and identify potential bottlenecks. Games that could draw crowds or have a high capacity should not be placed on opposite sides of the room, as the resulting crowd can clog a middle space. Make considerations for quieter areas of the space, where those who are overstimulated can relax and decompress. Ensure that additional features of your space (food/drink, conversation areas, seating), don't obstruct game spaces, and areas that may draw queues such as food/drink stations or bathrooms have appropriate space to expand. Creating set spaces for these objects, like adding a table for empty drinks to be taken away from, can help prevent these objects from being left on the floor, or worse, the exhibition objects, and makes the role of attendants easier.

Equipment Prep

If the exhibition space is off-site or temporary use, equipment preparation is best done several days before installation. Pre-load any machines with games and any additional software, (if necessary due to an internet connection or game console) set up parental blockers, set up the machine's startup process to auto-launch the applications necessary, and if necessary, adjust the system BIOS to automatically turn on when power is detected. An application like Restart On Crash for PC can be extremely handy to ensure the game on each device is always running and will relaunch if the application fails. And always create a few USB drives or external HDs containing every application in the show, as something will absolutely go wrong on-site, and internet access can always fail. Concealed reset buttons, in the form of a covered or removed button or key or other peripheral controller that a facilitator or attendant can use can also be an easy way to set games that are stuck in a particular area, frozen or abandoned back to their starting point. An "exhibition mode" which turns off certain features and has a built in reset timer for inactivity or other exhibition specific behaviours is also useful. In this case, devs may already have a build prepared if you ask, or be able

to create a build for you that has these features, given enough advanced notice.

Specific planning for every piece being installed will make it far easier to set-up on the day of. Create a checklist for each piece, including what type of machine it will run on, what display it is using, what cables it needs, what input devices it needs, what additional accessories (alternative controllers, USB hubs, USB extension cables, etc) are necessary. Check each piece when it is installed, and when it is uninstalled, this will greatly reduce the need for additional inventory of equipment after the show. If traveling with your equipment, pack each individual piece in its own box, using plastic containers or bankers' boxes are an affordable solution, this ensures that each game's "station" has exactly what is needed to set up. Larger objects that cannot be pre-packed into separate containers, like full-size towers, TVs, and projectors, should then individually be allocated to each game, and similarly checked out and checked in during the installation/uninstallation process. The two additional items always handy for equipment prep is an installation toolbox, and extra parts. Installation tool boxes should include a basic hardware kit (hammer, pliers, screwdriver, etc), pencils, a level, sharpies, and adhesive hangers, and any additional considerations specific to the exhibition. Cable management can be incredibly difficult for exhibitions, so plan how each piece can be laid out to obfuscate cabling and get access to power. Cable ties and colored masking tape are affordable substitutes for professional cable management enclosures. Extra parts should ideally be an additional 10% of all basic needs for the exhibition. This includes additional computers, cables, controllers, and audio devices. If unavailable, make contingency plans for how to exhibit a specific piece, or how an additional piece of equipment could be sourced in an emergency.

Installation

Installation can be separated into the following steps:

1. Unload: Drop-off of all equipment, either to an off-site location, or any equipment being delivered to the space day-of.
2. Placement: Placement of all gear necessary for each game station in its respective location.
3. Hookup: Routing power to location and plugging in and turning on of all equipment.
4. Station Management: Installing shelving, setting up furniture, and cable management of each piece.
5. Cleanup: Cleaning the space, decorating, adjusting lighting/audio.

When scheduling installation, assume approximately 20 minutes per game "station" for basic hookup and plugging in of the system. Account for additional time including furniture setup, shelving or hardware installation, cable management, and cleanup. The combined time can give a good indication of the potential total hours needed to set up the entire space, which can be then divided by the number of individuals installing the space. Always overestimate, add 5-10% to whatever a realistic amount of time it would take to complete each task. For shows with multiple areas, dividing each zone between installers can help ensure that tasks do not overlap, and people are not waiting on others to finish their duties. Ensure that there's specific duties between all participants, so they know what areas they were responsible for, and what the responsibilities of others are so they know who to go to for specific issues. Otherwise for small-scale shows with a limited number of installers/facilitators it may be better to go on a step-by-step basis rather than per-station. Prioritize getting every game running above all else. Most troubleshooting or overall problems will come from equipment failure or unforeseen complications with software. Additionally, having all games running will help with any last-minute changes needed for lighting/audio/power considerations. Additionally, account for an hour or two of post-installation to walk through the space, adjust how it feels, relax a bit, and enjoy what has been created!

Troubleshooting

Unless there are enough installers for this to be an individual's specific task, or if the issue is a significant emergency, follow through on installing the show before addressing specific troubleshooting issues. This can allow for a prioritization of all additional tasks, a better understanding of available extra/leftover equipment, and can reduce additional trips to purchase/source necessary gear. Prepare for troubleshooting by collecting contact information for participating artists in a single document, maintain your inventory in a spreadsheet, and ensure that you have on-site backups of all applications and software running in the exhibition. When working with a larger installation team, ensure that everybody knows who to talk to about the issue, so that all bugs can be accounted for and delegated amongst the group.

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<https://gameartsinternational.network/gameartscuratorskit/> - **Game Arts Curators Kit**

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Last update: **2021/09/05 13:47**

