

Tips for Producing Interactive Exhibits in the Real World

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TYPES OF EXHIBIT

Exhibits have changed a lot over the years. The community is working to produce a real guide to exhibit types and indicative prices to be published in the next year so watch this space. In the meantime, it may be useful to see Ken's definitions of the different types of display activities:

- 1) HANDS-ON ACTIVITIES : In hands-on activities, the user starts a process but the process is the same each time. From a design point of view, you know how the activity will 'play out' but you allow the user to start, stop or pause it (with possibly some other selections / options). As an oversimplified guide, the input here is usually a button or switch (binary input). These usually fall into two categories:
 - a) HANDS-ON MODEL / EXHIBIT / DEMONSTRATOR : Usually a scale model or reconstruction of something which users can see working. The user may hit a button which sets off a series of actions, controlled by the designer.
Examples: In some heritage sites, this may be a scale model made by a model-maker with perhaps some LEDs to highlight specific details. It could be an automata-type model.
 - b) HANDS-ON SIGNAGE : A graphic or display, perhaps with lighting or sound which is button or sensor triggered.
Examples: A graphic discussing parts of an engine. When the user presses a button next to a paragraph of text, some lights come on showing the user the section they are meant to be looking at and some audio plays above their heads.
- 2) INTERACTIVE EXHIBIT : the classic interactive exhibit - usually a bespoke item where the user can interact and affect the process and the outcome. The outcome may be defined, or it may be open ended but from a design point of view, the user is in control of what happens and the designer must consider every eventuality. This is the most complex option in this list, it requires the most specialist skills, it needs the most time for development and the price will reflect all this.
Examples: The classic exploratorium cookbook style interactive science exhibit.
- 3) MODEL : A straight display model in a case. Easy... (the user can't touch it)

- 4) INFORMATION SOFTWARE : Displayed on a screen, this is very similar to 1a. HANDS-ON SIGNAGE. This may resemble something like a web page. It can still look pretty but the user is really restricted in terms of what they can do. This can be built by a graphic or web designer, there is no game play involved.
Examples: The classic museum 'click to see more of our collection' database driven website showing text and images with some video and audio clips.
- 5) INTERACTIVE SOFTWARE : A software game, probably on a touch screen. This can be developed entirely by a software / game company. There are many platforms for doing this and in some cases this can be cost-effective but must be high enough quality to meet the expectations of users who are accustomed to commercial software.
Examples: Any game you can think of in a museum context..
- 6) HYBRID : A software / hardware hybrid is usually an onscreen game which is interfaced by hardware which the user can touch. In simple cases this is buttons but in more complex cases it's sensors, foot pedals, RFID or even bespoke bits of hardware. This almost certainly requires an exhibit designer because the hardware will need carefully designed. Note that this is a crossover with 2. Interactive exhibit and the price can reflect this.
Examples: Think of the Tesco self-service checkout and how many problems they have. Now do it bespoke, for one client, with a fraction of the budget - there's your classic hybrid interactive.

A final note: there was an old definition for interactives which included LOW TECH or HIGH TECH. It is no longer useful to use these terms because they are misleading nowadays. Twenty years ago, there was a significant cost in developing a 'HIGH TECH' exhibit with electronics but nowadays, an electronic component may be the cheapest part: cheapest to produce, cheapest to prototype and cheapest to replace. Often the most costly area of exhibit design is the purely mechanical LOW TECH exhibit. During design phase, using these terms creates an impression of associated cost (where we like it or not) and so it is not helpful.

CONSTRAINTS

Design needs you to open your mind to ideas and force yourself to consider as many options as possible. However, at some point, you will need to be realistic about your constraints and here are some of the most common ones:

The triangle model and associated constraints.

Most of the design work we do is been against a time-constraint and a budget. The triangle of budget, time and quality says that you can usually have two out of the three desirables:

fast, cheap and high quality. Rarely can you have all three. Therefore, it may be useful to have a ballpark figure for:

- budget to the nearest £2k
- time to the nearest week
- quality: hard on this but worth considering if this is a temp exhibit, a 1 year exhibit or if it should last for more than that. Footfall of the location of the exhibit will also affect this.

Functional Constraints

In addition, there are also constraints provided by materials and techniques. Here are the most important ones in my view:

1. RESET : Any mechanical game needs consideration of the 'reset'. If you want the user experience to be the same each time, you must consider this and be realistic. Will a user reset a puzzle before completing it? There are ways around it.
2. AV : AV is the fall-back for a lot of activities "Oh, it's too hard, we'll just do it digitally".... but with this we need to have quality graphics and design otherwise it will not be appealing and will age quickly. Often this fall back ends up back-firing because it's not done well. You can make a game for £500 but will it be any good?
3. INTERFACE TYPE : consider what interface devices you will use and what information they provide. A switch gives you simple binary information. If you need analogue, you can use a slider or a turny-thing. Think carefully what these mean for your user and what they will think when they see them. Will they know what to do? A lot of this can be tested on paper.
4. LOOSE PIECES : Lots of games involve things that are loose and the inevitable conversation about whether they should be tethered, and will they get stolen? If the game needs loose pieces, you need to make lots of spares - there's no way round this.
5. DWELL TIME : Many activities seem good on paper but when the testing starts, you realise just how little time people will spend with an activity. Assume that they almost have to understand it straight away. Activities which require a user to learn first, are often troublesome.
6. RANDOMNESS and MEMORY: if you need random selection or you need to retain scores etc. then you almost have to have some electronic component (or AV) unless you have some very clever people involved. Think about whether this is necessary - have you got a simple game that is being complicated just to add a scoring system? Are there any other options?
7. ELECTRO-MECH : Provides easy and low-cost ways of solving some of the basic headaches like reset, timing, game-start, randomness, scoring, and sensing of position or completion of tasks.

SOME TIPS

- Don't hide things. If something needs to happen, let it happen and show it.
- Heights and dimensions are important for physical access but also for psychology, the appearance of the exhibit will affect how users feel about the exhibit and also which users think it's 'for them'.
- To be creative you need to allow yourself to get it wrong. Don't be scared of exploring ideas that may not work out.
- People testing things should be fresh to the idea so that we get an honest response
- Most people on the floor in science centres know a lot more about what is needed in the design process than they give themselves credit for. Their knowledge of their own visitors, their own subjects and their own maintenance capabilities is an enormous benefit to the project. I often hear staff saying "I knew this wouldn't work", this feedback should have been captured and fed in during the design process.
- Questions you should ask yourself
 - How does the activity start and finish, how is it presented to the next user? Does the next user start again or continue what I've been doing?
 - How long should someone spend on it?
 - Is it multi-level or multi-user?
 - What does the user get out of the experience? Do they achieve something, work open-ended or do they experience or feel something from using it?
 - What can you do on the exhibit? (its affordances) and how do you know what you can do on it? (signifiers). Is it obvious what to do? Are they occupying brain space just working out what to do? Is this what we want? (In some cases it may be)
 - How many movements / motor actions are required to achieve / complete it and will this limit who uses it?
 - Has it got an element of surprise?
 - How does it appear in attractor mode and what does the user feel / experience at this point?
 - Does it have random elements that are different for each user?
 - Does the size / shape / appearance of it dictate any elements of design and therefore how you can use it and who can use it?