

Science Museum Research Summary: Developing successful mechanical interactives

This summary is based on key findings from a Science Museum Research Report on Launchpad by Sofie Davis. Please contact us on learning@sciencemuseum.org.uk if you would like more details.

What is the definition of a successful interactive?

A successful interactive is one where barriers preventing visitors from engaging have been identified and removed. Barriers can be:

- **Emotional** – visitors are not inspired to use the exhibit, they do not feel confident, delighted, curious or in control.
- **Physical** – visitors are not able to use or understand the exhibit design / interface / controls.
- **Intellectual** – visitors don't understand key messages, or don't feel the exhibit is for them.

Ideally a mechanical exhibit needs to have a clear starting point, so visitors aren't overwhelmed with choices, but develop in an open-ended way allow exploration. The best interactives are simple to use but lead to more complex outcomes.

How can an interactive most effectively engage and motivate visitors?

Each exhibit should do at least one of the following:

- Encourage open-ended exploration where the visitor is in control, can make choices and hypothesise about their own interaction.
- Offer a challenge where visitors are enthused to achieve something (although they tend to think a challenge is a test of their own abilities, e.g. strength).
- Be surprising or counter-intuitive so visitors are intrigued or curious to find out more.
- Be a visually beautiful demonstration of scientific phenomenon.
- Offer a chance to interact and communicate with other visitors.

How can an exhibit indicate how visitors should use it physically, and understand it intellectually?

The physical arrangement of an interactive helps guide visitors in what to do and expect; where to start; where to stand without interfering if they are just watching. Since visitors often behave differently to how you expect, prototyping is the best way to iron out design flaws.

Clear exhibit titles can give the best clues about what to do or what an exhibit is about. Labels are essential in helping visitors understand what to do – but they could be picture- or video-led instead of text. Key words (start and stop, for example) may be best placed on the exhibit itself. Text can help adults support children's interactions by offering useful vocabulary and ideas for exploring the exhibit, or how it relates to everyday life.

People usually can't follow a long sequence of instructions to get to a result. If the payoff of an interaction is delayed, visitors often think the exhibit is broken. If an exhibit needs a reset mechanism, it's best to make this subtle so that it doesn't become the focus of the interaction.

What about design and accessibility?

Interactive exhibits can look sophisticated while still being robust – and if things look more elegant it can make visitors treat them with greater respect. By making exhibits more accessible to people with different needs (e.g. high visual contrast, easy-to-grasp controls) good general design principles are upheld.

Further resources:

Find out more about how to prototype interactive exhibits using our practical sheet in the *What we've learned* series:

- What we've learned about evaluating prototype exhibits

Read about the kind of science questions children really ask by reading this article by Glenn Murphy, a former Science Museum manager of interactive galleries:

www.guardian.co.uk/education/2009/jun/16/science-lessons-inspiration

Learn more about how visitors really use museums on our training course **Learning in Museums**. Please contact us on learning@sciencemuseum.org.uk for details.