



# Researching TechniQuest

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# our project



- ◆ production and reception of **science** within TechniQuest
- ◆ how TQ creates environments and spaces for **learning**
- ◆ how **children** engage with and receive these environments and spaces
- ◆ the reproduction and performance of science through **exhibits** and **theatre**

# IS NOT A PLACE FOR LOOKING BUT... A PLACE FOR **DOING!**

## EXHIBITION

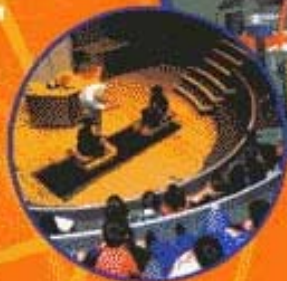
### EXPLORE FOR YOURSELF WHATEVER YOUR AGE OR ABILITY!

Understand science and technology with lots of fun, exciting puzzles and activities.

With over 150 hands-on exhibits to choose from at your own pace:

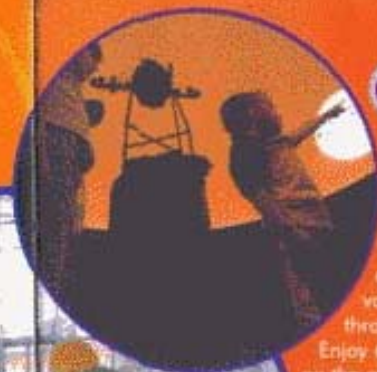
- Fire a rocket
- Test your reaction times
- Forecast the weather
- Build a bridge
- Launch a hot air balloon
- Watch a bubble race
- See ghostly reflections
- Play a giant keyboard

...and much, much more!



## SCIENCE THEATRE

Enjoy a **FREE** entertaining and informative science show at Techniquest every weekend and school holiday. Lively demonstrations, interactive presentations and fun-packed game shows. Lots of audience participation will intrigue and inspire the whole family!



## PLANETARIUM

Experience a cloudless and unpolluted view of the sky at night, as the stars and planets appear before your very eyes. Embark on a voyage of discovery through the solar system.

Enjoy a unique perspective on the mysteries and magnitude of space.

(Please note that the Planetarium is an extremely popular attraction and books up quickly on busy days)

## DISCOVERY ROOM

Investigate the Curiosity Boxes full of fun and factual artefacts, puzzles, games and activities. Focus on different topics from the seashore to stars, and music to magnets. Particularly suitable for supervised children aged 7-11, the Discovery Room also offers a number of "Busy Boxes" for under-5s.



## THE HUB

Don't miss The Hub to find out more about the science behind Techniquest's special events. Engage with the issues of the day through exhibits, multimedia presentations and the Internet.

## MUSIQUEST

Explore the fascinating world of sound. Create your own music with exhibits, shows, workshops and concerts. Watch out for the new Musiquest exhibits coming in 2003. Don't miss the

Musiquest joint celebrations for National Science Week (7-16 March) and National Orchestra Week (8-16 March).



## THE LAB

Visit Techniquest's multi-purpose laboratory for hands-on workshops and activity sessions. See the Special Events diary, telephone Techniquest or visit [www.techniquest.org](http://www.techniquest.org) for more information. The Lab is usually only open to visitors during special events.



## SHOP

Lots of inexpensive gifts, gadgets and pocket-money toys. Educational books, Techniquest souvenirs and merchandise to match the current Science Theatre shows. Also open to shoppers not wishing to visit the main exhibition area.

For a well-deserved break after all the fun, visit the Techniquest Café for a

range of good value food and refreshments, available throughout the day. There is also a well-stocked snack bar for sweets, chocolate and ice cream. A waterfront terrace, with views over Cardiff Bay, is open during the summer months.

## CAFE



# Recruiting & working with TQ



- ◆ Process of securing collaboration with TQ
- ◆ Identifying contacts within TQ
- ◆ Making contact: team's 'presentation of self'
- ◆ Methods for working alongside staff a) observations b) interviews
- ◆ Feeding back to TQ



# issues encountered



- ◆ TQ keen to get involved: research-oriented organisation
- ◆ Need to work with ‘gatekeepers’
- ◆ Need to become aware of tensions in staff-teams (e.g. role-conflicts, knowledge-conflicts, hierarchies, job territories, etc.)
- ◆ Need to negotiate dissemination of ‘critical’ findings



# What we fed back to TQ



- ◆ Our general argument:

*The exhibits hall is best characterised not as a place for learning about science, so much as a space that encourages social interactions of various kinds; these cannot be said to produce the intended learning outcomes if these are defined in cognitive and/or informational terms, although the interactions we observed contained many valuable social dimensions.*



# project findings



- ◆ the memorable exhibits are richly social and experiential, projecting the self into relationships with others
- ◆ the most popular exhibits work on a number of levels (e.g. the mirror maze)
- ◆ children are actively creative in their use of exhibits (and more passive in the theatre)
- ◆ social learning versus scientific learning?



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# Video clip 1

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- ◆ Insert video clips of
- ◆ a) Megan and friends around the train (= designed-in interaction, but restrictive)
- ◆ b) Megan and Chloe on the balancing machine (= not designed-in, but here used creatively as a seesaw – producing insight through interaction)



# exhibits as interaction

- ◆ children use exhibits for *social* interaction  
(exhibits function *as* social interactions)
- ◆ different styles of interaction are promoted by different kinds of exhibit
- ◆ social interaction is not always designed into the exhibits



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## video clips 2

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- ◆ Insert video footage of puzzle-use here – singleton users v. group users.
- ◆ puzzles favour single-user interaction. Group use can engender conflict due to the ‘ownership’ of pieces in competitive social situations (e.g. boys vying for dominant role).



# modes of interaction

- ◆ **two-way individual-exhibit interactions**
  - concentrated style of activity
  - e.g. puzzle-exhibits where used by singleton (+/- helper)
- ◆ **multi-way, duo/group-exhibit interactions**
  - social style of activity
  - e.g. puzzle exhibits where used by 'teams'



## same exhibit...



- ◆ ...different modes of interaction
- ◆ but some exhibits do promote *particular* styles of interaction...



# styles of interaction

- ◆ 1. solving an **enigma**
- ◆ 2. re-presenting the **self**
- ◆ 3. playing a **game** with others
- ◆ 4. producing a **spectacle** with others



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## video clips 3

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- ◆ Video of the enigma exhibits: explicit enigmas: the treasure chest, the gate; implicit enigmas: the satellite dishes and the dragon



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# 1. solving an enigma

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- ◆ pleasure centres on **mystery** and **secret**
- ◆ solving the mystery **divides users** into novices and initiates
- ◆ in solving the secret, the mystery **dissipates**



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## video clips 4

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- ◆ Insert video clips of the shadows exhibit, the voice distorters, the blanket+fishes, the mirror-maze
- ◆ Showing children gaining pleasure from seeing the self distorted



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## 2. re-presenting the self

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- ◆ pleasure lies in witnessing a transformed version of oneself in the frame of action
- ◆ transformation-oriented exhibits allow a glimpse of the self as alien
- ◆ users become each other's audience



## video clips 5

- ◆ clips of the orbiting balls
- ◆ Shows children making up rules for their own game and completely transforming the exhibit in the process



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## 3. playing a game with others

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- ◆ pleasure lies in **devising a game** that fits the exhibit
- ◆ children make up **their own** rules
- ◆ **conflict** can easily occur



## video clips 6

- ◆ Insert video clip of Liam and friends at the tornado
- ◆ Could also be the hot-air balloon; the bubbles; some of the water exhibits



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## 4. producing a spectacle with others

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- ◆ pleasure lies in the experience of producing ‘magical’ effects
- ◆ children **co-operate** to produce a spectacle they can all share in marvelling at
- ◆ may often include an element of **competition**



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# Video clips 7

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Insert clips of children talking about TQ as

- ◆ a) TQ and toys
- ◆ b) the theatre as like school
- ◆ c) what is and what isn't science – esp. the stuff about science as drawing
- ◆ d) pushes and pulls



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# science? what science?

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- ◆ children see the **exhibits** as **toys**
- ◆ they see the **theatre** as more like **school**
- ◆ they connect TQ with science but **define science in their own way**



# conclusions

- ◆ Reflections on the collaborative research process: risks and benefits
- ◆ New directions for future collaborations