User interaction around public interactive digital displays

5 opportunities for haptic innovation

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Starting off with a very simple case...

...illustrating *user activity around an interactive kiosk*

→ deploying early computer vision, body and hand-gesture recognition
Context and interaction

WaveWindow
Come closer to find out more!

My Neighbour Totoro

Knock here to continue
Knock hard!
1. Leveraging expressive gestures

• Issue: performance anxiety and social inhibition as highly visible actions *may* discourage use

• BUT turns the interaction into a public performance

→ interaction becomes an explicitly social event, building *curiosity* and *interest*
  • “Go on mum, you try it...”
  • Watching others was often a precursor to use: the ‘honeypot effect’

• Making actions and outcomes *observable* supports
  1. vicarious learning
  2. the ability to undertake *collaborative* sequential interactions
  3. bystanders offering suggestions
2. Designing collaborative solutions

• “I think you’re meant to wave up here”
• People encourage each other
  • “very few persons who are alone interact” (Mueller et al, 2012)
• Children and teenagers often initiated interactions that parents prolonged and encouraged

→ Allowing people to interact together is valuable
  • Design for collaborative achievement (landscape not portrait?)
  • Turn-based systems, over different parts of a display
  • Perhaps, haptic effects on different areas of the display
3. Competitiveness: difficulty, sociality, and challenges

• Queuing, to take over within an interaction ... and ...

• Turn-taking: sequential operation, usually in groups
  • “you’re rubbish”... “Let me have a go” - banter

• Insight: competitiveness = more interaction, content engagement

→ Counterintuitive interaction design solution:

• Make users work harder to achieve their goals
  • Break usability guidelines ‘easy to use’, ‘quick and simple achievement of goals’ (particularly in walk-up systems)
  • Haptic feedback as a reward? Figuring out purpose of haptics?
4. Social translucence – visible haptics of onlookers

• Interactions with sensor–and haptic–technologies can look *weird* or inappropriate to bystanders

→ Displaying content—*audio and visual*—adds *context* to haptic interactions

• Users *and* bystanders can interpret events in the interaction space
• They make the performance meaningful!
• Questions: Visibility, Awareness and Accountability?
5. Interaction for the sake of interaction

- Public places: Boredom. Killing time
- Kids: boredom++, can be very enthusiastic
- Display interactions involving children are more frequent, longer, and more engaged
  - They encourage, stimulate and ‘warrant’ adult interaction

→ Design for ‘look-show-try’ child-adult interaction dyads
→ Consider exploration, unpredictability, curiosity and ambiguity in haptic interactions
  - rather than just linear tasks, operations, goals & feedback