

Touch based interaction with digital interfaces

Carey Jewitt



Leading education
and social research
Institute of Education
University of London

NiCRM
National Centre for
Research Methods



 **londonknowledgelab**
exploring the future of learning with digital technologies

Overview

- Why look at touch? And why now?
- How multimodality can help analyze touch
- Touch as an emerging mode
- Closing comments

Why look at touch?

‘Touch lies at the heart of our experiences of ourselves and the world yet it often remains unspoken and, even more so, un-historicized’

Constance Classen (2012) *The Deepest Sense*’

‘Touch, like many aspects of our conscious lives, is a messy, complicated and multi-dimensional.. it involves our entire body and offers awareness of a range of distinct and important features of the world’

Mathew Fulkerson (2014) *The first sense*

Why look at touch now?



MODE multimodal methodologies
FOR RESEARCHING DIGITAL DATA AND ENVIRONMENTS

Multimodality and analyzing touch: MODE papers

- **Touch Types & Metafunctions**
 - Touch : A resource for making meaning Jeff Bezemer and Gunther Kress
- **Sign maker's experiences of Touch**
 - Touching the virtual, touching the real: iPads and enabling literacy for students experiencing disability (Flewitt, Kucirkova and Messer)
- **Semiotic resources of Touch & affordances**
 - The role of touch in preschool children's learning using iPad versus paper interaction (Lucrezia Crescenzi, Carey Jewitt and Sara Price)
- **Touch Trajectories & multimodal orchestration**
 - Digital Museum Visitor (Jewitt, Price, Moussari, Vomvyla)

Touch: A resource for making meaning

Jeff Bezemer and Gunther Kress

- **Types of touch:** Implicit touch, Explicit touch, exhibiting touch, describing touch
- **Materiality:** How is *material* drawn into *semiosis*
- **Framing:** How is the meaning potential of touch shaped by the cultural and social environment
- **Technology:** The reconfiguring (distancing) effects of technology
- **Boundaries:** strict or blurry – in the border lands between modes





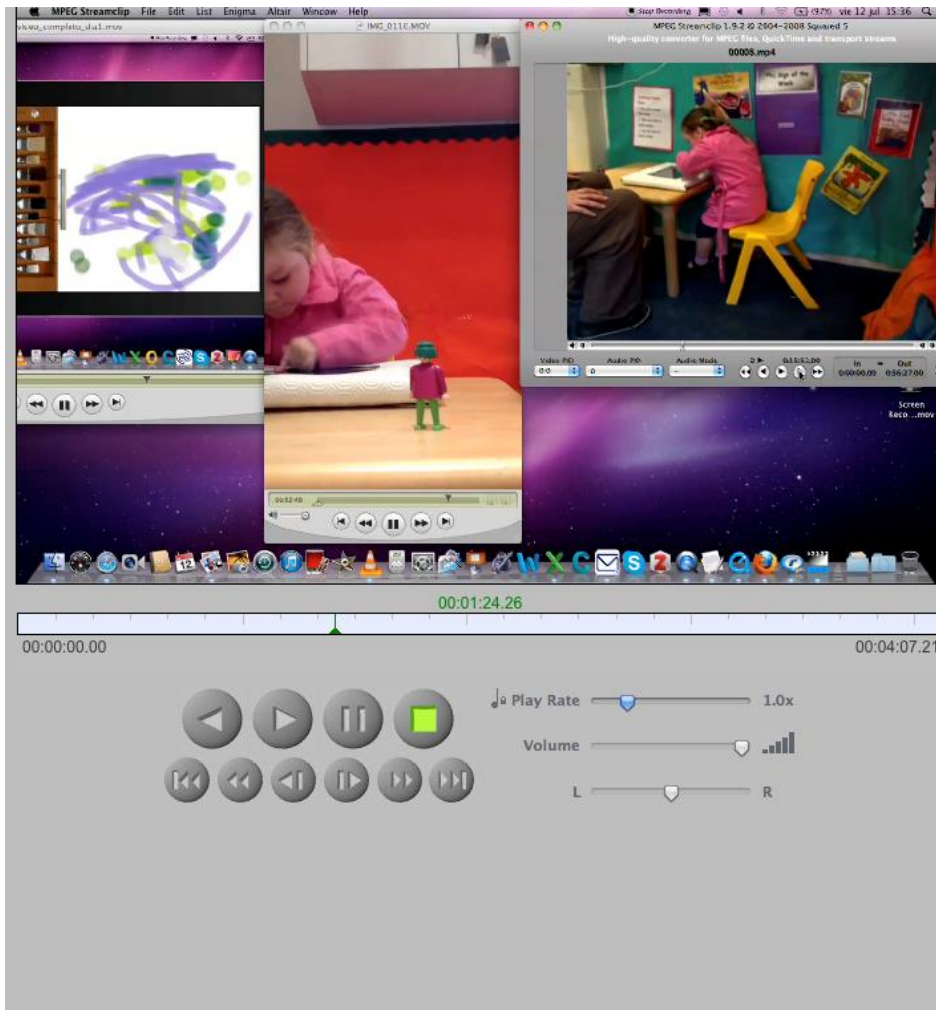
Touching the virtual, touching the real: iPads and students experiencing disability (Flewitt, Kucirkova and Messer)

The role of touch - iPad versus paper

(Lucrezia Crescenzi, Carey Jewitt and Sara Price)



- **Hand/fingers used**
Hand: None/ note IF used – one/ two
Finger: single – note if NOT index: multiple – how many
- **Type of touch**
Tap: A short touch of the surface
Press: A firm push on the surface, a longer tap
Straight stroke: When a finger is held on and moved across the surface to make a line mark
Circular stroke: When a finger is held on and moved in a circular fashion across the surface
Scratch: Use of nail or tip of finger to make a scratching movement
- **Quality of touch**
Direction: top to bottom/bottom to top/ left to right/right to left/
'Scale/size': tiny (size tip finger)/small (2 – 4 cm)/ large over 4 cm
Speed of touch: noted if SLOW or FAST
Duration: short, long
Pressure: hard, soft
- **Sequencing/configuration**
Amount: once, repeated x n,
Continuous Touch sequence: More than one touch linked together with another in a sequence of movements in which the finger/hand stays on the paper/screen; Noted if continuous touch involved making marks that got bigger/ smaller



Researcher name: Carey
 Child name: Sara
 Ipad/paper: ipad
 Cat/White:
 Duration of interaction:
 Overview notes: (i.e. Body posture : standing, sitting, kneeling, Gaze position - anything re set up important to note)

Blank- painting - [00:00:23.04] to [00:01:39.12]
 sitting down looking intently at screen (note facial expression similar to finger painting, as in intent and focused on paper but not same amount of smiling and interaction with the RA, no looking at hands etc
 [00:00:23.04] tap-left middle finger - (in colour? green)[00:00:24.18] nothing appears on screen withdraws hand to side, leans forward
 [00:00:26.16] Tap-two fingers - index and middle x 7[00:00:29.11]
 [00:00:31.10] Tap - middle finger x12[00:00:35.22]
 [00:00:36.16] Stroke - index finger - upwards short[00:00:36.24]
 [00:00:38.10] Tap - index finger x 16[00:00:46.04] (holds hand very vertical and springs up and down - strong fast rhythm)
 [00:00:46.12] press - long - (changing colour - blue) [00:00:47.08]
 [00:00:47.14] Tap- short x10
 [00:00:55.12] Press - hard (changing colour - lavender, Tap x 5[00:00:59.02]
 [00:01:00.08] CT - Tap - stroke - short x2 - Tap - stroke, two fingers (index and middle), downwards[00:01:02.26]
 [00:01:03.16] CT- Stroke, circular (index finger)x 2 - stroke, horizontal x4[00:01:06.04]
 [00:01:06.06] CT - stroke downward - stroke R-Left - stroke L to R (to form triangle) - stroke Left to right then up and down x 3 FAST [00:01:08.22]
 [00:01:09.06] Tap x 12 fast [00:01:13.14]
 [00:01:13.16] press - whole hand/left light [00:01:13.20]
 [00:01:14.07] sits back smiles at RA puts hand by side of ipad
 [00:01:20.12] Tap - x7 - (paint palette changing colour to pale gray[00:01:22.20]
 [00:01:23.00] Tap x4 - fast and hard [00:01:24.02]
 [00:01:24.04] Scratch - (BODY posture change - leans in near to iPad) - Tap x 7 very fast [00:01:26.10] sits back at little aises hand high above head
 [00:01:27.15] Tap - x 4 index finger [00:01:28.14] hovers hand above ipad - finger still pointed out looks at RA - she trying to change colour - RA taps the palette feature
 [00:01:31.16] Tapx 4 (changes colour - black) [00:01:34.12]
 [00:01:34.20] CT - Tap - stroke (almost a flick) fast, very short index finger x12 - Press [00:01:39.12] sits back - passes iPad to RA

Does not clap, not so many smiles as re with paper (does the lack of a material object to show and keep matter here?)

cat [00:01:54.20] index finger pointed out

[00:01:56.24] Tap x 3 (in paint pot) index finger held out [00:01:57.22]
 [00:01:58.02] CT fast - Tap x 3 - stroke short downward x14- [00:02:02.07] tap x2- stroke 12
 [00:02:08.14] stroke downward (light flick barely touching screen)x6 [00:02:10.26]
 [00:02:11.01] stroke downwardx2[00:02:11.24]
 [00:02:12.02] Tap - paint pots - (changing colour - yellow)[00:02:12.28]
 [00:02:13.08] CT - Stroke x 4 short - tap x 5 [00:02:13.08]
 [00:02:16.10] stroke short light downward x 4 two middle fingers, last stroke does not make contact with the iPad surface[00:02:17.14]
 [00:02:17.26] tap fast x 17[00:02:24.08]
 [00:02:25.02] tap x 3 (in palate changing colour - did not manage to change colour) [00:02:25.28]
 [00:02:26.08] Tap x9 [00:02:29.02]
 [00:02:30.16] Tap x2 (palate changing colour - green) [00:02:30.24]
 [00:02:31.08] Stroke down ward x 12 [00:02:35.26]
 [00:02:37.08] TAP x 5 with right thumb (HAND SWITCH - changing colour - orange) [00:02:39.06]
 [00:02:39.16] Press - thumb x 15 [00:02:45.00]
 [00:02:45.22] Tap - thumb x 18 (in palette - changing colour to black) [00:02:53.14]
 [00:02:53.28] Tap - tumb x 8 [00:02:57.06] sits back - holds sides of iPad and looks at RA who looking else where

IPad: Touch - gains and losses

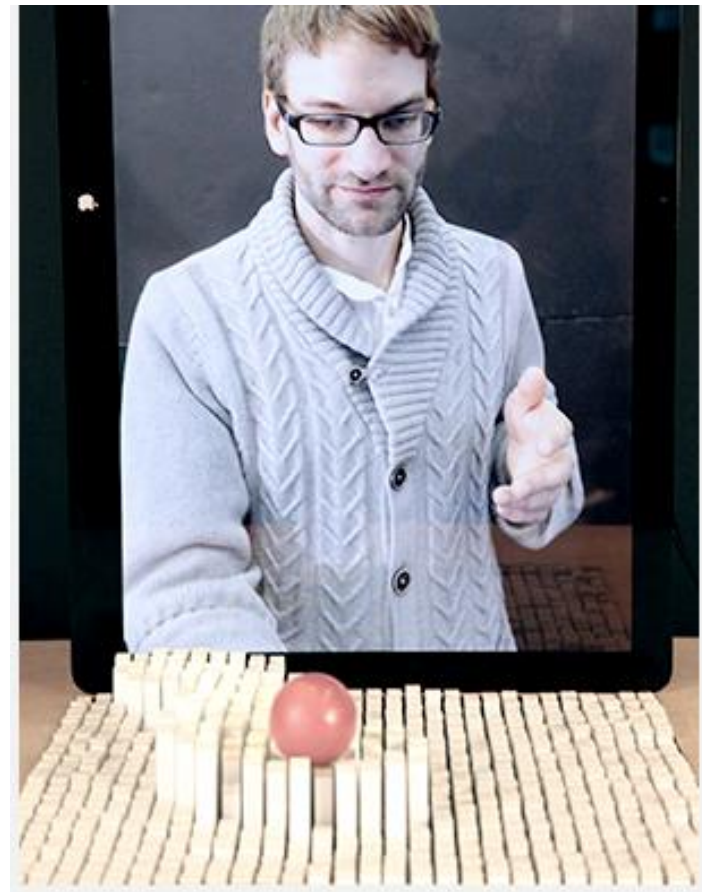
Gains

- Affording the use of a wider range of touch
- More prominent use of touch and more touches in period time – ‘faster’
- More continuous touch
- Multimodal ‘flow’
- Longer sequences of interaction
- More complex sequences/repertoires of touch

Losses

- Restricts the quantity and range of fingers used
- Loss of several sensory features of touch, the haptic and tactile, textural - experience of paint –
- Restricts the qualities of touch used (i.e. differences in pressure)
- Loss of periods of reflection by removing the rhythm of movement from the paper to the paint-palette that create moments of distance and objectification

Touch as an emerging mode



MODE multimodal methodologies
FOR RESEARCHING DIGITAL DATA AND ENVIRONMENTS

Closing comments: moving forward

- Social insights into how touch operates
- Exploring and extending notions of communication
- Developing a language of description for touch
- Contributing to multimodal theorizing of modes, materiality, and the senses
- Contributing to touch based digital design

MODE: MULTIMODAL METHODOLOGIES

for Researching Digital Data and Environments



[home](#) / [about us](#) / [people](#) / [publications](#) / [blogs](#) / [training and events](#)

TRAINING, SEMINARS, WORKSHOPS

Browse our [programme](#) of events on how to do multimodal research and analyse digital data.

RESOURCES

Find quick guides, take-home materials, glossaries, and other learning and teaching [resources](#) on multimodality, including podcasts, videos and texts.

RESEARCH PROJECTS

Find out more about our [research projects](#) on digital technology, learning, embodiment, moving image and social media.



recent articles

Multimodal theories and methods



MIDAS: METHODOLOGICAL INNOVATION IN DIGITAL ARTS AND SOCIAL SCIENCES

Digital Technology and Embodiment



Search ...



Resources ▶

Case studies

Find out more about our **case studies** on methodological approaches to embodiment in digital arts and the social sciences.

Themes

Discover our highlighted **themes** in digital arts and social science focusing on innovative methods for researching the body/physical-digital

Resources

Browse learning and teaching **resources** on embodiment

<http://mode.ioe.ac.uk>

<http://midas.ioe.ac.uk>



@MODE_ncrm



@MIDAS_LKL