
hipDisk: Experiencing the Value of Ungainly, Embodied, Performative, Fun

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Abstract

hipDisk is a wearable interface that extends the hips and torso horizontally to give the moving body musical capabilities. The device prompts wearers to move in strange ways, bypassing norms of self-constraint, to actuate sound. The result is sonically and physically ungainly, yet strangely compelling, and often prompts spontaneous laughter. *hipDisk* emerged from an embodied, performative research approach. It began as a single user device, and evolved to support social interaction and co-creation, as well as creatively engaged, embodied discovery and learning. Using, and also observing *hipDisk* in use, affords insight into how ungainly, embodied, performative fun may be a powerful vehicle for embodied knowledge generation and learning.

Keywords

Wearable technologies; embodied engagement; performative research; awkwardness; poetics; play; learning.

ACM Classification Keywords

H.5.2 [Information Interfaces and Presentation]: User Interfaces - Interaction Styles, Theory and Methods, User-centered Design

General Terms

Design, Human Factors

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figure 1. First-time wearers of *hipDisk* experiment and play

Introduction

Movement is at the core of life. We come into the world moving. Yet it is difficult to articulate the affective experience of the body in motion [6]. Contemporary society privileges intellectual approaches to knowledge acquisition and sharing, and tends to posit the body as a complex machine rather than a rich resource for intuitive knowledge generation. *hipDisk* demonstrates that bringing focus to the aesthetics of embodied engagement results in heightened attention and shifts people's capacity to think, learn and play [10].

hipDisk places the body at the epicenter of experience, in accord with Levisohn's argument that the body should be an integral element of interactive systems [3]. It provides an unexpected framework for embodied learning, through strangely compelling, kinaesthetic-poetic experiences [10,11]. The device requires intense physical engagement, and results in total immersion in the act of playing. Participants don't censure their physical expression as they necessarily focus on hitting the notes. *hipDisk* thus brings people, experientially, through sound, into the rich (if ungainly) centrality of embodied experience.

The device

hipDisk consists of two disks that extend the body horizontally, above and below the waist. The disks include a simple, electronic circuit and integrated speakers. Soft switches strategically placed around the perimeter of each disk allow the wearer to play a one-octave chromatic, pentatonic, major or minor scale, by bending their body to make the disks touch. Moving thus allows them to play simple melodies, one ungainly note at a time.

The sonic output of *hipDisk* is unrefined, electronically primitive, harsh, reedy and simplistic. The device demands an inordinate amount of effort to play, yet results in comparatively feeble sound output. The inherent contradiction seems to be both humorous and engaging. This humour is further augmented by the lack of restraint shown by the wearer as they, seemingly willingly, put their body into bizarre positions in order to hit different notes. All of these elements, in combination, make even stranger that which they already, individually, render strange.

Motivation and Evolution

hipDisk was designed to inspire people to explore and extend the range of movement they have at the hips, through a simultaneous, interdependent exploration of sound. The objective was to move beyond limb and digit-triggered switches and explore core- or full-body movement for actuation. The resulting body-instrument requires intense physical engagement as it interconnects choreography and composition in a fundamental way. (Fig.1)

From solo to ensemble...

A single *hipDisk*-ed participant plays one note at a time. An ensemble of participants collectively may play chord structures, harmonize, provide counterpoint, and play a range of notes in rapid succession – so create rhythmically and sonically more complex works. An ensemble is also better placed to explore the choreographic potential of the device. A group of professional performers with a range of musical and movement skills attempted to learn *The Girl From Ipanema*¹, but failed miserably despite extensive rehearsals [10]. Their process led to insights about the interface as a tool for embodied discovery. Presentation of these outcomes brought to light that the humanity of the struggle of people playing *hipDisk* is as compelling as it is ungainly and difficult, and is perhaps more interesting than any performative outcome that may result from mastery [9,10]. The response to *hipDisk*, even when presented as a failed experiment, has been consistently positive, and many people express a desire to try it for themselves. This led to the work being reframed for open participation.

¹ by Antonio Carlos Jobim.

Discussion and Conclusions

hipDisk brings attention to the body in unusual ways. The device defamiliarises, or renders the body strange, allowing it to be seen, experienced, and imagined anew [7]. Cognitive and kinaesthetic load are coupled. The body is engaged through creative discovery, and the imagination through embodied discovery. Through its multi-layered structure, *hipDisk* supports deeply reflective, playful and ambiguous experiences.

Gaver et al speak of ambiguity leaving space for meaning-making [1]. *hipDisk* and related works [12] enhance engagement not only in cultural contexts such as performance and culturally framed play, but show potential for enhanced engagement in more pragmatic contexts, such as rehabilitation, disability and learning, where opportunities for investing movements with meaning are highly welcome, as are opportunities for embodied learning (Lovitt, Monash Medical Centre, Melbourne, personal correspondence, June-July, 2011).

Qualities of attention impact our ability to learn new things. As we learn we not only increase what we know, but we increase our brain's capacity to learn [5]. Similarly, embodied engagement results in residual spin-off of sensations [6], and the qualities of attention generated through imaginative, expressive, artistically engaged kinaesthetic discovery seem to support residual spin-off of creative thinking [12].

hipDisk is an unusual activity, without common points of reference or precedence. The intense physical effort required to play it reminds us of Mueller et al.'s exertion interfaces [4], though *hipDisk* is concerned with playful exploration rather than competitive sport-related activities. The non-competitive nature of the

device supports open, free-form, creative engagement and allows wearers to find personal strengths, identify difficulties and design idiosyncratic approaches to learning and discovery. Playing *hipDisk* generates much laughter and smiling on the part of wearers and observers [8]. The ungainly nature of the experience encourages camaraderie, interpersonal engagement, social interaction. It also democratizes engagement as no-one is afraid of looking silly – because everybody looks silly and seems to be having fun.

The broad range of spin-off benefits that have been attributed to *hipDisk* suggest value in further research into awkwardness, in playful as well as pragmatic contexts. The motivation for presenting this work at CHI as a participatory demo is to give other HCI researchers access to the embodied knowledge generation that is afforded by the ungainly, embodied, performative fun that this device, and research approach affords.

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References

- [1] Gaver, W., Beaver, J., Benford, S. Ambiguity as a Resource for Design. Proc. CHI, ACM Press 2003
- [2] Heidegger, M. Being and Time, trans. Macquarrie, J., Robinson, E. New York: Harper & Row, 1962.
- [3] Levisohn, A. The Body as a Medium: Reassessing the Role of Kinesthetic Awareness in Interactive Applications. Proc. MM, ACM Press 2007.
- [4] Mueller, F., Agamanolis, S., Picard, R. Exertion interfaces: sports over a distance for social bonding and fun. Proc. SIGCHI, ACM Press 2003.
- [5] Merzenich, M.M., Cortical plasticity contributing to childhood development. In McClelland, J.L., Siegler, R.S., eds. *Mechanisms of cognitive development; Behavioral and neural perspectives*. (2001), 68. Mahwah, NJ: Lawrence Erlbaum Associates.
- [6] Sheets-Johnstone, M. *Why is Movement Therapeutic?* Keynote Address, 44th American Dance Therapy Association Conference, Portland, OR, 1. 2009
- [7] Shklovsky, Viktor. Art as Technique. In *Russian Formalist Criticism: Four Essays*. Translated by L. Lemon, L., Reis, M. Lincoln: University of Nebraska Press, 1965 (1917).
- [8] Wilde, D. hipDisk: using sound to encourage physical extension, exploring humour in interface design. IJPADM, 4(1), 7-26 Intellect 2008
- [9] Wilde, D. hipDisk: Understanding the value of Ungainly, Embodied, Performative, Fun. Proc. CHI EA 2012, ACM Press.
- [10] Wilde, The Hipdiskettes : Learning (through) Wearables. Proc. OZCHI 08, ACM Press 2008.
- [11] Wilde, D. Swing That Thing : moving to move. The poetics of embodied engagement. PhD Diss., Monash University, Melbourne Australia with CSIRO, Australia (2011). See also <http://www.daniellewilde.com>