Research in Brief

Multiplication and Division:
Embodied Action in Digital Space-Time

Danielle Stock
University of Waterloo

ABSTRACT The interaction between corporeality and information in the context of the digital interface is, as Anna Munster (2006) notes, characterized by the distinctly spatio-temporal processes of both “multiplication (doubling) and division (splitting).” In this experience, the body’s “image, sensation, and action” mutate to align with the speeds of the informational universe, translating physical action into digital results and dividing attention between multiple spatio-temporalities. This paper considers such conjunctions and disjunctions within and through the applied media theory project Division Pixel Suppliers created at the University of Waterloo Critical Media Lab, focusing specifically on how embodied action in the digital interface of the arcade-cabinet installation is characterized by a fracturing of space and time that places interactants into a particular relationship with their technical environment.

KEYWORDS Applied media theory; Critical theory; Phenomenology; New media; Cultural studies

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The interaction between corporeality and information in the context of the digital interface is, as Anna Munster (2006) notes, characterized by the distinctly spatio-temporal processes of both “multiplication (doubling) and division (splitting)” (p. 64). In Materializing New Media (2006), Munster argues that these two dynamics are at the root of digital embodiment. In this experience, the body’s “image, sensation, and action” (p. 63) alter and mutate to align with the speeds of the informational universe, translating physical action into digital results and, at the same time, dividing attention between multiple spatio-temporalities (Munster, 2006). In this meeting place of code and matter is the interface, a point of contact or conflict that Munster argues constitutes an important gap between information and corporeality. In what follows, I will explain the ways in which the applied media theory project Division Pixel Suppliers (Stock & Wilcox, 2011) explores the digital interface as a site of multiplication and splitting, confluence and dissonance, conjunction and disjunction. I will focus specifically on how embodied action in the digital field of the installation project is characterized by a fracturing of space and time that places interactants into a particular relationship with their technical environment.

The installation was created for the graduate-level course “Cyberbodies,” offered in winter 2011 by Professor Marcel O’Gorman from the Department of English Language and Literature at the University of Waterloo (UW). The creation of the project followed a methodology that O’Gorman calls “applied media theory,” which focuses on the creation of “objects to think with” that both embody and test theoretical ideas. Initially installed at the UW Critical Media Lab, and subsequently at THEMUSEUM in downtown Kitchener, Ontario, the project Division Pixel Suppliers consists of a video game played on a traditional arcade cabinet, or digital Kunstkabinett, that implements a digital interface and traditional arcade controllers. The game itself fuses the realms of contemporary office work and industrial manufacturing into the space of a “pixel factory” named Division Pixel Suppliers. In this setting, players are “low-level” employees responsible for applying colour to individual “AdverPixels,” which will ostensibly be sold to advertising agencies and graphic design firms. The production setting is modelled after the prototypical factory assembly line. An avatar figure stands facing the conveyer belt, his back to the user, as pixels are channeled down the line from an unknown location. When the pixel stops in front of the user-employee, he or she has six seconds to use designated button combinations to prime and colour the pixel. Any deviations from the required steps will prevent the pixel from being properly generated.

According to the instructions given at the beginning of the game, the user’s goal is to colour, in the given time, enough pixels to fill a four-by-six-inch canvas, with each pixel representing one square inch. The user receives no other instructions regarding what colours to use or specifying any penalties for failing to perform well. The only restrictions are that these pixels should not be used for creative purposes and should never be sent to the printer. The adventurous user discovers that breaking this last “rule” is the only way that he or she will ever see the results of his or her productivity. Selecting “print” at the end of the game generates the output of that round in material form as a four-by-six-inch photo card.
Users were observed participating in the installation scenario at the Critical Media Lab, where it became evident that the user’s act of subverting the provided instructions allowed for new, albeit limited, creative opportunities to emerge, such as mastering colour codes in order to create artistic take-home images. In modelling a particular mode of capitalist production preoccupied with efficiency and mechanization, while incorporating opportunities for creative subversion (however restricted), the artificial, game-like scenario of the digital Kunstkabinett primarily interrogates how technical time can represent a source of alienation and technical immersion can result in a sort of voluntary enslavement to the speeds of information. Despite the appearance of a seamless flow of information between body and machine, the game reveals how interactions with technology are always, at the same time, disjunctive.

In examining the specific nature of player interaction with the digital Kunstkabinett, one can observe how the often alienating experience of engaging with a new interface using specialized tools is nonetheless (often rapidly) incorporated into what theorist Mark Hansen calls the “body schema” (2006, p. 38). In Hansen’s (2006) elaboration of Maurice Merleau-Ponty’s theory of embodiment, the body schema is constituted by “extraintentional operation[s]” (p. 39); it absorbs prosthetic sensory extensions as internal agents of the embodied being, such that it expands or alters the spatial range of the sensorium. In the game, the player’s continuous repetition of movements that correspond to on-screen prompts reflects the increased mechanization of movement and physical moulding that happens as a body familiarizes itself with new technics. This type of interaction reflects Munster’s aforementioned concept of “multiplication,” whereby control of an avatar and the duplication of on-screen patterns forces the body into a “doubling” process (2006, p. 64). The installation seeks to explore, through oversimplification, how any repetitive interaction with a particular interface becomes habituated into an individual’s body schema, as well as to represent the ways in which technics engender a degree of automatism in their users.

Despite the McLuhanesque “massaging” of the body by information systems into particular mimetic actions, the control of an avatar or the duplication of on-screen patterns also represents a displacement in time and space and is characterized by divisions. The process of entering patterns through rapid physical movements, along with the time limit and inability to correct mistakes, reveals the ever-present disjunction between the material body and digital information. The intentionally jarring nature of game play highlights the minimal explanatory value of a concept such as “technological intuition.” By using confusing arrow codes to correspond to colours (rather than, for example, coloured buttons) and lettered buttons that have no obvious connection to their associated commands, the game explores the ways in which technological intuition is essentially the appeal to already-schematized interfacial interactions or pre-established communication systems, as opposed to the implementation of any innate way of using a technology.

As one might imagine from this description of the cognitively dissonant series of demands placed upon users, participants in the Critical Media Lab installation described interaction with the user interface as highly frustrating. With no reference point for the colour codes except the vague memory of a brief tutorial at the beginning of
the game, the user finds his or her way in the game through a process of trial and error that results in a collection of ugly, flawed end products. This intentional effect of the game brings users into awareness of taken-for-granted, perhaps automatized, modes of interaction with technological devices. More importantly, the initial experience of working within the “Division” interface startles users into an awareness of technical time, of the speed at which the interface expects their bodies to engage.

After interacting with the installation, the immediate sense reported by users is that of having sacrificed intention or desire to the demands of informational speed. Even once the speed challenge can be successfully met, the game still works to maintain a sense of spatio-temporal division between the “real” and the digital that users tangibly experience consistently throughout their interaction with the project. The experience of this fracturing is an outcome of, first, the installation’s use of the virtual space of the avatar as a visualizable “division” that positions the player at a remove from the work his or her body is doing; second, the concealment of the canvas from view so that the participant must track his or her progress mentally; and third, the remote positioning of the printer that forces the user to move through physical space in order to obtain the results of digital production. This last element of the game also emphasizes the attentional division central to the digital interface experience, marking a shift to physical space-time from absorption in “a universe constituted out of information” (Munster, 2006, p. 64).

As the game reinforces, despite how “mechanized” user behaviour may become, the interface always represents a disjunction of space and time, no matter how minute, that alters the configuration of the body. Munster (2006) asks us to consider “the intensive changes in speeds of this mass of carbon matter (the body) that come about through an intensified relation with increasing masses of data,” calling our attention to the very spaces within and around our bodies as we engage with technology (p. 62).

In “Technoeology or the Discourse of Speed,” David Wills’ (2005) discussion of the first two volumes of Bernard Stiegler’s *Technics and Time* (1998; 2009) is similarly concerned with this question of technological speed. As Wills suggests, the technical prostheticity that Stiegler identifies as the essential human condition, linked perpetually to temporality and human finitude, places humans in a specific relationship with the concept of speed. Following from Derrida’s concept of *différance*, which denotes “the structure of a coincidence that is also a disjunction—a time that in coming to be falls out of joint” (Wills, 2005, p. 240), in the context of prosthesis,

> speed is less a matter of acceleration than one of transformation. ... Speed reinforces the effect of a displacement in space that takes place in time: the faster it occurs, the shorter the time and the greater the displacement. Speed therefore threatens a rapid displacement into otherness, a *fast-becoming-foreign*. (Wills, 2005, p. 245, emphasis in original)

For the prosthetic being, speed is never simply the possibility of displacement to another temporality, but is always also the potential for mutation—transposition to another state (Wills, 2005).

In the digital *Kunstkabinett*, users can ignore the injunction to work faster; however, in order to fully engage, a certain tempo must be accepted and maintained. In
this context, speed represents the projection of the player’s movement in the physical world through to its doubling or processing in virtual space. Speed is, additionally, the absorption of new prosthetic devices into the body schema over time; the conditioning of neural pathways to respond to stimuli. The demand for speed can be seen as an oppressive quality of the game, since it submits the player to a subjectivizing Taylorist efficiency. In this situation, speed represents a degeneration—a process whereby the individual is alienated from his or her work at an ever-increasing pace.

Conceptually, these oppressive demands reflect the more insidious real-life situation in which we interact and perform on a daily basis. There is, perhaps, a threatening element to the translations represented by the game’s printed artifacts—the threat that the transformation is happening, not only across the interface, but also within the embodied user. As Wills (2005) notes, the injunction for greater speed taps into the threat of mutation inherent in technology. There is a danger in speed; the faster our technologies make us go, the more susceptible we are to becoming transformed by them, “rapid[ly] displac[ed] into otherness” (2005, p. 245).

At the same time, might the player’s freedom to ignore the injunction to work/play at a particular pace without penalty suggest that our enslavement to these temporal demands is, in some ways, a matter of choice? In the context of the game, options for artistic freedom, while available, require a willingness and aptitude to master the system. Attempting to use the “Division” digital production interface to create a desired outcome most often results in a pile of efficiently generated pieces of “art” that are bereft of intention or marked everywhere by mistakes. Their deficiencies signify a lack of time or a confusion of space, or both. They are novel yet meaningless objects that derive from a system of production in which creativity, intentionality, contemplation, and detail “are sacrificed at the altar of speed” (Wills, 2005, p. 238). As the digital Kunstkabinett attempts to demonstrate to users, only by subverting the rules of the technological game or, more accurately, refusing to play by them entirely can humans engage in the useful activity that is definitively useless within the bounds of capitalist production; that transcends the tyranny of efficiency or monetary value; that explores the constitutive spaces of gaps, dissonances, and interfaces, rather than attempting to erase them for the sake of productivity; that is measured and slow; that takes its time.

The applied media theory project Division Pixel Suppliers manifests a notion of “real time” as, nonetheless, marked by a lag: a button push must be processed; embodied action must be translated. The process of digital rendering itself, as it is portrayed in the installation, is constituted by a significant time-space disjunction. The final printed artifact produced by users is not a representation of the real, but instead a digitally manufactured object. It has no original referent, though the pixels themselves can serve as markers that reveal the player’s actions over a continuous period. Indeed, the take-away message of the interactive project is embodied in this take-away artifact—a printed image whose conditions of production are characterized by a disjunction between the real and the virtual. This material object serves as a record of the transformative nature of (digital) embodiment: matter-become-code-become-matter-again.
References