

**Wall-Window-Screen: How the Cell Phone
Mediates a Worldview for Us¹**

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The article proposes to model the phenomenon of the cell phone as a wall-window. This model aims at explicating some of the perceptions and experiences associated with cellular technology. The wall-window model means that the cell phone simultaneously separates the user from the physical surroundings (the wall), and connects the user to a remote space (the window). The remote space may be where the interlocutor resides or where information is stored (e.g. the Internet). Most cell phone usage patterns are modeled as a single dimension according to the level of distraction or attention of the user. In order to accommodate nuanced situations such as augmented reality, I suggest a two-dimensional layout: the wall-window. The wall represents the attention to the immediate physical environment, while the window represents the attention to a remote space. The wall-window model further evolves once a screen is woven into this layout. This addition is easily understood due to the screen's etymology, which is associated with the concepts of shield or barrier. From a technical perspective, the screen has become an integral part of the cell phone. Furthermore, a screen itself is both a wall and a window. Lastly, once a cell phone is supplemented with a screen, it is easier to refer to it as media. And again, media fits into the wall-window model.

Keywords: cell phone, screen, augmented reality, postphenomenology

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Introduction

In my family the cell phone is referred to as a “life support system.” We feel, like many others, that this technology becomes part of our lives while transforming them, and it is difficult for us to imagine our everydayness without it. This transformation has been the subject of numerous sociological studies. In this paper I explore a different perspective on the cell phone phenomenon, the one known as postphenomenology. Postphenomenology is an offshoot of phenomenology. It undertakes the position that technology mediates a worldview for us. By transforming our experience of the world, we in turn become transformed in this process (Ihde, 1990; Verbeek, 2005; Rosenberger, 2008; Ihde 2009). Inspired by Maurice Merleau-Ponty, postphenomenology substitutes embodiment for subjectivity, and enriches the *corps vecu* (the lived body) with the Foucault-ian postmodern socially-disciplined body. This postmodern addendum contributed the *post* prefix in postphenomenology (Ihde, 2003). In this paper I employ the phenomenological method of identifying the historical and cultural variations of a technological phenomenon, in this case, the cell phone, and from them extracting invariants, or essences, which I use here interchangeably.

Essence is a term which . . . sometimes means a general character: that which a number of things have in common. Sometimes it means a universal, in a sense that a certain number of things belong to it, while others do not. And sometimes it means a condition without which a thing would not be what it is. (Ihde, 1986B, p. 39)

For Ihde there is a multiplicity of essences that serve as invariants. The invariants are the common denominators revealed through extraction from the historical variations

(Ihde, 1986A, p. 122). Invariants come in the plural, since they describe the various aspects of the phenomenon under investigation. From a technological point of view, there is more than one way that technology mediates a worldview for us.

In this paper I develop the invariant of wall-window to describe one of the essences of the cell phone. Since invariants can be extracted out of variants, an analysis should be conducted of the cell phone’s development. It is a genealogical analysis, showing how this technology has been perceived differently in various periods of time. The first historical variation centers on voice. The screen of these cell phones required only one line – to present the phone number of an incoming call. The second historical variation concerns text: not only Short Message Service (SMS), but also calendar entries, names in the address book, or short notes. The third historical variation is characterized by multimedia applications, and requires a large screen, such as iPhone. Finally, the fourth historical variation, I claim, relates to a sensory understanding—that is, the cell phone’s ability to sense the environment. It knows where it is via the embedded Global Positioning System (GPS), and it knows how fast it is moving. It also identifies objects via the built-in camera, thereby helping us to translate words, decipher barcodes and identify faces. These functions allow the cell phone to present an augmented reality, as in the case of an application intended for tourists in San Francisco that depicts images of buildings taken by the camera with an overlay showing how they were a hundred years ago.

All four historical variations share a certain set of relations to the world, an arsenal of common interfaces that cell phones of all ages provide us with. One of the invariants that can explain how we interact with the cell phone across these four historical variations is what I call the wall-window model. Although a wall-window may sound at first like an oxymoron, modern architecture supplies us with real

examples of the wall-window. Many buildings nowadays feature screen-walls – transparent floor-to-ceiling walls preventing heat and noise from entering, while letting in daylight and images of the outside world (see Friedberg, 2006, pp. 16-17).

In this paper, I show how the wall-window is an invariant of the cell phone. It is a common denominator of the historical variations of the cell phone. Yet, there are many others which this paper does not address. This invariant of wall-window can be applied for all screens. It is, I argue, not only an invariant of the cell phone but also of media and new media (i.e. media where computers are involved). I will then show that the cell phone and new media conflate and create a “new new” media (where users are involved in the production and selection of media). The technologies of cell phones, screens and (traditional as well as new) media all serve to disassociate (to various extents) humans from their physical environments while linking them as users to another space – be it social, distant or virtual.

Wall-Window

Rich Ling opens his book *New Tech, New Ties: How Mobile Communication Is Reshaping Social Cohesion* (2008) with a story of a plumber who enters Ling’s home to fix a leaking faucet. The plumber is talking on the cell phone, ignoring Ling who is the owner of that home, and starts working without saying anything to Ling. For Ling this anecdote represents the cell phone’s ability to separate the plumber’s immediate environment (a home with a leaking faucet) and the space of his personal connections (the plumber’s friend, colleague or wife). The cell phone enables the plumber to make such a separation and to erect an imaginary yet effective “wall” between him and the surroundings. With the cell phone his attention is split between the here-and-now space of Ling’s home and a not-

here space of personal connections. This space of not-here/not-now is accessible via the cell phone acting as a “window.” The wall-window model exposes how the cell phone simultaneously separates the user from the physical surroundings (the wall) *and* connects the user to a remote space (via the window) where the interlocutor resides. Sometimes earphones that block the auditory inputs from the surroundings concretize the wall. Sometimes the window manifests its visual aspects when we focus on the cell phone’s screen as a visual framing, displaying selected parts of the remote space (see Introna and Ilharco, 2004). Unlike computers and televisions, the cell phone can provide the interlocutor (residing in the other space) with a window to the user’s current physical space, via the cell phone’s built-in camera. Certain actions (such as activating the camera) turn the cell phone into a two-way window, similar to a window in a house, from which people from the outside can look inside into a specific room.

The wall-window model is not reserved for unique situations or extreme characters like Ling’s plumber who is so busy with his cell phone as he enters his client’s home and starts working without even saying hello. The model is relevant for most people in everyday situations, such as commuting on a train, where the cell phone keeps us within a virtual (private) territory while helping us avoid feelings of loneliness or boredom. Being “transported” to a remote space may even turn hazardous, as the case of driving while talking on the cell phone (Rosenberger, forthcoming).

The model also reveals how the cell phone can be used to undermine power relations, as in the case of students in class or workers at call centers sending text messages. Harvey May and Greg Hearn (2005) argue that students and workers are no longer fully subjected to their professor or boss, as they manage to shift part of their attention to another space. The cell phone as wall-window empowers them as it

“weakens the control of formal institutions over their members' behavior” (p. 202).

It should be noted that not every use of the cell phone results in a thick isolating wall. Sadie Plant (2003) characterizes three possible responses to a phone call received in public: the first is flight, in which the user escapes from the surroundings and looks for a quiet spot; the second is suspension, in which the user physically remains where she or he is, but stops paying attention to the surroundings, including a suspension of the activity conducted prior to the call; and lastly persistence, in which the user remains an active participant in and with the surroundings while maintaining the phone call in parallel. The first two responses create walls of various “thicknesses” — that is, isolation from the public. Such isolation is not absolute. Ling’s research suggests that even in these cases the user is still aware of what is going on around him or herself (2004, pp. 135, 137). The third response, “persistence,” is a true effort of the cell phone user to remain part of and participant in the environment. It is an effort because each space requires attention at the expense of the other, resulting in distraction. Ingrid Richardson (2005) explores the Latin origins of the word distraction, *distrahere*, which means pulling in different directions. This etymological analysis confers a positive context to distraction, as the attention is not taken or gone but divided between two (or more) spaces: the here-and-now, and the remote (in space or time). Yet, she notes, we are capable of distinguishing between them, so the spaces do not get mixed up. Such interpretation of distraction presupposes a one-dimensional concept of attention, so the more attention is given to the remote space the less attention is given to the here-and-now, and vice versa.

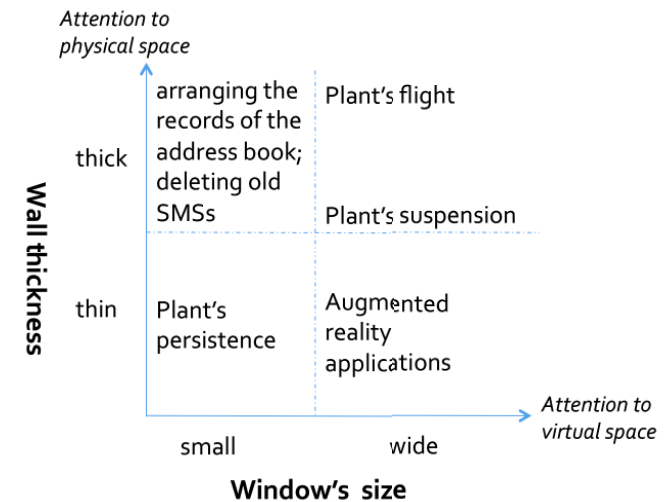


Figure 1: Wall-Window Dimensions

In contrast, the wall–window model is two-dimensional (see figure 1), so that the wall axis represents the attention to the immediate physical environment, while the window axis represents the attention to the remote or virtual space. This double layout accommodates distraction as the size of the window and the thickness of the wall. The smaller the window, the less attention is given to the virtual space; the thinner the wall, the more attention remains in the physical space. As a result, the wall-window model can depict situations where the attention to the immediate is distracted, but not to another space, as in the case of a user arranging the records of the address book or deleting old text messages. These maintenance tasks of the cell phone metaphorically build a wall between the user and the here-and-now, while the window to another space is closed. The model can also accommodate augmented reality (as represented in my fourth historical variation) that enhances the here-and-now with more information. Augmented reality is usually conceived as

an overlay to reality which contains some additional data (e.g., Manovich, 2006). It can be represented on the wall-window axes as a thin transparent wall because the contact with the here-and-now remains tight and active, and also as a window of varying size depending on the amount and type of information presented. The two-dimensional model can also illuminate Plant's third option of persistence (where the user continues to perform the here-and-now activities while talking on the cell phone), modeled as a thin wall with a relatively small window, because the user's attention is equally split between the two spaces. The wall-window model can accommodate situations where people provide attention to two spaces simultaneously, ranging from pilots splitting their attention between the visual stimuli (of the outside world and the instrument panel) and auditory inputs (e.g. air traffic control communications) to teenagers doing homework while the TV is on (see Hayles, 2007; for an opposing approach see Stiegler, 2010).

We should remain aware of the possibility that more axes exist. As Gilles Deleuze and Felix Guattari argue, there can be a thousand plateaus, or axes, to model and describe reality (1987; cf. Friedman 2001). In this paper I concentrate on two axes, the wall and the window, although there are more.

The wall and the window axes are not given but produced by the user and the technology. While the window is "provided" by the cell phone technology, the wall is "constructed" by the user. It is achieved through "a face-and-body that says 'I'm on the phone'" (Richardson, 2010). This body language places a wall between the user and the world, and this wall can be fortified with the assistance of objects like the handset or earphones. Such behavior gave the cell phone its reputation as an "antisocial" instrument.

The wall may be perceived differently by the people around the user, who may feel "colonization," or "invasion" of public space by private communications (Geser, 2004).

While the user feels "at home" in the public space when making a private call "behind the wall," the other inhabitants of that space do not share this feeling. On the contrary, for them the wall may not exist at all. Sometimes it is appropriate for people around the user to exercise "civil inattention" (Haddon, 2004), thereby contributing "a stone in the wall." Yet, from a social point of view, the construction of the wall by the people around the user has more than one meaning, because the body language is not unequivocal. When a user looks for a quiet spot to make a phone call in public, is it considered a display of "courtesy, etiquette and manners" (Ling, 2002), as part of "strategies to minimize disruption to public spaces" (Haddon, 2004), or is it interpreted as a selfish anti-social act intended to gain privacy? My point here is that the wall can be viewed in various forms by the user constructing the wall and by the others outside the wall.

The body language of being-on-the-phone is not limited to voice communication. Richardson (2010) refers to a variety of portable devices, including game console, walkman and iPod. She notes such devices are characterized by "face work" which signals to the surroundings a sense of being-busy. Likewise, the cell phone can be used to avoid feelings of loneliness and boredom, not only when used for voice communication, as represented by the first historical variation, but also when used for gaming and listening to music (second and third historical variation), or adding information (fourth historical variation), thereby turning the world into a more meaningful environment. This extension from voice to gaming, music and augmented reality means that the window invariant does not require a person on the other end; the window can be open to a virtual space of applications, such as games, music, or eBooks, or any hybrid thereof, such as emails, or Facebook mobile applications.

Screen-Wall-Window

Unlike landline telephones, cell phones had a screen from a relatively early stage. As cell phones developed, the screen became a central element. In this section, I examine how the addition of a screen to the cell phone affects the wall-window model. What is a screen? According to Lucas Introna and Fernando Ilharco, the etymology of the word can be traced back to the Middle Ages when it meant a shield or a barrier of some kind (2004, p. 226) in striking resemblance to a wall. Today the word screen has taken on an additional meaning of filtering and even distortion (Friedberg, 2006, p. 17). These separation qualities are shared by the wall, since both the cell-phone-as-a-wall and the screen separate the user from the surroundings. And yet, the screen shows information through a frame, thereby sharing qualities with a window. Within a cell phone, the screen's wall-window traits are more accentuated, because the cell phone itself is a wall-window.

Furthermore, the screen has become an important part of the cell phone. If you think of a cell phone as a telephone with mobility, it is not very clear why a screen is required. The auditory capabilities do not require visual aids. It is "nice to have," but not a "must." Yet the cell phone's screen evolved throughout the four historical variations. Already in the first variation, the simple, single-line LED screen displayed the phone numbers of incoming calls and some form of text (mostly notifications like "new," "total" or "no messages"). In the second historical variation the screen evolved into an alphanumeric display that showed several lines of text in black and white. The third historical variation was characterized by a colorful screen as large as the palm of the hand, presenting multimedia contents. As an owner of an early-model iPhone, I can attest that the voice quality was not as superb as the visual quality of the screen. It was the victory of the visual over the auditory. The fourth historical variation

requires a high-quality screen on which the augmented reality can be displayed.

In parallel with the growing importance of the screen within the cell phone technology, screen size has constantly increased. This increase happened in line with the growth of contemporary televisions and flat-screen displays (Friedberg, 2006, p. 138), and the increasing role of the screen, as reflected in Lev Manovich's term "the society of the screen" (Manovich, 2001, p. 94). The following table shows how cell phone screen resolution and size (in pixels) have grown for Nokia's handsets over fourteen years:

Screen size	84 x 48	96 x 65	96 x 68	128 x 128	128 x 160	208 x 208	240 x 320	320 x 240	352 x 416	360 x 640	640 x 200	640 x 360
1997	4										1	
1998	9										1	
1999	7	1										
2000	5	4									1	
2001	11	3									1	
2002	14	13		3							2	
2003	2	19		14	2							
2004		9		15	6		1				1	
2005		10		9	10	3		3	1		1	
2006			4	2	11	1	6	16	3		1	
2007			3	1	8		10	12				
2008			1		6		17	6		1		
2009			1		4		16	7		3		1
2010			1		4		6	2		2		5

Table 1: Nokia's Popular Screen Resolution and Size (In Pixels) 1997-2010 (2010: partial data; table constructed by the author based on information from Bernatchez (2010) and Manuals Online).

The table depicts cell phone screen sizes (in pixels) by the year of each handset's release. It shows how the screen size and resolution grew from 84 by 48 pixels in 1997 to 640 by 360 pixels and more in 2010. The one exception is the Nokia 9000 series (also known as the "Communicator") that included a relatively large screen of 640 by 200 pixels as early as 1997. By comparison, iPhone's screen size is 320 by 480 pixels (for the first iPhones as of 2007). Although similar in screen size, the Communicator weighed almost 400 grams, while the iPhone weighs less than 140 grams. The Communicator can be regarded as the harbinger of the arrival of larger screens to cell phones. In 1998, a year after the Communicator's launch, industry analyst firm Gartner forecasted "users will demand larger screens to display several lines of data. Current terminals . . . will no longer be acceptable except for users that want a voice-only phone" (Leet 1998, p. 8). Today's screens display not only several lines of data, but also maps, pictures and video. Screens continue to grow in size, culminating today in Apple's iPad, dubbed a "fat iPhone without the phone" (Myslewski, 2010). The iPad looks like an iPhone with a much larger screen, extended beyond the palm of the hand and enlarged to 1024 by 768 pixels (or from 3.5 inches to 9.7). With its 3G support, it blurs the lines between personal computers and cell phones. Yet, the iPad is not a cell phone, and is not intended to replace it. In a way it marks the limits of the cell phone's screen, and draws our attention to the horizon of possibilities for using cell phones as portable computers.

In this context, it becomes evident why the screen of the cell phone has evolved from a single LED line to the size of the palm of the hand. As the screen grows in size and improves in quality (more colors, better resolution), both traits of the wall and the window are radicalized. The potential isolation from the surrounding environment increases, with more sophisticated handsets and earphones, while the plethora of multimedia applications is opening a

wider and richer window. Yet most scholars have referred to the screen as either a wall (e.g. Geser, 2004) or a window (e.g. May and Hearn, 2005).

The window is the popular metaphor for the screen (e.g., Manovich, 2001, pp. 94-115; Richardson, 2010; cf. Friedberg, 2006, pp. 15-18) where the window serves as no more than a word that transforms the meaning of screen. In this context the screen "becomes, like the window, a transformative aperture in architectural space, altering the materiality of our built environment and opening surfaces up to a new kind of conceptual and metaphoric 'ventilation'" (Richardson, 2010). The metaphor of the window is suitable because both window and screen allow us to view the world through a rectangular frame (2010). The limits of the metaphor become clear when we consider the direction of information flow. Most architectural windows allow flows in and out. However, the cell phone screen, in most cases, is a one-way membrane that allows information to flow to the user. The (relatively rare) exception is the use of the cell phone camera (including video conferencing), where the user's image and background surroundings are transmitted to the interlocutor's space. This exception is Paul Virilio's rule, according to which the screen has a potential to become a reverse window, through which we can be watched by others (1994, p. 64).

Anne Friedberg suggests an alternative to the metaphor relations of the screen and window, by construing the screen as a virtual window (2006, pp. 7-12). In her framework, virtuality is a complementary aspect of the real. It is a representation of different materiality and reality, "a second-order materiality" (p. 11). It is a reality located in a different space.² This understanding of virtuality enables Friedberg to argue that the screen has become a substitute for the architectural window, because the ability of the screen to open for us another space is not a mere metaphor, but complements our here-and-now reality. The cell phone

operates as a virtual window because it opens the user to another space which is not material, but is quasi-real. Although Friedberg emphasizes the visual aspect of the screen, the cell phone also includes auditory elements that are interwoven with the visual such as a phone call. This is an expansion of Friedberg's virtual window.

But the virtual window for Friedberg serves to express also opacity, which I describe here as the wall model. As a virtual window, the screen "is reliant not on its transparency but on its opacity" (2006, p. 138). Such opacity is the seed for the "wall" qualities of the screen.

As a wall the screen is not a metaphor, nor virtuality, but an actuality. This is, for example, Virilio's approach: "In a certain sense, the screen became the last wall. No wall out of stone, but of screens showing images. The actual boundary is the screen" (1993, p. 181). Virilio emphasizes the role of the screen in contemporary everydayness, and its function as a tangible wall. It may be a special kind of a wall, but it is still a wall, not a mere metaphor. John Armitage explains that the screen for Virilio is the "last wall" because "the geographical difference between 'here' and 'there' is obliterated" (2000). While the total obliteration of the gap between the here-and-now and the remote space may be in dispute, there is a consensus that this gap is narrowing and that the cell phone and its screen are contributing to this reduction.

The screen becomes a wall not only through its physical attributes, but also through the social context of its use. A phenomenological observation of the screen reveals, according to Introna and Ilharco (2004), the ways in which a screen socially becomes a wall against the environment. The wall comes out as soon as we push the On button. Introna and Ilharco describe TV and computer screens that require the users to "sit down, quit – physically or cognitively – other activities we may have been performing, and watch the screen" (p. 225). This, I think, does not apply any longer to contemporary TV and computer experience. Many of us have

these screens operating in the background, and not always in the foreground. Yet, the cell phone screen does attract our attention even when we walk down the street (Richardson, 2010). It manages to do so because the screen "is the place, location, setting, scene, intentional experience of consciousness in which what is relevant or supposedly relevant for us at that particular time is happening" (Introna and Ilharco, 2004, p. 225).

The wall is built of two ingredients: the user's behavior, experience and habits, and the technological artifact, be it the cell phone and/or the screen. The wall-screen's physical attributes and the space it occupies are less important than the messages displayed on the screen and how fast the message is displayed on it. In this sense "real time has now superseded real space" (Armitage, 2000).

The analogy between a cell phone's screen and a wall is contested by Richardson. She contends (2005) that there is no separation of the user from the here-and-now because the cell phone "is always-already surrounded by other objects and activities within the spatial topography of the built environment." In a single axis landscape the "being surrounded" blocks the possibility of a split between the surrounding and the remote space. The double axis model enables the co-existence of Richardson's conceptualization of "being surrounded" and the ability of the cell phone (and its screen) to transfer parts of our attention to another space. Our engagement with the surroundings is not a constant but more of a vector of "thickness" of the wall. When it is "thin," we experience the environment as inseparable as described by Richardson; when it is "thick," we tend to ignore the surrounding objects and activities.

Richardson further contends that the cell phone does not require long spans of attention, because "our 'turning towards' [the cell phone's screen] is usually momentary (checking for a text or missed call) or at most can be measured in minutes" (2010). This is true for a user immersed

in the surroundings. But the wall-window is not a concrete wall, as it has a social context that gives it flexibility. That is why the wall can last any span of time: a texting student can “return” to class within a few seconds, while a voice conversation or a game can take our attention for more than an hour.

Mobile Media

Is the split of attention unique to cell phones? Are there other technologies that provide this separation of attention between two spaces? Let us look at “naïvely-realistic” technologies like the hammer. Ihde coins the term “naïve realism” to denote the “ordinary experience . . . where things are taken to be what they are seen to be” (1998, p. 178). A hammer is naïvely realistic because holding it implies a functionality that is related to the here-and-now. It mediates the world for us by connecting us to the immediate environment of the workshop. Put differently, we feel “within the world” when doing nailing work in the workshop with a hammer, compared to visitors who enter with bare hands. Like the visitors of the workshop, we feel out-of-context if we walk down the street holding a hammer. At best, it may suggest we are on our way to nail something. The hammer (as a tool for nailing) has strong ties to the space of the workshop, and cannot carry such ties outside. Alternatively, the cell phone disconnects us from the here-and-now, no matter where we are, thereby creating a “wall.” At the same time, it provides a window to an environment that is distant in time and/or place, or virtual altogether. Like Galileo who brought “new perceptions mediated through the telescope” (Ihde, 2002, p. 54), so the cell phone brings to our attention new auditory and visual perceptions.

But isn’t such dislocation of attention characteristic of all media technologies—from the printed book, through radio and television, to video games? When we are immersed in the

plot of a novel most of us are less attentive to the happenings around us; when my children watch television, they don’t hear me, let alone listen to me; and when people play on the Internet or with console games (like the Xbox, Wii or PlayStation) they tend to ignore any interference (see Geser, 2004, pp. 8-9). With such broad understanding of media, there are additional technologies that can be viewed as taking attention to another space – as the example of the telescope shows, or the microscope in the lab (Forss, 2011).

I developed the wall-window invariant to represent the ways in which the cell phone modifies our everyday experience. A second look suggests it may apply to additional technologies, known as media technologies. Another look reveals that may apply even to human interaction. For example, the teacher in the classroom teaching history provides a wall-window for the students. A conversation between friends in a coffee shop produces a wall-window. Even the carpenter using a hammer may be caught in a daydream, transporting him to a virtual space. These are different forms of wall-windows. The dislocation of attention can happen when our imagination works, or when we talk with other people. While imagination and fantasies come and go, sometimes unintentionally, media technologies ensure this “magic” always happens, whether we are alone or in the company of others. All we need to do is operate these technologies correctly, i.e. open a book, turn on the television set, or enter a web site.

Many scholars have referred to the cell phone as media (e.g. Ferraris, 2005; May and Hearn, 2005; Goggin, 2006; Goggin and Hjorth 2009). As media, it is a tool for mass communications in new forms. The resulting mobile media includes a variety of formats: SMS, news, voting in reality shows on TV, and mobile music (Goggin and Hjorth, 2009). The list remains open. Such a broad definition of mobile media shifts the cell phone from its mere use for communication to its use for a wider variety of functions.

While Roger Silverstone and Knut H. Sorensen argue that the addition of the letter “e” as a prefix to words represents the move from information to communication (Silverstone and Sorensen, 2005), I would like to suggest that the pendulum may be moving back to information with the prefix “i” (as in the case of iPhone). Moreover, the “i” prefix has an additional meaning of the first person, usually associated with self-centered activities such as games, navigation, and music.

The cell phone is not just “media” of mass communications (i.e. printing press, radio and television), it is “new media,” of digitized communications and contents, or even better—new “new media.” As such, the cell phone brings new qualities to traditional and new media as it enables communications everywhere and in novel forms and formats. New new media’s ubiquity results in new contents (Featherstone, 2009) that originate from new sources ranging from short text updating on events as they occur (Goggin and Hjorth, 2009) to pictures and videos taken via the cell phone’s built-in camera. In addition, the contents (old and new alike) are consumed differently, shifting structures and categories (Featherstone, 2009), as evidenced by television programs allowing the viewers to text-in their votes, or by new forms of music consumption, to name only two examples (Goggin and Hjorth, 2009).

New media gained its new-ness because of the deep involvement of computers (Manovich, 2001, p. 46). Manovich claims, “the logic of a computer can be expected to significantly influence the traditional cultural logic of media; that is, we may expect that the computer layer will affect the cultural layer” (Manovich, 2001, p. 46). From this perspective, a new trajectory may be revealed (see Figure 2) from reality (of traditional media), through virtual reality (enabled by new media’s computerization), to augmented reality (which is the result of mobile media, as I claim for the fourth historical variation). It is a reality that interacts with

the user, and where the user’s action may have performative results in the real world.

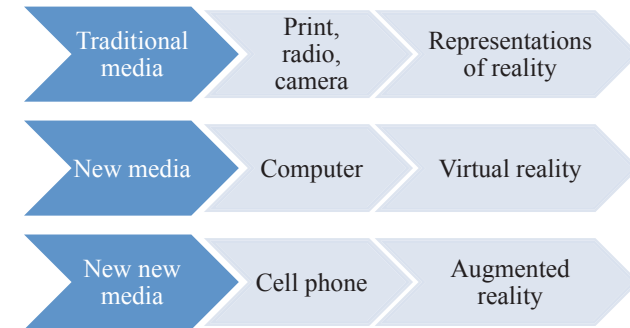


Figure 2 Media, New Media, "New New" Media

The common denominator of media technologies – whether traditional, new or “new new” – is their capacity to dislocate our attention to other places (remote in place, time or imaginary), while our physical body remains in full engagement with the surroundings. All media technologies correspond to the wall-window invariant.

The wall-window model expounds how the cell phone and media technologies “redirect” some senses, thereby mediating a different world for us. This experience corresponds to Ihde calls “quasi-illusion” that is “subduing the other sensory dimensions” (Ihde, 2002, p. 38). I suggest here that quasi-illusion is not limited to state-of-the-art virtual reality or complex scientific machinery, as originally intended by Ihde, but can be extended to everyday situations, where media is involved. The cell phone and media technologies ensure the emergence of the wall and the window. With the screen embedded into the cell phone, the displacement can be not only auditory but also visual, impacting our very embodiment.

Embodiment

Inspired by Merleau-Ponty's phenomenology, postphenomenology views the human use of technology not as a relation between a detached Cartesian ego and an object, but rather as the integration of the tool into the lived body (Ihde, 2003, p. 11). In this section I suggest to think of the split of attention in terms of split of embodiment.

Postphenomenology proposes several models for the relations between people, technologies and the world. The embodiment relation stands for the incorporation of technologies into our perception in a sense that "we experience [them] as taken into our very bodily experience" (Ihde, 2009, p. 42). A common example would be the eyeglasses that transform the wearer's experience of the surrounding world, while being perceived as part of the wearer's body. Postphenomenological embodiment has two constituents: a Body One that "is the existential body of living, here-located bodily experience, the sense of body elicited by Husserl as Leib, but much better descriptively developed by Merleau-Ponty as the 'corps vécu'" (Ihde, 2002, p. 69); and a Body Two – requiring a Body One as a pre-condition – that is "the cultural or socially constructed body . . . the body of the condemned in Foucault, the body upon which is written or signified the various possible meanings of politics, culture, the socius" (p. 70). While Body One represents the experiencing body that inhabits the present, Body Two, as Michel Foucault points out, represents the cultural body (Foucault, 1977). Body Two complements Body One by referring to the cultural, social and political aspects. It is Body Two that enables us to have an additional remote "gestalt." Perceiving a hammer only as a tool-for-nailing relies on Body One while neglecting Body Two. Such an approach may blind us from seeing other cultural usages for a hammer, such as a paper weight or a weapon, depends on the cultural and sociological context. The structure of

Body One and Body Two conceptualizes our relations with technologies through the duality of the living-sensing experience and the cultural experience (Ihde, 2011).

The duality of Body One and Body Two shares some similarities with the two spaces of attention modeled by the wall-window invariant. First is the non-reductive split that produces a sum larger than its parts. People talking on the cell phone can still participate in the conversation going on in their physical vicinity, as demonstrated by Plant's persistence, where the user remains attentive to both spaces. It is not an "either-or" relation, but an "and-and" that covers the physical and the remote spaces. Second is the distinction between the here-and-now of the bodily experience and the other space, be it social (in the case of talking on the cell phone with another person) or cultural (as in the case of browsing the Internet through the handset). Third, the physically manifested wall, with the help of artifacts such as the handset and earphones, is tightly related to the "natural" or "bodily" aspect of Body One. It is reflected in Virilio's rejection of the "metaphorization" of the screen-as-wall. This aspect of the wall is complemented by a window that is metaphorical or virtual, and tends towards the cultural-social dimensions of Body Two. In line with Friedberg's notion of virtuality as "a second order of reality," the other space is not physically "attendable," but exists in a cultural or social dimension.

Postphenomenologically, the split of attention between the here-and-now and the remote space may be conceptualized as a split in our embodiment, so that part of the perceptions and experiences remain attached to the space where my physical body is, and another part is "transferred" to the remote space. Yet, it is difficult to draw a clear line between the bodily perceptions that remain in the physical space and those that are transported (by the technology) to the remote space. Likewise the cultural-social aspects cannot be cut into two. This difficulty is partly due to the fact that the

two parts (of attention as well as of embodiment) are interrelated and non-reductive. Combined, they represent *additional* experiences and perceptions that could not have existed without technology such as the cell phone.

Summary

The notions of Body One and Body Two help us to configure a split of attention that is richer than a simple divide between visual and auditory stimulus. It can explain how we can read a text message while walking down the street: Body One has a sensory understanding of our immediate surroundings, while Body Two can read a text message, hear music, or connect to a remote space. The model sketched above has four components: wall, window, screen, and media (see figure 3).

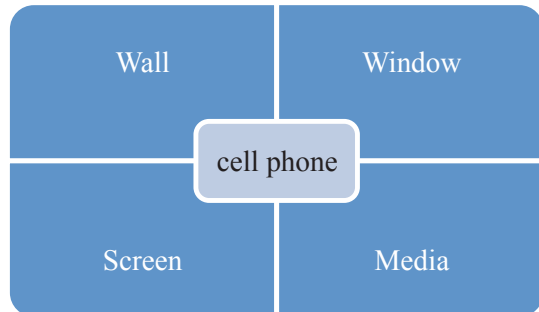


Figure 3: Cell Phone's Quad Model

The relations between the components illuminate certain aspects of the cell phone. Wall and window are attributes which are linked as complementary relations to the here-and-now and remote spaces; the technological components of screen and media are so widely discussed (e.g., Friedberg, 2006; Manovich, 2001) that their relations have become trivial. The screen was “blamed” for separating the viewers from their immediate environment (e.g., Introna and Ilharco, 2004). Media is often perceived as a window (e.g., Friedberg, 2006). The cross-links between window and screen or media

and wall were also mentioned here. And yet the emergence of the cell phone in the middle is surprising. We usually think of our cell phone as a technology or a social phenomenon (e.g. Ling, 2004, 2008; Katz, 2006; Haddon, 2004), but rarely think of it as media, a screen, a virtual wall or a window. The quad model gives us a new perspective for embodiment and attention in terms of wall-window: it helps us understand why the screen of the cell phone grew from a single LED line to the size of the palm of the hand; why some people do not refer to their cell phone as a device for talking, but more as a tool to consume music or other media; and the feeling of confidence we have when walking in a dark street (wall) with the cell phone open (window), making friendly noises (media) and illuminating our way (screen).

Eventually, through the description of the cell phone technology, I came to questions concerning the understanding of general human activity. The wall-window invariant allows us to consider different forms of human interaction. The analysis teaches us that the wall-window invariant can exist not only in a technological setting, but it raises the question of how technology can produce a wall-window. What are the necessary conditions by which a wall-window setting is produced? But this is question for another paper.

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² Friedberg warns us not to confuse digital and virtual and quotes Brian Massumi who says: "Nothing is more destructive for the thinking of the virtual than equating it with the digital" (2006, p. 10).