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EXPLORING EXTENDED REALITIES

**METAPHYSICAL, PSYCHOLOGICAL,
AND ETHICAL CHALLENGES**

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ROUTLEDGE



5 Mediated Reality

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Introduction: All Intentionality Is Mediated

The existence of this volume is evidence that extended reality media technology is deemed worthy of philosophical attention. It is worthy of this attention because it is far more powerful than more familiar media forms. But not only that. The view that I will be advancing in this chapter is that *all* media technology is worthy of additional philosophical attention. In order to appreciate the metaphysical, psychological, and ethical significance of extended reality (XR) media technology, it helps first to appreciate the significance of media technology in general. Thus, the goal of this chapter is to move toward a better understanding of XR technology by broadening the scope of inquiry far beyond XR technology itself. My strategy will be to focus on media, in its broadest sense, and its relations with human thought in the broadest sense.

Let us begin with the philosophical concept of *intentionality*. It is the technical philosophical term for all human thought, in the broad sense to include states such as perception and memory. The term does not refer to having an intention or not, as in, did you intend to hide the Oculus from little Irma or did you merely misplace it? Rather, the term intentionality refers to the property of all mental states whereby they are about something or directed at something. My belief that there is milk in my refrigerator is an intentional state directed towards the milk that is in my refrigerator. Intentionality is a powerful philosophical concept because of its diverse applications to all faculties of mind. There are many ways of approaching and analyzing intentionality in the philosophical literature. The way that I choose here is a heuristic approach that is meant to offer a technique for analyzing intentional states with neither an overly demanding conceptual apparatus nor any sort of metaphysical commitment.¹ In particular, I delineate three general regions of intentional objects – the three broad regions about which we can have thoughts. Those domains are (1) the world; (2) oneself; (3) others. Alongside these three domains, I will also include

the valence or values that tend to accompany intentional states. That is, we have positive or negative feelings about elements of the world, oneself, or other people.

This approach is motivated by the conviction that humanity in general, and philosophers in particular, have drastically underestimated the ways that different media technologies shape and determine intentional states. The Western philosophical tradition has been concerned with our endeavor to make reality more intelligible, but it has largely omitted from its analysis the tools that we use to do so. Media technologies are tools of intelligibility.

Thus my strategy is to draw out the distinctly powerful features of XR media by first presenting reflections upon the relationship between intentionality and media. My main claim about that relationship is that *all intentionality is mediated*. The reason why all intentionality is mediated is that the living body itself is the primary medium. All media technology expands the possibilities of intentionality beyond the mediation of the living perceiving body. In the following section of this chapter, I will make the case, following Aristotle and Husserl, that the living body is the primary medium.

After making the case that the body is the primary medium (Section 2), I will turn to media technology in Sections 3 and 4. Section 3 will cover the most important media technology in the history of thought: the written word. Section 4 will focus on the topic of this volume itself, XR technologies such as virtual reality (VR) and augmented reality (AR).

Then in Section 5, this chapter will take an applied turn. By that point, I will have made the case that there is something special about XR, but also that there is something special about all media technologies. Media shape the mind and XR has the potential to do so in an especially overpowering way. In Section 5, I will address the foreseeable risks of XR technology and make the case that we all have the right to avoid the encroachment of XR into our lives (and onto our bodies). There I will draw an analogy to the present situation with the case of the personal automobile. Just as the industry created pressure for the widespread adoption of the automobile, the immersive technology industry is poised to do the same for their product today.

Organic Reality: The Body Is the Primary Medium

The ease with which we perceive the world outside of ourselves can lead one to think about perception as a one-way causal direction. We open our eyes and we see a world. This one-directional flaw is manifest in the common claim that our perceptual states are caused by the outside world. For example, in his development of a realist position with regard to virtual

objects, David Chalmers relies on this flawed assumption in his premise that “The objects that we perceive are the causal basis of our perceptual experiences” (2017: 318). There is a sense, of course, in which our perceptual states are indeed caused by the outside world. But that is an incomplete and philosophically misleading picture of the perceptual relationship. For the perceptual states that are caused by the outside world are always the only states that can be enabled by our living perceiving bodies. Bees can see light in the ultraviolet spectrum while humans cannot. This difference is one that is based on bodily details – we do not have the same sorts of photoreceptors that bees do. It would be more accurate to say that perceptual states are the result of the interaction between the organism’s environment and the organism’s bodily possibilities for sensations. The body undergoes changes in response to the environment that enable perceptual states to arise. The details of one’s body determine the possible range of perceptual states that one can have. In addition to the details of the sense organs of one’s body, there are other factors that determine perceptual processing, such as the contextual preferences of the organism, and relatedly, perceptual anticipation (or predictive signals). In these ways, the living body mediates the perceptual states of organisms.²

According to Friedrich Kittler, the etymological origin of the term ‘media’ can be found at the origin of the Western philosophy of perception. In his treatment of perception in *De Anima*, Aristotle took the Greek preposition for ‘between’ (*metaxú*) and created the noun (*tò metaxú*) from which we have ‘media’ in English today (Kittler 2009: 26). In contrast to the ancient atomists who considered perceptual signals to travel through the void to reach our eyes and ears, Aristotle insisted that all perceptual modalities require a medium, a *between* through which the perceptual relation obtains (Kittler 2009: 25–26). For Aristotle, the primary sense modality is touch and the medium of touch, according to him, is the living body itself (*De Anima* 422b20). Bringing in promising work from the 21st century, we might broaden Aristotle’s concept of touch to include awareness of the body itself through what is now known as interoception (Seth 2013).

In a further development of this theme, Edmund Husserl claims that “The body is, in the first place, the *medium of all perception*; it is the *organ of perception* and is *necessarily* involved in all perception” (Husserl 1989: §18b). To illustrate this claim, he offers the example of a finger that is injured through a burn. We experience the abnormality of tactile sensation using the burned finger precisely because the medium is altered in a noticeable way. Husserl also used the example of the ingestion of the drug santonin as an illustration of how changing the living body, changing the medium of perception, changes our pattern of visual experience. Santonin was taken in the early 20th century to treat intestinal parasites. A side-effect of santonin is the experience of a yellow tint to one’s entire field of

vision. The drug changes the visual medium which results in an alteration to the visual experience. In both the example of the burned finger and the ingestion of santonin, we experience perceptual abnormality as a departure from normal bodily perception. Normal perception is, Husserl argues, constituted by an intersubjective community of perceivers (Husserl 1973: vol. XIV: 133n; Wehrle 2015; Madary 2019). Importantly, it is the similarity with the medium of perception, the living body, that enables perceptual normality to be shared within the community. Perceptual norms are always relative to communities of living embodied organisms. This relativity entails that norms constitutively depend upon sufficient similarity among bodily perceptual abilities. If there were sufficient diversity among bodily abilities, then there would be no norms. Some cases of bodily diversity, such as loss of sight, can place limitations on the sorts of perceptual experiences that can be shared intersubjectively. The important point, though, is that the living body is the primary medium of perception for all of us – regardless of the degree to which our living body shares in or diverges from perceptual normality.

Since XR such as immersive virtual reality depends so heavily on the relationship between action and visual perception, it will be especially appropriate here to offer a final example of the body as the medium by considering the cycle of action and visual perception. As I have argued elsewhere (2017), visual experience involves an ongoing process of anticipation and fulfillment (this claim is first expressed in Husserl's work). This cycle typically, almost always, involves self-generated movements – actions. We move our eyes, our heads, and our body, and all of these movements offer us new perspectives on the visual scene. Vision involves the implicit anticipation of the consequences of these movements. Importantly, this cycle reveals how vision and action are interdependent in a cyclical manner. Since the sorts of actions that we can generate are dependent upon the sorts of bodies we have, the details of our embodiment shape the possibilities of visual experience.

This interdependence of action and perception is especially important for our purposes here because the media of XR using a head-mounted display works by tracking the cycle of action and perception in the primary medium of the body. The head-mounted display tracks our movements and then updates the visual display accordingly. When we look down, the visual display shows us the virtual world beneath our virtual selves. When we look up, we see the virtual world above our heads. As we will explore in Section 4, XR mediation is so powerful and philosophically interesting because it *lays an electronic medium directly over the primary metabolic medium*.

One of our primary modes for distinguishing the objective (the world) from the subjective (the self) is through the interaction of movement and vision. When visual experiences do not change in the way that we expect

as a result of our self-generated movements then we have reason to suspect that our experience is not of the outside world. A good example of this occurrence is the case of phosphenes (commonly known as “seeing stars”). When you stand up too fast and experience phosphenes darting around peripheral vision, you have implicit awareness that something is odd – the appearance of the phosphenes is not contingent upon your self-generated actions. That is, you can turn your head and they are still there. In this way, we are able to distinguish sensations that are generated by the visual organ itself, on the one hand, and sensations that reveal the world outside us on the other hand. Susanna Siegel (2010: 179) explores this distinction using the concept of *perspectival connectedness*. According to Siegel, perspectival connectedness obtains when a substantial change of perspective on an object results in a change in visual experience. Phosphenes lack perspectival connectedness. In contrast, normal objects in the world show up for us visually as being perspectival connected because their appearances change systematically with our movements.

The technical term for the ways that appearances should change as we move is *sensorimotor contingency* (O’Regan and Noë 2001). The visual input to the eyes is contingent upon motor movements. As we develop from birth, we learn these contingencies. If we wear goggles that distort these contingencies, then we have to relearn the contingencies through practice (Degenaar 2014). Virtual reality creates the illusion of being somewhere else precisely by recreating sensorimotor contingencies through body tracking and the head-mounted display (Slater 2009).

The changes in the body or that the body undergoes in order to perceive the world are changes that can be characterized as the changes in the medium of perception, the lens through which all reality first and foundationally shows up for us. What we traditionally call media – print media, radio, television, and connected devices – are all inorganic media that open up new intentional possibilities for the organic body.³ The possible intentional states that we have with the naked, so to speak, body are greatly expanded through inorganic mediation. For example, consider a fan of Thoroughbred racing interested in the Kentucky Derby who lives many miles away from Kentucky. Perception with the primary medium of the living body (without the help of inorganic media) will not give this horseracing fan intentional access to any details of the race. Through inorganic media, the racing enthusiast’s intentional possibilities are greatly expanded. The fan can read about the race in print media, listen to prognostication about the race on the radio, watch the race live on television, and wager on the race using the internet.

Before going further into the ways that inorganic media change intentionality, let us return to the living body in order to consider how bodily perception first opens up our access to the three regions of intentionality.

Above, I mentioned how perspectival connectedness can help us to test reality, to distinguish between what is outside of the body and what is generated by the body. This fact brings us back to the three regions of intentionality introduced above. How do the cycle of action and visual perception relate back to the three regions?

The way in which the cycle of action and visual perception gives rise to experience is a way that exploits the distinction between *self* and *world*. Or rather, it is a direct and efficient way of distinguishing between self and world. When sensorimotor contingencies change in a way that shows perspectival connectedness, we take what is revealed to us to be independent of ourselves. We take it to be a revealing of the world. When we have visual experiences that do not exhibit perspectival connectedness such as phosphenes – then we take what we experience visually to be a product of the embodied self, of the visual organ. Self-generated action itself is crucial for the distinction between self and world, for we are always using the sense of agency to track actions that are self-generated from actions that are movements driven by some force from the external world. Disruptions of our ability to feel a sense of agency for our self-generated actions occur in cases of mental illness such as schizophrenia and depersonalization disorder (Frith 2005).

What about the intentional region of *other* people? There are at least two main ways in which intentional directness to the other enters into the visual experience. The first is through what is known as embodied intersubjectivity. As proponents of interactionist approaches to social cognition have long emphasized (Gallagher 2006), we first and primarily engage with others through the perception of bodily expressions, such as facial expression, gesture, and gait. The second way in which others are important for visual intentionality is through their role in objectivity itself. As many philosophers have concluded, the experience of the world as objective, as the world, is always also an experience of it as being perceivable for others. Objectivity is unthinkable without intersubjectivity.⁴

When introducing the three regions of intentionality above, I suggested that valence cuts across all of them. Valence is clearly a part of visual exploration through sensorimotor contingency, for our actions reflect the valence of what we are experiencing (Steinbock 1995: 138–139; Kelly 2005). For example, we lean in for a better look at something that is visually pleasing, or we move our gaze away from something that is discordant with our values. We reflect valence and valuation in the pattern of self-generated movements. Our movements reflect how we want to perceive the world (or what in the world we wish to perceive), and how we would like the world to be through changes that we make to the world in action.

I have made the case that the body is the primary medium. All intentionality, in all three regions, is mediated. Inorganic mediation then makes

things interesting by enabling intentional states to occur that the naked body alone cannot, as we will see with one of the most important media for intentional states: the written word. We turn to this medium in the following section.

Literate Reality

The first and most famous philosophical consideration of the written word was, of course, in Plato's *Phaedrus* (275a–b). There the wise Egyptian king Thamus rejects the gift of the written word from the god Thoth. He does so for fear that this gift will cause forgetfulness in his subjects. Thamus was correct. It does cause forgetfulness by alleviating the need to remember using one's biological abilities. In the terminology being developed here, Thamus could foresee that the written word would forever change the intentional landscape for literate humans.

Apart from this famous passage, the importance of the written word for human intentional states has been largely ignored in the history of Western philosophy. According to the line of thought being developed in this chapter, this omission is a serious one. There may be important exceptions, but, as far as I can tell, the written word itself does not even begin to receive any consideration as an important philosophical topic until the 20th century. We can identify at least four distinct academic traditions in which the written word has shown up as a central theme. These traditions are: phenomenological philosophy, analytic philosophy of science, media studies, and extended cognition. In each of these traditions, we can find insightful claims about the ways in which writing technology changes human intentionality.

There is a great deal to be considered in the way that each of these academic traditions treats the written word and in the ways that these traditions might be placed into a fruitful exchange with one another. I must leave such considerations for further research. For now, here is a taste:

- 1 In the phenomenological tradition, Husserl came to the realization that the practice of mathematicians must depend constitutively on written symbols (1954/1970: 366). Our paradigm *a priori* discipline turns out to depend upon technology. Jaques Derrida and Bernard Stiegler develop this theme further, with Derrida (1974) giving metaphysical weight to the opposition between the written word and the spoken word and Stiegler (1998) exploring the idea that writing changes the structure of time consciousness.
- 2 Karl Popper, the eminent philosopher of science, distinguishes between three "worlds" (Popper 1979). The first world is that of physical objects, the second world is that of subjective mental states, and the third world

is that of objective thought. Objective thought, for Popper, depends upon the physical artifacts on which written symbols reside. Today, objective thought would involve both paper books as well as digital media. Popper, like Stiegler, was interested in the way that the third world influences the second world – how the written word changes human subjectivity. Indeed, he argued that epistemology itself should focus on the third world more than the second.⁵

- 3 Some of the boldest claims of a shift in human consciousness between oral and literate cultures have come from pioneering figures in media studies such as Walter Ong and Ivan Illich. By considering the history of the written word, they make the case that literacy has changed the ways that we make sense of experience itself (Ong 2012: Chapter 3) by altering, for example, the sense of self, space, and time (Illich and S-anders 1988: 41).
- 4 Much of the activity in cognitive science over the past couple of decades has been focused on the topics of extended or scaffolded cognition. The main idea is that human beings very often achieve our cognitive tasks through clever use of our environment (Hutchins 1995; Kirsh 1995; Sterelny 2010). By far the most famous philosophical example of extended cognition is the thought experiment of Otto, who is losing his long-term memory due to Alzheimer’s disease (Clark and Chalmers 1998). He uses a notebook to record facts that he would like to remember and the argument goes that, under particular conditions, his notebook is genuinely a part of his mind. Regardless of where one stands on the boundaries of the mind, it is an important and neglected fact that Otto’s use of the notebook depends upon the technology of the written word.⁶ In a telling reversal of the concern that we saw in Plato’s *Phaedrus*, here we have the written word taken as an enhancer, rather than destroyer, of human cognitive ability.

In all four of these academic traditions, we can find expression of the idea that the written word can have a profound impact on human thought and consciousness. Here is a brief account of some of the claims about this impact. What follows is organized according to the three regions of intentionality introduced above: world, self, and other.

With writing, *the world* itself may become the storehouse for what has traditionally been relegated to the realm of the mental. For Clark (and perhaps Stiegler), the written word is genuinely a form of memory while for Popper it is knowledge itself. Ong, citing the fieldwork of A. R. Luria (1976) among illiterate Uzbek peasants, suggests that both abstract thinking and formal logical reasoning are products of literacy. Abstract thinking enables us to organize the world according to the scientific taxonomy of

genus and species. Without the permanence and organization of writing, the world may not be cognizable as having such a structure.

Similarly, if the mind is constituted by inorganic objects, then *the self* may be distributed among these objects, as Clark and Chalmers suggest in their original article proposing the extended mind hypothesis (1998: 18) and Ramirez et al. explore in this volume. Going even further, Illich and Sanders (1988: Chapter 5) have explored the ways in which the very concept of selfhood is a product of writing technology. They read various well-known autobiographies as acts of self creation.

Finally, *others* begin to have an identity that can be recorded and stored using writing technology. The ability to write is what ends the age of myth and replaces it with the possibility of history. Writing enables the state to record and document facts about each member of the collective “we” that make it up. Apart from history and statehood, writing opens up a new way of taking part in objectivity that is shared by a community of others. In particular, the permanence of writing opens up the possibility of engaging with the intentionality of others who are temporally and spatially remote from us, including those who are long gone and yet to come. The objective world that we seek to uncover through natural science is made available to us in part through the written record of what others have found. Similarly, we have the permanent possibility of leaving our own written record for posterity. Writing enables the intersubjective project of seeking objective truth to expand across generations.

These lines of thinking suggest that writing has changed permanently the way that reality shows up for us. By shaping the appearance of reality itself, writing technology also has the power to shape the values that we hold. The most obvious example of this ability is found in texts that are regarded to be sacred in religious traditions. More mundane examples would be the values engendered by the fictional stories that are shared and transmitted widely through print media.

The metaphysical, psychological, and ethical issues surrounding *any* media technology ought to be approached with the awareness of the fact that media technology is in some sense prior to metaphysical thought, prior to ethical deliberation, and prior to psychological investigation. Writing is the technological foundation for metaphysics, for all of natural science (including psychology), and for normative traditions (famously in the Decalogue).

We are right now witnessing the great transition from literate consciousness to electronic consciousness. The task that lies before us, then, is quickly to gain a better understanding of how *both* print and electronic media are intertwined with the ways that we think about ourselves, others, and the world around us. There is a great deal to consider with the rise of electronic mass media in the 20th century, but that investigation must be

left for another time. The focus of this volume is the most recently developed iteration of electronic mass media and it is to this family of media that we now turn.

Electrified Reality

In the second section of this chapter, I made the case that the body is the primary medium. It accesses the visual world through the cycle of action and perception. This cycle is the basis of intentional access to reality for all animals including us, the rational animal. The third section makes the case that a large part of the rationality enjoyed by the rational animal is made possible by the technology of the written word. Electronic wearable media are different from the written word in important ways. The written word is constrained in that it is *disembodied* and it is restricted to a *narrative* structure. That is, the written word does not directly target the bodily process by which we first perceive reality, nor can it really go beyond the narrative structure – the non-linear narrative is still narrative. XR technology, in contrast, is *embodied* by directly working through the cycle of action and perception and it can have a non-narrative structure of pure *data*.

As Carr (2020) has demonstrated, the literate animal capable of “deep reading” is facing extinction. It is being replaced now by an animal with electronic intentionality. Electronic mass media has developed rapidly in the past century or so. Now it is becoming seamlessly integrated into the cycle of action and perception with wearable electronic devices of the sort that make up XR technology. (The integration of technology into the cycle has been already well underway for over a decade now with the portable smartphone.) Let us consider how wearable XR technology, specifically VR, directly engages the landscape of our three regions of intentionality: world, self, and other.

Corresponding to the region of *the world*, the place illusion (Slater 2009) is the feeling of being somewhere else, of being in a virtual world. It can be induced by enabling subjects to enjoy rich patterns of sensorimotor contingencies with the head-mounted display. Corresponding to the intentional region of *self*, the illusion of embodiment (Slater et al. 2009, Madary and Metzinger 2016) is the feeling of owning and controlling a body that is virtual. Corresponding to the region of *other*, the plausibility illusion (Slater 2009) is an enhanced feeling of presence in the virtual world due to realistic social interactions with avatars in the virtual world. The virtual can be experienced as if real by targeting the three fundamental regions of intentionality.

By targeting these three fundamental regions, XR technology opens up new ways for us to conceptualize and experience reality itself, as the written word has done for over two dozen centuries. In contrast to the

well-worn metaphysical dichotomy of universal and particular that we know from the written word, XR technology opens the possibility that all the particulars in the *world* itself, including human actions, offer an infinite source of data for recording, storing, and analyzing. In the age of XR, the singular identity of one's *self* is turned into a multiplicity. There is now the possibility of trying on new virtual "selves" through social media representations (Turkle 2017) and, soon, through the embodiment of avatars in social immersive VR. The relationship between self and *others* has undergone an alteration through the permanent possibility of instantaneous connection through the medium of the internet. Since our primary mode of social engagement occurs through the living body (see Section 2), the details of the social medium are important as we transition from the early internet to XR. The last two decades of internet technology have offered constant and overwhelming social connectivity that is relatively disembodied. XR holds the promise of a sort of re-embodiment during online social engagement – but of course, the virtual body need not have the appearance of our biological body.

Prior to wearable electronic technology, our patterns of action and perception gave us access to reality in its most fundamental manifestation. Now, the cycle does two jobs that overlap. First, it gives us access to the "real life" naked version of reality, but then it also gives us access to the virtual world: the social media world, the worlds of the Metaverse, and all online content. But since we make sense of "real life" reality with the help of inorganic media, the distinction between these two domains is a superficial one. Once the access to the virtual becomes seamlessly integrated into the bodily cycle of action and perception, the virtual and the "real life" worlds become seamlessly integrated as well. Those who design wearables and create the apps for them will have the ability to modify the cycle of action and perception for everyone who uses those wearables regularly. Since the modification directly targets the cycle of action and perception, they will thus be changing the way the users access and conceptualize foundational "real life" reality as well. If this line of thought is correct, then it is crucial now to be vigilant against the abuse of this power. This concern brings us to the final section of this chapter.

Oppressive Reality

So far I have made the case for three main claims. The *first* claim is that all intentionality is mediated. The body is the primary medium through which we access reality in its most direct and immediate form. The *second* claim is that our technology enables us to open up forms of intentionality that go beyond what we can access with our un-augmented bodies. These media technologies have a feedback effect on what we experience through the

cycle of action and perception. By changing the way we conceptualize reality, they change what we encounter when we perceive reality. We can thus think of the intentional possibilities for any particular historically situated human being as always an entire package of living body plus media technologies. Becoming literate makes changes that depend in detail upon the level of literacy and the sorts of literature that one frequently “consumes.” *Third*, I have shown that XR technology is especially powerful because it modulates directly the primary medium. Print media and even non-wearable electronic media such as television are relatively disembodied. Once we start wearing our electronic media and have them incorporated into the cycle, then we have alterations to the primary medium itself. This powerful media technology can create new fundamental changes to intentional states in all three of the regions of intentionality.

Change itself is not alarming, nor is it a powerful medium. But what *is* concerning is the pressure to adopt this new medium by forces that are poised to use it in ways that are hostile or oppressive to flourishing. Here, I make the case that this situation is the present one. In both the primary medium of the body and the media of writing technology, I have suggested that values accompany our experience in the three domains of intentionality. What are the values of the corporations, such as Facebook/Meta, designing and maintaining XR technologies? Do they promote human flourishing or are they hostile and oppressive? These questions will be especially important to answer if there is pressure for widespread adoption of XR since widespread adoption offers opportunities for abuse. It is not clear at this point whether and how XR might be put to use by the masses. In this final section of the chapter, I present a possible undesirable course of events in order to warn against it.

Let us begin with a recent history of XR. Commercial VR was released around 2016. There was great hype about the release of these products along with market predictions that they will be eagerly purchased by the general public. These predictions turned out to be wrong. The market for VR was and remains a niche market of serious gamers. Soon after the commercial release of the products, consultants and market gurus were asking about the “killer app” for HMDs. How can we entice the grandmas of the general public to purchase the HMD as we succeeded in having grandma feel the need to purchase the smartphone? A big problem was that people simply did not seem to want it.⁷

Now, if things remain this way – and the adoption of immersive technology is limited to those (relatively few) who freely choose to use it regularly – then we can avoid the big concern that I wish to highlight. The big concern is that there will be usage and adoption of HMDs and similar XR technology due to active pressure from the industry. This has happened before in the history of technology and it looks like it may be happening now.

If we look about 100 years back in history, we can see how the industry can impose and force adoption of new and unpopular technology. My example is the personal automobile. As the automobile limits the freedom of the pedestrian body to move around the human habitat, immersive XR technology has the potential to limit the freedom of our mind through the deliberate sculpting of the intentional landscape for the interests of those creating and maintaining the virtual spaces.

As Jeff Sparrow (2019) documents, the automobile was initially not a popular technology. Very much like immersive technology, its early adoption was limited to individuals who were hobby enthusiasts with a good bit of disposable income. Less affluent urban dwellers were hostile to the new technology that was turning their streets from public spaces into danger zones. There were vigilante attacks on wealthy motorists. But the automobile industry, as we know, won the day. Through aggressive campaigning and lobbying, laws were passed that were friendly to cars and unfriendly to other modes of transportation, such as the very popular (and safer and cleaner) streetcar system in the United States. While many of us today unquestionably accept the criminalization of walking so as not to inconvenience the motorist, Sparrow points out that the automobile industry worked hard to make it so:

To overcome the public outrage about pedestrian deaths, the industry created the idea of the “jaywalker.” In the Midwest slang of the time, a “jay” was a bumpkin or a hick, a hayseed unaware of city etiquette... In the 1920s, dealers and auto clubs began using “jaywalker” for pedestrians who still believed in the old right to share the road. Local car firms paid boy scouts to distribute cards explaining the concept of jaywalking to people on the street, while the American Automobile Association promoted “safety patrols” to warn children off the street. In many places, the industry staged elaborate pageants to ridicule “jaywalkers.”

What we can see with the case of the automobile is a form of technological encroachment into the lifeworld of human beings. The results have been disastrous judging by the direct death count alone – without even considering the other impact areas such as environment, personal health, and social relations.

It might turn out that there is not a similar pattern of industry driving adoption with immersive technology – indeed I hope that is the case. But there is a clear and foreseeable way in which technological encroachment may occur with immersive XR technology. It is no secret that there has been a huge amount of money invested in immersive technology, and powerful people tend to do what they can to avoid losing the money that they have invested.

One obvious route for technological encroachment of immersive XR technology is through employment and another is through education.

Employers are being told that they can improve productivity, training, and so on, by adopting immersive technology. The software company Unity commissioned a marketing report on the adoption of immersive technology during the pandemic titled “The New Way of Working is Immersive.” The study states:

While the pandemic has been a significant driver of immersive technology use, other forces will further catalyze its adoption. Decision-makers believe immersive technology can help their organizations thrive as the future of work transforms. Most of all, they predict the following of the next three years: 1) immersive technology will become a significant competitive differentiator; 2) demand for metaverse-like digital experiences will grow; and 3) spikes in systemic risks to their operations will become more common. Most agree that immersive technology can help organizations solve for areas of risk and significantly enable opportunities related to these and other future-of-work scenarios.

(Forrester 2021)

These predictions are given weight because “decision-makers” make them. If these (somewhat self-fulfilling) prophecies are fulfilled, then immersive XR technology will be *normalized* through massive numbers of people using it – being pressured into using it – for the sake of keeping their jobs. In some cases, of course, employees may prefer it.

But what is the downside? In addition to the obvious physical risks of eye damage and motion sickness, the downsides are numerous (Madary and Metzinger 2016). The main downside is that XR gives great power to those who create and maintain it. This power is magnified especially by the private usage data that will be easily obtainable. Due to the use of facial and body tracking technology, the personal data that one might obtain through immersive XR technology far outstrips that which we can obtain through traditional input and output methods.

It should be noted with emphasis, of course, that the biggest corporation pushing for the adoption of immersive technology is Facebook/Meta, a corporation whose business model is to collect personal data for the purpose of large-scale behavior modification (Zuboff 2020). It should be obvious that this business model has nothing at all to do with the promotion of human flourishing. If we couple this business model with the possibility of illusions of agency when using the technology (Madary 2022), then mass adoption leans towards dystopia. Behavior modification on a large scale coupled with illusions of agency would produce a scenario in which billions of people are acting to serve the goals of the corporation without the awareness that they are doing so. The values of dignity and autonomy would no longer exist in this scenario.

As a way of illustration, recall the main points that I have been developing. Inorganic media sculpt our experience of the fundamental domains of reality, of world, self and other. With XR technology, the primary medium of the living body is distorted because the technology is worn directly upon the body. Consider the power that this can give to the corporation maintaining the XR. *Such a corporation can determine how users experience the world, how they conceive of themselves, and how they regard others.* The forms of these new determinations are difficult to predict because the medium is novel. As I have argued above, the written word was the technology that largely determined these domains for us over the past centuries. The forms of these new XR determinations will occur using a medium, unlike the written word in important ways, such as its capability to create a personalized narrative without the symbolic mediation of language. By observing current trends, here are some scenarios to consider. A corporation might like to create the desire for users to spend as much time as possible in their metaverse – perhaps to maximize spending on purchases of virtual (or physical) objects that will in no way improve quality of life. A corporation might erode and distort direct human connection by convincing users that social interactions are superior through the lens of XR – even down to the most intimate moments of our lives. A corporation might distract the populace from positive sociopolitical change with the use of a steady feed of base pleasures combined with the reinforcement of partisan polarization. Trends in these directions are present with existing media technology. I see no reason to think that XR will be any better and many reasons to think that it could become much worse.

We all have the right to refuse participation in the metaverse, to resist the emerging pressures from various industries, especially when the collection of personal data is still being practiced. A practical first step would be the regulation of XR technology in the name of occupational safety. A more ambitious (and important) step will require an attitude adjustment regarding economic growth through technological innovation. That is, technological innovation is not desirable in itself. Innovation should be always primarily in the service of promoting the dignity of the human person.

Conclusion

I would like to close by summarizing the connection between the more theoretical early sections of this chapter and the applied theme of the previous section. The main theoretical claim of this chapter is that all intentionality – all human conscious thought – is mediated. The mediation is organic in its bodily origin but then becomes partially inorganic with the use of print and electronic media technology. It is a mistake, I suggest, to assume that these various forms of mediation are entirely distinct from one another. They are

not entirely distinct because our awareness of reality as it shows up in the regions of the world, self, and others is a combined result of all the mediation that we encounter through our individual historical context – both organic and inorganic mediation. The historical context now emerging is one in which a powerful electronic medium is being worn to cover the primary organic medium of the living body. There exist forces pressing for the adoption of this medium that are motivated by avarice at the expense of human flourishing. We must recognize and resist these forces. The way that *reality itself* appears and is intelligible to us and our descendants is at stake.

Notes

- 1 The modern conception of intentionality famously originates in Brentano (2015). A classic treatment of intentionality for the tradition of phenomenological philosophy can be found in Husserl's fifth and sixth Logical Investigations (Husserl 1900/2001, also see Madary 2012). Much of the debate around intentionality has to do with various attempts to explain intentionality in a naturalistic manner (such as in Fodor 1987 and Millikan 1987). I take no position here with regard to the naturalization project.
- 2 The following works address some of the ways that the context of the perceiver can influence perceptual processing: Freeman (1960), Merleau-Ponty (1964), Noë and Thompson (2004), Madary (2013, 2017).
- 3 The distinction between organic and inorganic in this context is taken from Stiegler (1998).
- 4 An early emphasis on this theme is of course in Hegel's Phenomenology of Spirit (Hegel et al. 1976/2013). Dan Zahavi has done a great deal to develop this theme in classical Husserlian phenomenology (Husserl 1973; Zahavi 1996) and we also see it in major figures within the analytic tradition such as Davidson (2001), for example.
- 5 Ian Hacking (1997), another eminent philosopher of science, follows Popper in his turn to the objective basis of advanced cognition in writing technology. For some of the connections between this approach and Hegel's notion of objective mind, see Braver (2007).
- 6 The importance of the written word itself for the thought experiment is largely neglected in debates over the boundaries of the mind, but there are important exceptions. Richard Menary has explored the theme in a number of publications (his 2007, for example). Also see recent work by Regina Fabry (2020).
- 7 The preferences of the general public with regard to the use of XR may change as new applications are developed. For example, I suspect that immersive shopping may have wide appeal (Alcañiz et al. 2019).

References

- Alcañiz, M., Enrique, B., & Guixeres, J. (2019). Virtual reality in marketing: A framework, review, and research agenda. *Frontiers in Psychology* 10: 1530. <https://doi.org/10.3389/fpsyg.2019.01530>.
- Braver, L. (2007). *A thing of this world: A history of continental anti-realism*. Topics in Historical Philosophy. Evanston, IL: Northwestern University Press.

- Brentano, F. (2015). *Psychology from an empirical standpoint*. Routledge Classics. Abingdon, Oxon: Routledge.
- Carr, N.G. (2020). *The shallows: What the internet is doing to our brains*. New York: W.W. Norton & Company.
- Chalmers, D.J. (2017). The virtual and the real. *Disputatio* 9 (46): 309–352. <https://doi.org/10.1515/disp-2017-0009>.
- Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis* 58 (1): 7–19.
- Davidson, D. (2001). *Subjective, intersubjective, objective*. Oxford : New York: Clarendon Press; Oxford University Press.
- Degenaar, J. (2014). Through the inverting glass: First-person observations on spatial vision and imagery. *Phenomenology and the Cognitive Sciences* 13 (2): 373–393. <https://doi.org/10.1007/s11097-013-9305-3>.
- Derrida, J., & Spivak, G.C. (1974/2016). *Of grammatology*. Fortieth-Anniversary edition. Baltimore, MD: Johns Hopkins University Press.
- Fabry, R.E. (2020). The cerebral, extra-cerebral bodily, and socio-cultural dimensions of enculturated arithmetical cognition. *Synthese* 197 (9): 3685–3720. <https://doi.org/10.1007/s11229-019-02238-1>.
- Fodor, J.A. (1987). *Psychosemantics: The problem of meaning in the philosophy of mind*. Explorations in Cognitive Science. Cambridge, MA: MIT Press.
- Forrester Consulting. (2021) The new way of working is immersive. *Forrester Opportunity Snapshot: A Custom Study Commissioned by Unity*. Retrieved from <https://resources.unity.com/automotive-transportation-manufacturing-content/study-the-new-way-of-working-is-immersive>
- Freeman, W.J. (1960). Correlation of electrical activity of prepyriform cortex and behavior in cat. *Journal of Neurophysiology* 23 (2): 111–131. <https://doi.org/10.1152/jn.1960.23.2.111>.
- Frith, C. (2005). The self in action: Lessons from delusions of control. *Consciousness and Cognition* 14 (4): 752–770. <https://doi.org/10.1016/j.concog.2005.04.002>.
- Gallagher, S. (2006). *How the body shapes the mind*. Oxford: Oxford University Press.
- Hacking, I. (1997). *Why does language matter to philosophy?* Reprinted. Cambridge, MA: Cambridge University Press.
- Hegel, G.W.F., Miller, A.V., & Findlay, J. (1976/2013). *Phenomenology of spirit*. Reprint. Oxford Paperbacks. Oxford: Oxford University Press.
- Husserl, E. (1900/2001). *Logical investigations*. International Library of Philosophy. London; New York: Routledge
- Husserl, E. (1973). *Zur phänomenologie der intersubjektivität: Zweiter teil: 1921–1928*, ed. Kern Iso, Nijhoff, Den Haag, Netherlands.
- Husserl, E. (1989). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy, Second book*. R. Rojcewicz, trans. The Hague, Boston, MA: M. Nijhoff ; Distributors for the U.S. and Canada, Kluwer Boston.
- Husserl, E., & Carr, E. (1970/1984). *The crisis of European sciences and transcendental phenomenology: An introduction to phenomenological philosophy*. 6th pr. Studies in Phenomenology & Existential Philosophy. Evanston, IL: Northwestern University Press.
- Hutchins, E. (1995/2006). *Cognition in the wild*. 8. pr. A Bradford Book. Cambridge, MA: MIT Press.

- Illich, I., & Sanders, B. (1988). *ABC: The alphabetization of the popular mind*. London: Boyars.
- Kelly, S.D. (2005). Seeing things in Merleau-Ponty. In Taylor Carman, and Mark B. N. Hansen (eds). *The Cambridge companion to Merleau-Ponty*. Cambridge Companions to Philosophy. Cambridge; New York: Cambridge University Press.
- Kirsh, D. (1995). The intelligent use of space. *Artificial Intelligence* 73 (1–2): 31–68. [https://doi.org/10.1016/0004-3702\(94\)00017-U](https://doi.org/10.1016/0004-3702(94)00017-U).
- Kittler, F. (2009). Towards an ontology of media. *Theory, Culture & Society* 26 (2–3): 23–31. <https://doi.org/10.1177/0263276409103106>.
- Luria, A.R. (1976/1994). *Cognitive development: Its cultural and social foundations*. M. Cole (ed). Translated by Lynn Solotaroff and Martin Lopez-Morillas. 8. printing. Cambridge, MA: Harvard University Press.
- Madary, M. (2012). Husserl on perceptual constancy. *European Journal of Philosophy* 20 (1): 145–165. <https://doi.org/10.1111/j.1468-0378.2010.00405.x>.
- Madary, M. (2013). Placing area MT in context. *Journal of Consciousness Studies* 20 (5): 93–104.
- Madary, M. (2017). *Visual phenomenology*. Cambridge, MA: MIT Press.
- Madary, M. (2019). Husserl takes Santonin. In B. Glenney (ed). *The senses and the history of philosophy*. 1st edition. Rewriting the History of Philosophy. New York: Routledge.
- Madary, M. (2022). The illusion of agency in human–computer interaction. *Neuroethics* 15 (1): 16. <https://doi.org/10.1007/s12152-022-09491-1>.
- Madary, M., & Metzinger, T.K. (2016). Recommendations for good scientific practice and the consumers of VR-technology. *Frontiers in Robotics and AI* 3. <https://doi.org/10.3389/frobt.2016.00003>.
- Menary, R. (2007). Writing as thinking. *Language Sciences* 29 (5): 621–632. <https://doi.org/10.1016/j.langsci.2007.01.005>.
- Merleau-Ponty, M., & Smith, C. (1964/2006). *Phenomenology of perception: An introduction*. Repr. Routledge Classics. London: Routledge.
- Millikan, R.G. (1987/2009). *Language, thought, and other biological categories: New foundations for realism*. A Bradford Book. Cambridge, MA: MIT Press.
- Noë, A., & Thompson, E. (2004). Are there neural correlates of consciousness? *Journal of Consciousness Studies* 11 (1): 3–28.
- Ong, W.J., & Hartley, J. (2012). *Orality and literacy: The technologizing of the word*. 30th anniversary ed.; 3rd edition. Orality and Literary. London ; New York: Routledge.
- O'Regan, J.K., & Noë, A. (2001). A sensorimotor account of vision and visual consciousness. *Behavioral and Brain Sciences* 24 (5): 939–973. <https://doi.org/10.1017/S0140525X01000115>.
- Popper, K.R. (1979). *Objective knowledge: An evolutionary approach*. Revised edition. Oxford: New York: Clarendon Press ; Oxford University Press.
- Seth, A.K. (2013). Interoceptive inference, emotion, and the embodied self. *Trends in Cognitive Sciences* 17 (11): 565–573.
- Siegel, S. (2010). *The contents of visual experience*. Philosophy of Mind Series. New York: Oxford University Press.
- Slater, M. (2009a). Inducing illusory ownership of a virtual body. *Frontiers in Neuroscience* 3 (2): 214–220. <https://doi.org/10.3389/neuro.01.029.2009>.

- Slater, M. (2009b). Place illusion and plausibility can lead to realistic behaviour in immersive virtual environments. *Philosophical Transactions of the Royal Society B: Biological Sciences* 364 (1535): 3549–357. <https://doi.org/10.1098/rstb.2009.0138>.
- Sparrow, J. (2019). The car culture that's helping destroy the planet was by no means inevitable *Overland* 236.
- Steinbock, A.J. (1995). *Home and beyond: Generative phenomenology after Husserl*. Northwestern University Studies in Phenomenology and Existential Philosophy. Evanston, IL: Northwestern University Press.
- Sterelny, K. (2010). Minds: Extended or scaffolded? *Phenomenology and the Cognitive Sciences* 9 (4): 465–481. <https://doi.org/10.1007/s11097-010-9174-y>.
- Stiegler, B. (1998). *Technics and time*. Meridian. Stanford, CA: Stanford University Press.
- Turkle, S. (2017). *Alone together: Why we expect more from technology and less from each other*. 3rd edition, Revised trade paperback edition. New York: Basic Books.
- Wehrle, M. (2015). Normality and normativity in experience. In Doyon, Maxime and Thiemo Breyer (eds). *Normativity in perception*. New Directions in Philosophy and Cognitive Science. Houndmills, Basingstoke Hampshire; New York: Palgrave Macmillan.
- Zahavi, D. (1996). Husserl's intersubjective transformation of transcendental philosophy. *Journal of the British Society for Phenomenology* 27 (3): 228–245. <https://doi.org/10.1080/00071773.1996.11007165>.
- Zuboff, S. (2020). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. First Trade Paperback edition. New York: PublicAffairs.