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## Backing up into advocacy: The case of smartphone driver distraction

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For the last decade, I've been studying the topic of the driving impairment of smartphones. While this began as an exclusively academic project, it has increasingly compelled public engagement. One example of this came in an opinion piece I wrote in 2018 in response to a new traffic law. I take the opportunity here to fill out the academic backstory of this particular op-ed, reflect on how this larger project has evolved to include an unanticipated public-facing edge, and abstract some lessons about public writing.

*Keywords: distracted driving, smartphones, hands-free, phenomenology, postphenomenology*

In the summer of 2018, the Hands-Free Georgia Act went into effect. Where the U.S. state of Georgia had previously outlawed only handheld texting while driving, now all handheld smartphone usage behind the wheel would be illegal. This was a response to an urgent threat. After decades of decline, the US was suddenly experiencing a sharp spike in roadway fatalities (Rosenberger, 2017c). Georgia saw one of the largest increases in the country. Driver distraction appeared to be a likely factor. I had been writing about the topic of smartphones and distracted driving for a decade, so it felt like a duty to comment publicly on the new policy. Since I'm based in Atlanta, I did interviews for the *Atlanta Journal-Constitution* and the city's NPR radio station, and spoke at an event at City Hall. And I wrote an op-ed for the *Saporta Report*, an Atlanta-based online news site (Rosenberger, 2018). I had a two-part message: (1) the Hands-Free Georgia Act is an important step forward; but also (2) it does not go far enough. Drivers should not only refrain from using a handheld smartphone. They should stop using hands-free phones too, including hands-free phone conversation, texting, and other voice-to-text and text-to-audio communication functions enabled by smartphone apps and dashboard infotainment systems.

I would like to take the opportunity of a public scholarship report to issue a kind of postscript to the *Saporta Report* piece, and to put it into the context

of the evolution of its larger research project. When I began this line of study, I didn't have public outreach in mind, nor did I have much experience with that kind of work. But this philosophical project has increasingly compelled public engagement.

I work from the phenomenological perspective, a tradition of thought that begins its inquiries from the deep description of human experience. This philosophical approach specializes in drawing out our bodily interactions with the world, the roles of habituation, and the structures of perception. And I work in the field of philosophy of technology. So, my research often involves the attempt to describe the experience of technology usage. When I started this project on distracted driving, I was thinking about the user experience of two of the most commonplace technologies of contemporary life: the smartphone and the car. My suspicion was that a phenomenological account might be able to bring some distinctive insights to the issue of the driver distraction of smartphones.

Before I began, I assumed that this project would involve three main tasks: (1) gathering up and analyzing work in phenomenology on the experience of using the phone, (2) looking into the empirical research on smartphone driver distraction to see what theories have already been developed there, and (3) applying the phenomenological insights to that discussion, perhaps by developing another theory, or perhaps by commenting on the existing theories. But I immediately encountered two surprises. They both presented challenges and opportunities.

### **Surprise #1: Prior phenomenological work was thin**

I didn't find much on telephone usage in the phenomenological literature.<sup>1</sup> So, a first part of this line of research has been to develop my own account of the experience of using the phone. I turned to my home-base theoretical perspective, "postphenomenology," which builds on Don Ihde's corpus of work to develop practical tools for describing human-technology relations.<sup>2</sup> Postphenomenology pulls together ideas from the phenomenological canon, American pragmatism, and Science & Technology Studies to offer a framework of concepts for drawing out and articulating our experiences with technology. But I found even this perspective to require amendments in order to capture the aspects of the experience of phone usage that I was after.

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<sup>1</sup> There have been some exceptions, of course. A few of the phenomenological studies of phone usage that have been helpful to my thinking include (Backhaus, 1997; Richardson, 2007; Wellner, 2016).

<sup>2</sup> For some introductory works on postphenomenology, see: Ihde, 2009; Rosenberger & Verbeek, 2015; Aagaard, 2016.

For example, the postphenomenological framework, building directly on the work of Martin Heidegger and Maurice Merleau-Ponty, is useful for describing the ways in which aspects of a technology may withdraw into the background of our awareness as we become focused more on what we are using the device to do. In Ihde's terminology, one main way that this kind of experience occurs is in terms of technological "embodiment." That is, in this form of human-technology relation, the user's bodily awareness is extended *through* the device (e.g., 2009, p. 42). For example, if someone "knows how to drive," then they do not only possess information in their brain about which aspects of the car's interface (the steering wheel, the pedals, etc.) do what, they have been *trained* to drive the car. And they have come to embody the car's interface with what Ihde calls a high degree of "transparency" (e.g., 2009, p. 42). The driver pays active attention to the road. As they do this, the steering wheel and pedals often instead become somewhat transparent, withdrawing into the background of what is present to that driver. Good driving calls for a transparently embodied relationship with many aspects of the car. You've got to be more explicitly aware of the road ahead than the steering wheel in your hands.

Phone usage can be similar. When one is engrossed in phone conversation, the phone itself is embodied and can at times take on a considerable degree of transparency. The phone in-hand can withdraw into the background of awareness even as it makes possible that conversation with a far-away interlocutor.

However, the transparency of the phone itself is not the most important aspect of the phenomenology of phone usage. We need to find a way to describe what it means to be "on the phone," to have our experience captured by it, to be engrossed in its usage, to have an immersive phone-mediated interaction with another person. To do this, I have developed some conceptual expansions of the postphenomenological framework. I suggest that alongside a notion like "transparency," we should also consider other ways that some human-technology relations may more radically reorganize our overall awareness.<sup>3</sup> If, for example, I'm absorbed in a book, we might describe much of my "field of awareness" to be occupied or taken up by the content of what I'm reading. We can think of a

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<sup>3</sup> Classical phenomenologist Aron Gurwitsch provides some broad inspiration here, with his language of the "organization" of the "field of consciousness" (1964). For an introduction to my framework of concepts around the field of awareness see Rosenberger, 2017b, and for their application to the topic of e-reading, see Rosenberger, 2017a.

person's technologically-mediated field of awareness as the totality of things they are aware of within a given moment, in part shaped by their relationships with technology. A driver, for example, maintains a complex, shifting, and yet highly specific field of awareness that includes the roadway ahead, a whole-body sensation of the car on the road, the audio perception of relevant traffic sounds, and shifting levels of engagement with things like dashboard readouts and the content of mirrors.

I suggest too that for someone that has a long-developed relationship with a device, these aspects of experiential organization (e.g., what becomes transparent, what is explicitly present, and how their entire field of awareness is composed) may become associated with bodily-perceptual habits. Pulling from the history of phenomenology, we can refer to this as "sedimentation." A relationship to a particular device might be more or less sedimented, more or less automatic, immediate, and stubborn. For example, we can imagine how difficult it would be for an experienced driver if we were to suddenly switch around the interface of their usual car, say, by swapping the locations of the gas and brake pedals. Sure, this driver would eventually adjust to the new configuration. But there would be some difficulty. Importantly, not only would this person need to learn the new functions of the old pedals, they would additionally need to *unlearn* the previous pedal arrangement. They'd need to *retrain* themselves to resist the urge to stomp the old brake pedal when it is time to stop. The difficulty this person would face in resisting that urge is a reflection of the depth of the sedimentation of their relationship to the car. These notions of sedimentation and the field of awareness have found use in a variety of other research projects, including studies on video chat, classroom distraction, e-reading, online values, facial prostheses, dance training, and virtual reality (e.g., Spicer, 2014; Aagaard, 2015; Rosenberger, 2017a; Susser, 2017; Yaron et al., 2017; Kapasali, 2019; Kerruish, 2019).

My suggestion is that we should think about our relations to the phone in these terms. When someone is immersed in phone usage—e.g., absorbed in conversation over the phone—it is not merely the case that the phone in hand may become experientially transparent. We could also say that the phone conversation steps forward and even comes to compose much of our field of awareness. The practical entirety of that which the phone user is aware in a given moment may be overtaken by the experience of the content of the conversation and the presence of their interlocutor. It is possible to imagine someone in a normal and uneventful situation—say, standing alone in a familiar room—that becomes immersed in phone conversation such that they experience a greatly diminished situational awareness, barely noticing their immediate surroundings. I contend that

for the average smartphone user today, for whom the device is a normal and always present companion, these structures of immersive awareness are highly sedimented.

## **Surprise #2: Prior empirical work was theoretically underdeveloped**

There was not already a bustling theoretical discussion within the empirical research. These scientists were hard at work proving that things like texting and talking on the phone are very dangerous to do while driving. Texting was turning out to present by far the biggest hazard (e.g., Drews et al., 2009; Yager, 2012; and for a meta-analysis of studies, see: Caird et al., 2014). But talking on the phone too has been shown to be associated with a significant drop in driving performance, and this goes *equally* for using a handheld and hands-free phone conversation (for a few examples of literature reviews and meta-analyses of this voluminous body of research, see: McCartt et al., 2006; Ishigami & Klein, 2009; Lipovak et al., 2017; Caird et al., 2018).<sup>4</sup> In addition to the simulator and test-track data that reveal associations between driving mistakes and phone usage, the epidemiological research (i.e., studies that contrast phone records with other data such as hospital and police reports) show phone conversation to increase the danger of driving by three to four times (e.g., Redelmeier & Tibshirani, 1997; McEvoy et al., 2005; Elvik, 2011). Phone usage even bears comparison to drunk driving (e.g., Strayer et al., 2006; Leung et al., 2012). Studies are beginning to also show that hands-free text communication, such as texting or emailing through voice-to-text smartphone apps, can be even more dangerous than handheld texting, especially when the programs are prone to error (e.g., Yager, 2013; Strayer et al., 2014).

Although this has changed somewhat since I first began studying this topic, the empirical discussion on smartphones and distracted driving is flush with data but comparatively thin on theory, an exciting situation for a theorist like me. However, while only a minority of the papers in this discussion are doing explicit theory work, there does appear to be an implicit account reflected in the ways in which some of them report their findings. The data are largely behavioral (e.g., observed stopping distances). Yet, concluding sections of these articles sometimes report on the observation of a lack of “cognitive resources,” or “information processing power,” or “attention” required to safely perform the two tasks of driving and using the phone at the same time. As a phenomenologist,

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<sup>4</sup> One important line of research that provides some disconfirmatory evidence is the in-cab camera naturalistic studies (e.g., Dingus et al., 2016).

this kind of language jumps off the page at me since it reflects a different basic understanding of the mind from my own theoretical outlook. It does not scan to me as an innocent or obvious description of the data. It reads as an implicit theoretical account.

Truth be told, I think my main contribution to the empirical research is actually the basic observation *that* this discussion maintains a default theory, namely the theory that the driving impairment of smartphones is ultimately due to our inherently limited cognitive resources. According to this view, we simply cannot multitask well enough to safely drive and talk on the phone at once. Such a theory helps to address why not only handheld, but also hands-free phones, result in driving performance decrements. When a driver talks on a hands-free phone, they can keep eyes forward and hands on the wheel, so the resulting danger cannot stem simply from the act of looking away from the road. According to this account, hands-free phone usage causes impaired driving because of its mental taxation. My suggestion is that the more specific theories offered within this literature—such as the idea of a “resource bottleneck,” or that drivers experience “inattention blindness”—are subspecies of this larger cognitive resources account.

But to really show that this cognitive account *is* a theory, and not merely a description of the world as it is, I would need to develop an alternative theory of these same data. To do so, I appealed to a postphenomenological conception of sedimentation and technology’s capacity to reorganize a user’s field of awareness. It is essential to note that I do not disagree with these scientists about the results that show people to be very bad at driving while using the phone. And, I agree with those empirical researchers who conclude that smartphone driving impairment is a pressing public problem that must be addressed. My disagreement is over exactly how it is that smartphone usage results in poorer driving performance. The tricky part in developing an alternative theory would be the attempt to describe this phenomenon without any reference to cognitive processes, resource quantities, metaphors to computing, or any kind of mechanistic conception of the human mind. As explanatory actors go, it would be best if I could leave the brain out of it entirely.

The alternative account of the data on smartphone driving impairment I’ve proposed, including the distraction of hands-free phones, goes like this: when immersed in phone usage, the driver’s field of awareness can become largely composed by the content of that phone relation, and they can fail to perceive their immediate surroundings. This relation to the

phone is often associated with considerable sedimentation, so the driver may at times be pulled into an organization of awareness focused upon the world opened up by the phone. Put more plainly, due to long-developed habits, a driver may be inclined at times to become occupied more by the conversation taking place over the phone than on the road ahead. A driver may even attempt to maintain active concentration on both the phone conversation and the driving, and this may work for a time. But, perhaps when the driving becomes dull or the conversation becomes engaging, those habits of perception may come creeping in and pull the driver's attention away from the road and into a field of awareness organized mostly around the person on the other end of the line.

After initially proposing my account of the phenomenology of smartphone conversation and its application to the distracted driving research (Rosenberger, 2010, 2012), I applied these ideas to a variety of subtopics within this discussion. These include the issue of passenger distraction (which is not always as dangerous as the phone, Rosenberger, 2019), dashboard infotainment systems and hands-free texting (Rosenberger, 2013a, 2013b, 2015), wearable computing (Rosenberger, 2014b, 2015), and the implications of automated vehicles (Rosenberger, forthcoming).<sup>5</sup>

## **Backing up into advocacy**

In this way, the project has been a somewhat typical line of academic research, albeit an interdisciplinary one, and one with at least two potential audiences. The first is those who may be interested in the science of distracted driving. The second is the postphenomenological researchers who may be interested in the new conceptual tools (e.g., the "field of awareness," "sedimentation" as a factor in technology usage) coming out of the exploration of this case.

However, I soon came to realize that there was another, more important audience that I should be attempting to reach. This project was essentially an attempt to describe driver distraction in new ways. As such, my work could have some utility in communicating this problem to the public. Perhaps the theoretical account I am developing could inform the language used in persuading people that these dangers are real. I should be trying to leverage my place as a professional researcher on this topic to create ways to get the word out.

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<sup>5</sup> For a philosophical debate over these issues, see the 18(2-3), 2014 special issue of the journal *Techné: Research in Philosophy and Technology*.



I've been doing this public-facing work so far mainly through participation in media coverage of this topic, and through writing op-eds in for-the-public venues. For example, I've published a series of pieces in *Slate* magazine online, covering topics such as the tragic repeal of the first citywide ban of handheld electronics while driving in the US, and recent industry lobbying for less restrictive government dashboard infotainment system design recommendations (e.g., Rosenberger, 2014a, 2017c). The media relations department at the university where I work has been helpful in the development of a press release and other forms of press contact that have informed reporters about my academic work. This has provided opportunities to synopsise my views for the public in print and on the radio. And when a separate project of mine went viral—a related study about “phantom vibration syndrome” (that thing when you feel your phone vibrate in your pocket although it didn't actually vibrate)—I did my best to turn that virality into opportunities to spread the word about the dangers of smartphone driver distraction.

I've learned through these experiences that justifications for media participation come in at least two varieties. The first is the straightforward sharing of exactly the findings of your own research. Insofar as your own work may be newsworthy, you may find the opportunity to garner media attention, or write about it in public venues. However, if new to writing for the general public, as I largely was when I began this project a decade ago, then there can be some surprising challenges. The kinds of content you can write, and the kinds of styles you can take up, for media venues are very different from academic publishing, even when it is exactly your own research you are writing about. As others have said before, the work of communicating with a public audience calls for its own skillset. (Of course media participation and op-ed writing is not the only form of public-facing philosophical work. Nor is it necessarily the best or most effective kind. It is simply what I have been able to do so far. Other forms will similarly call for the development of skills that academics do not automatically already possess.<sup>6</sup>)

The second is participation in public discussion based on your general status as an expert on the topic. Media outlets are often open to allowing

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<sup>6</sup> Under a variety of names, there have been various, if often halting, calls over the years for “engaged,” “activist,” “public,” and “field” philosophy and STS (e.g., Durbin, 2000; Woodhouse et al., 2002; Bijker, 2003; Douglas, 2010; Wittkower et al., 2013; Brister & Frodeman, 2020; Fried, forthcoming). And there are many philosophers and STS practitioners that are simply already waist deep in the practice of doing public philosophy, often in their own individual ways, sometimes as a part of engaged or activist communities. I take my reflections here to be broadly consistent with themes emerging across this kind of work.

you to opine about the general aspects of a topic based on your status as someone who has published something—anything—academic on some specific aspect of that topic. So, for example, my piece in the *Saporta Report* last year has a flash or two of the postphenomenological perspective on smartphone driving impairment I’ve developed. But it is mainly a rundown on my general, albeit informed, opinions on the topic. My license to drop those opinions—i.e., my status as a recognized expert—comes from my documented participation in the academic work, as well as my university position. I’ve parlayed my highly restricted philosophical theorizing about driver distraction into the authorization to write in media outlets about this topic in a way that is widely ranging, punchy, and which draws on the cognitive language whenever useful.

There are several reasons why the issue of smartphone driver distraction in particular is something that deserves activist engagement with the public. Since the scientific findings show this behavior to be both dangerous and pervasive, it is of course straightforwardly important to get the word out about these dangers. However, the problem of smartphone driver distraction calls for more than merely raising awareness. Addressing this problem calls for more than merely the task of making information available. An appeal to the public must be made. We must get through to people. I see at least three reasons for this charge. And in the case of these kinds of challenges, philosophy can have a special role to play.

### *Communicating risk*

For one, it is possible that developing a variety of languages for communicating the dangers of driver distraction will be helpful for creating messages that resonate with more people. Beyond the data themselves, the notion of “cognitive distraction” has been one of the most important things to come out of the empirical research. The idea is that handheld texting and phone usage involves both the “manual distraction” of failing to hold the steering wheel with both hands, and the “visual distraction” of taking your eyeballs off the road. Although hands-free smartphone usage doesn’t involve either of those forms of distraction, it is still dangerously distracting. This is because, like handheld phone conversation too, hands-free phone usage results in cognitive distraction. It’s a powerful and relatively simple argument. And over the last decade and a half, the language of cognitive distraction has found its way into the literature of organizations such as the National Safety Council, the American Automotive Association, the Center for Disease Control, and the World Health Organization.

However, it appears that not all drivers are convinced by this line of reasoning. Additional concepts and arguments may be helpful. Emotional appeals are sometimes made, providing the awful details of cases of distracted driving deaths. A language of addiction is also sometimes taken up in consciousness raising efforts. The idea is that if you're addicted to using your phone, then you cannot trust yourself to use it responsibly, and you should just put it away entirely when driving.

In addition to all these, the postphenomenological account I've been developing may offer some of its own distinct advantages in communicating these dangers. From the phenomenology, we can abstract a language of habituation. The pull of smartphone communication into distraction is one that comes with the force of a "bad habit." It is possible that some drivers are resistant to activist efforts that rely on cognitive or addiction vocabularies because they do not see any evidence that they themselves are experiencing a cognitive deficit or an addictive dependence. This is exactly where bad habit metaphors may be effective. Habits often function surreptitiously, enacting influence in a way that can be difficult to notice. And overturning bad habits requires not only confidence in your own will power, but active effort put toward unlearning them. Even if you are sure that you are neither cognitively impaired by your phone, nor addicted to it, you may be open to the possibility that you've developed some bad habits. Perhaps these ideas will be persuasive to some drivers.

### *Countering bias*

Second, here's what I believe to be the most important set of empirical findings on smartphones and distracted driving: people are extremely poor judges of their own level of smartphone-induced driving impairment. Drivers cannot be counted on to make reliable assessments of how distracted they are by the phone (e.g., Horrey et al., 2008; Sanmonbatsu et al., 2016; Terry & Terry, 2016). There's some indication that many drivers even recognize smartphone distraction to be a serious danger, and yet at the same time each see themselves to be a specific exception to that pattern. This is why efforts to educate the public must go beyond simple communication of the dangers. A variety of communication and argument strategies may be necessary since some drivers—including some of the most confident ones—are specifically underestimating their own level of impairment.

*Counter-messaging*

There's a third reason that efforts to convince the public about the dangers of using a smartphone while driving must go beyond mere education: the public is constantly receiving messaging to the contrary. It is in the economic interest of several business sectors, including the automotive industry and the telecommunications industry, that drivers not refrain too much from using smartphones while behind the wheel. Quite a lot of investment has been put into hands-free smartphone applications and personal assistant programming, as well as dashboard infotainment systems that pair with your phone. There's been a marketing push for these "connectivity features." When it comes to hands-free smartphone applications—including texting, calling, email, social media, apps, and dashboard functionality—there is money on the line. *Drivers are potential customers.* In the attention economy, drivers are an important market. Representatives from these industries actively lobby government officials to limit legal restrictions. It is true that some in these industries actively discourage drivers from engaging in handheld texting while driving, and this is important. Yet, these efforts can also be interpreted to exclusively attack the very most distracting activity while at the same time actively promoting other distracting behaviors.

Also, consider the laws like the handheld statewide texting bans that have proliferated across the US, as well as handheld smartphone bans like the Hands-Free Georgia Act that are beginning to appear. By outlawing only handheld phone usage, and specifically failing to restrict hands-free usage, drivers are sent the message that hands-free smartphone usage should be encouraged. The public-facing work of scientists and other activists against distracted driving cannot be understood to be merely an effort to provide an important message; it must be understood as a form of counter-messaging.

Ultimately, I hope we can abstract some useful things from my experience of slowly and awkwardly backing into public engagement on the issue of distracted driving. I certainly have learned much myself. I now approach my ongoing work on other topics differently. Of course, much of what I do, such as developing postphenomenological theory, still falls mainly in the category of traditional academic research. But as I engage in each new research effort, I am now on the lookout for how any project might have public applications. For example, when my current work on homelessness and the politics of public space came to take on a publicly relevant character, I was ready to act, and had already refined some of the relevant skills.

Public discussion on urgent and important topics requires experts not only to raise awareness of their research findings. They may need to do more than merely comment or weigh in. They may need to philosophize. That is, they may need to bring philosophy to bear on public discussions to urge people to think about topics in different ways, through different arguments, different conceptual frameworks, and different language.

Anyway, don't use your smartphone while driving.

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