AARHUS UNIVERSITY

Coversheet

This is the accepted manuscript (post-print version) of the article.

Contentwise, the post-print version is identical to the final published version, but there may be differences in typography and layout.

How to cite this publication (APA)

Please cite the final published version:

Aagaard, J. (2017). Introducing postphenomenological research: a brief and selective sketch of phenomenological research methods. *International Journal of Qualitative Studies in Education*, 30(6), 519-533. DOI: [10.1080/09518398.2016.1263884](https://doi.org/10.1080/09518398.2016.1263884)

Publication metadata

Title:	Introducing postphenomenological research: a brief and selective sketch of phenomenological research methods
Author(s):	Aagaard, Jesper
Journal:	International Journal of Qualitative Studies in Education
DOI/Link:	http://dx.doi.org/10.1080/09518398.2016.1263884
Document version:	Accepted manuscript (post-print)

General Rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Introducing Postphenomenological Research

Jesper Aagaard*

Department of Psychology and Behavioral Sciences, Aarhus University, Aarhus, Denmark

*Email: jaagaard@psy.au.dk

In time, phenomenology has become a viable approach to conducting qualitative studies in education. Popular and well-established methods include descriptive and hermeneutic phenomenology. Based on critiques of the essentialism and receptivity of these two methods, however, this article offers a third variation of empirical phenomenology: Postphenomenology. The article introduces postphenomenology, a philosophy of technology that highlights the importance of technological mediation of experience: Technologies transform our perceptions (amplify/reduce) and translate our actions (invite/inhibit). Based on this framework, two approaches to empirical fieldwork are suggested: In-depth exploration of the typical use of a given technology and critical comparison of multiple versions of a technology. It is argued that using postphenomenology as a research method helps researchers explore technological mediation, a vital and oft-neglected aspect of educational practice, but the method simultaneously entails epistemological commitments such as multistability, reflexivity, and posthumanism. The article concludes by discussing future challenges for the postphenomenological method.

Keywords: educational technology; materiality; mediation; phenomenology; qualitative research

Introduction

Phenomenology derives from the Greek *phainomenon*, which in its broadest and most basic sense means ‘that which shows itself from itself’ (Heidegger 2008, 51). Traditionally, many branches of science and philosophy have sought truth by going beyond the subjective veil of human experience to an underlying, objectively true reality. Phenomenologists question this enterprise and are instead concerned with human experience before it is abstracted, reduced, and explained. ‘When a physicist tries to persuade you that what you *really* see are light waves bouncing off the reflective surfaces of physical bodies’, Wrathall (2005, 9) explains, ‘her argument is unphenomenological’. The physicist is confusing immediate experience with mechanical causes, our everyday world with the physical universe. On the neurophysiological level, it may be true that light waves hitting the retina lead to activity in the brain. On the phenomenological level, however, we directly perceive things in our lifeworld. Phenomenology is devoted to exploring this lived experience. Its overarching principle is captured in Husserl’s dictum: *Zu den Sachen selbst!* (‘to the things themselves!’) (Carman 2006). Phenomenology, however, is a rich, vibrant, and fractured field.

In time, phenomenology has even become a viable approach to conducting qualitative research. What started out as a philosophical enterprise has branched out into empirical research methods like *descriptive phenomenology* (Giorgi 2009) and *hermeneutic phenomenology* (van Manen 1990). As a researcher in the field of educational technology, however, I face the dilemma of being inspired by phenomenological philosophy, yet uneasy with both of these research methods that have become almost synonymous with doing empirical phenomenology (Smith 2008, Willig and Stainton-Rogers 2008, Howitt 2013)¹. The purpose of this article is therefore to sketch out a new phenomenological research method based on a philosophy of technology known as *postphenomenology* (Ihde 2009).

The upshot of this development includes an enhanced sensitivity to materiality. This material turn is much needed in the ‘sociocentric’ field of education in which the role of material things continues to be blackboxed (Waltz 2004). This methodological agenda permeates the rest of this article. The article has a tripartite structure with each section introducing a phenomenological research method, providing an account of its philosophical background, and discussing its theoretical assumptions. To enhance readability, I here provide a schematic preview of the end-result (see Table 1):

	Descriptive phenomenology	Hermeneutic phenomenology	Post- phenomenology
Theoretical proponent	Amedeo Giorgi	Max van Manen	Don Ihde
Ontological cornerstone	Consciousness	Language	Embodiment
Phenomenological method	Modernist science	Postmodern art	New materialist craft
Epistemological objective	Describe essence	Interpret meaning	Explore mediation
Methodological challenges	Essentialism	Receptivism	Discourse

Table 1: A summary of the presently discussed phenomenological research methods

Descriptive phenomenological research

The use of phenomenology as a research method originated at Duquesne University in the 1970s. After traveling around Europe in 1969, Amedeo Giorgi concluded that no psychologists were doing empirical research with a phenomenological research method and decided to produce a constructive alternative to the usual critiques of empirical psychology that were written from phenomenological perspectives (Giorgi 2009). Hence, Giorgi founded the descriptive phenomenological method by modifying Husserlian phenomenology so that it became useful for his empirical purposes.

Descriptive phenomenology’s philosophical background

Edmund Husserl effectively inaugurated phenomenology as a discernible movement by focusing on the way the world appears before consciousness. Husserl (1983, 111) held that pure consciousness is self-contained and that ‘a veritable abyss yawns between consciousness and reality’. Bridging the gap, however, is the notion of *intentionality*, which Husserl emphasized as the mark of the mental: Consciousness is always consciousness of something. It is always directed towards its objects (real or imagined) and is invariably a consciousness-of: Hearing is a hearing-of a sound, remembering is a remembering-of an event. The significance Husserl saw in this ‘aboutness’ was that things appear to us only as correlates of consciousness (that is, as perceived, remembered, etc.). Phenomenology’s task is thus to bring structures of consciousness like perception and memory to direct givenness and investigate them according to their essences (Husserl 1965). An investigation of this kind is to be carried out on the basis of what the things themselves demand. What is decisive in this process,

Husserl (1983, 218) argued, is the ‘absolutely faithful description of what is actually present in phenomenological purity and in keeping at a distance all the interpretations transcending the given’. Husserl’s intuition of essences consists of several sequential and interlocking steps: Bracketing ones so-called ‘natural attitude’ or everyday way of perceiving the world (the epoché), describing an exemplary singular of a phenomenon and reducing this description to its essence (eidetic reduction), and, finally, eliminating accidental elements in this preliminary definition through subtle alterations to see which elements withstand such transformations (free imaginative variation). Although this method was thought to provide a foundation for the human sciences, Husserl had a philosophical aim in founding phenomenology that was not immediately connected to empirical research.

Descriptive phenomenology as a research method

Giorgi (1997) follows Husserl in arguing that phenomenology is concerned with how phenomena are given to consciousness, which has at least two modes of operation: Everyday experience of real objects in the natural attitude and a phenomenological intuition of presences. Giorgi’s descriptive phenomenology is a consistent, strict, and systematic study of phenomenological presences that is sensitive to the intricacies of consciousness, yet respects the rigorous spirit of science (Applebaum 2010). The end goal of this method is to ascertain invariant aspects of psychological phenomena: ‘What does it mean psychologically to learn, to remember, to perceive, to imagine, and so on?’ (Giorgi 2008, 36). In other words, descriptive phenomenology strives to discover and articulate the essential structures of psychological phenomena. The major change in Giorgi’s conversion of Husserl’s method into an empirical research approach is that the researcher gathers natural attitude accounts from other people who have experienced the phenomenon in question. As Giorgi (1997, 243) explains, ‘The turn to others is chosen in order to avoid the possible objection of bias, and the natural attitude is utilized because, practically, one cannot expect all of the persons in the whole world to be phenomenological and thus be capable of assuming the attitude of the reduction’.

According to Giorgi (2009), the first step in the empirical research process is to obtain concrete and detailed descriptions from people who have experienced situations in which the phenomenon has taken place. Such descriptions are mostly elicited by conducting interviews: ‘Please describe for me in as much detail as possible a situation in which you have experienced X (e.g., learning)’. This process is repeated with at least three participants to get varied descriptions. The researcher then goes home, transcribes the interviews, and reads and rereads the transcript to become intimately familiar with the data and get a good sense of the whole. The transcription is thereafter divided into smaller *meaning units* by making a mark every time the researcher experiences a significant shift in meaning related to the phenomenon under study. Next, the researcher transforms the meaning units into psychologically pertinent expressions using third-person language. This transformation means going over each meaning unit and expressing its psychological implications with what Giorgi (2009, 135) calls a ‘generic, atheoretical psychological attitude’. The researcher then uses eidetic reduction to articulate the invariant structure of the given phenomenon by synthesizing and bringing together transformed meaning units that are revelatory of the phenomenon into an inexact essence. Finally, using free imaginative variation, the researcher removes aspects of this holistic description to distinguish incidental from essential features: ‘An important criterion in this process is whether

the structure would collapse if a potential constituent were removed. If it does, the constituent is essential; if the structure does not collapse, then the constituent is not essential' (Giorgi 2009, 199). Ultimately, the researcher is left with a general description of the given phenomenon that is shorn of specifics peculiar to individual instances.

The psychological meanings of a given phenomenon are thus teased out from the raw data of participants' descriptions, and this material is ultimately boiled down to its essence. This essence must coincide with all possible ways of experiencing the phenomenon in question. As such, this method does not aim to analyze particular experiences of a given phenomenon, but to extract the essence that belongs to it as a phenomenon of that specific kind (e.g., learning). Indeed, describing essences is the *sine qua non* of descriptive phenomenology (Wertz 2010). Throughout the research process, the researcher refrains from interpreting or bringing in any non-given knowledge about the phenomenon to account for what she is trying to understand. Subjectivity cannot be eliminated, Giorgi (1994, 205) argues, but it *can* be transcended, and value neutrality and objectivity are in fact achievements of bracketed researcher subjectivity: 'The reduction is a means of rendering oneself as noninfluential as possible during the research process (neutral) in order to come up with valuable (value) findings'. Only by setting aside past knowledge and previous experiences can the researcher approach a given phenomenon with an unadulterated mind and perceive it from a fresh perspective. Barbro Giorgi (2006, 84) provides an illustrative anecdote about a biologist who recruited children to study the patterns of butterfly wings: 'The biologist had studied butterflies for years and was so used to looking at their various patterns that she lacked the freshness of the gaze of young children simply looking with curiosity at the butterflies'. Not only is past knowledge bracketed, researchers are also cautioned not to go beyond the empirically given data (i.e., the interview transcriptions) when accounting for the phenomenon. As implied by its name, this method is wedded to a strictly descriptive logic.² As Giorgi (2008, 52) maintains, the findings of descriptive phenomenology are 'discoveries, not constructs' that transcend the consciousness of the researcher.

Descriptive phenomenology's essentialism: A critique

Descriptive phenomenology makes a key point out of arriving at an unprejudiced description of the essence of a given psychological phenomenon. While Giorgi's experiential fidelity and theoretical consistency are nothing short of exemplary and his method has played a crucial role in legitimizing a use of qualitative research methods in education, this self-conscious search for essences relies on a modernist, objectivist, and realist epistemology that can be construed as problematic. As Klein and Westcott (1994) have argued, the use of natural language like 'desire', 'friendship', or 'learning' to designate psychological phenomena as topics for study reflects the assumption that corresponding to each of these terms is a discrete phenomenon with a stable and singular core that is identical to everyone. There is presumably a single feature (or a non-trivial intersection of features) common to all experiences of 'learning', for instance, in virtue of which these are experiences *of* learning. This essence must remain constant through all social, historical, and political contexts. Furthermore, for empirical research to become relevant, this essence must be named by something other than the word 'learning' itself or a simple synonym. But one of the major achievements of twentieth-century philosophers like Ludwig Wittgenstein was questioning

the plausibility of this kind of *essentialism*.

Through sustained reflection on various reading experiences (e.g., reading print versus Morse code, ordinary print versus capital letters, right to left versus left to right), Wittgenstein (2009, §168) comes to the following conclusion: 'But what in all this is essential to reading as such? Not any one feature that occurs in all cases of reading'. Wittgenstein's point is that objects classified under a single name do not necessarily share any one common feature, but only a plethora of *family resemblances*, that is, clusters of correlated features. We can often recognize similarities between members of the same family, but we cannot find one single feature that they all have in common. In other words, any pair of things in a class shares *some* characteristics but no *one* characteristic is shared by all. According to this argument, 'learning', for instance, does not necessarily consist of a single essence draped in a number of incidental features, but may instead cover a broad spectrum of heterogeneous experiences that share only family resemblances. Rather than looking for a hidden essence, we should look for similarities, affinities, and differences. By extracting the 'essence' of something from only one of its variations, we actually risk distorting the phenomenon in question. Like Wittgenstein, however, other strands of phenomenology have abandoned the insistence on essentialism, phenomenological purity, and on keeping at a distance all forms of interpretation. One such strand is hermeneutic phenomenology.

Hermeneutic phenomenological research

The empirical version of hermeneutic phenomenology was developed at the Utrecht School in the 1970s. The Dutch phenomenologists, however, were unconcerned with methodology and did not describe the methodological guidelines they followed in their research. Max van Manen's writings can be seen as attempts to spell out such guidelines. According to van Manen (1990, 4), the purpose of hermeneutic phenomenology is to interpret the 'texts' of life. To understand what this textual metaphor means, we must first understand its hermeneutical backdrop.

Hermeneutic phenomenology's philosophical background

The word 'hermeneutics' has its origins in Greek *hermeneuein*, to interpret, and derives from the mythological figure Hermes, the winged messenger of the gods. Originally, hermeneutics referred to a methodology for interpreting the meaning of sacred texts. Later, Wilhelm Dilthey (1976, 89) extended hermeneutics to apply to life itself as captured in his now famous epistemological dictum, 'We explain nature, but we understand mental life'. Finally, Martin Heidegger (2008) inaugurated ontological hermeneutics by asking about the being of the entity that understands. This would turn out to be the human being, or *Dasein*. According to Heidegger's ontological analysis of *Dasein*, human understanding is always interpretive (we always understand something 'as-something'), which means that interpretation is an inescapable part of being-in-the-world. Heidegger (2008, 191f) thus denied the possibility of 'presuppositionless apprehending of something presented to us'. His hermeneutic phenomenology further ascribed a decisive role to language, because language generates and makes possible all contexts of human activity (Guignon 1983). Language, as Heidegger later put it, is the house of Being. In spite of an increasing concern with language, however, explicitly hermeneutic issues largely disappeared from Heidegger's writings after *Being*

and Time (2008). The hermeneutic legacy was instead continued by Heidegger's student Hans-Georg Gadamer, who emphasized the 'linguisticity' (*Sprachlichkeit*) of experience (Moran and Mooney 2002). Gadamer (1976, 3) argues that being human means being in language: 'Language is the fundamental mode of operation of our being-in-the-world and the all-embracing form of the constitution of the world'. Our world is constituted by language. Accordingly, the object of hermeneutic inquiry is the textual structure of human activity in the social, cultural, and historical context of its occurrence (Packer 1985).

What is 'phenomenological' about hermeneutic phenomenology?

Hermeneutic phenomenology may combine hermeneutics and phenomenology, but phenomenology remains the operative word. Hermeneutic phenomenology continues to reject external variables and theoretical frameworks that aim to provide a 'true' view of human experience. This not only applies to sciences that go beyond immediate experience in search of causal laws, but also to strands of hermeneutics that go beneath it: According to such approaches, which Paul Ricœur (1970) labeled *hermeneutics of suspicion*, there is meaning to be found in the world (hermeneutics), but we should doubt the human motives that lie beneath it (suspicion), because all expressed meaning conceals a hidden truth. For Marx this hidden truth was class struggle, for Freud it was libidinous drives, and for Nietzsche it was the will to power. In this type of inquiry, the researcher does not take people's experiences at face value, but invokes deeper interpretations that explain away their accounts: 'You may experience the phenomenon as A and B, but there is *actually* talk of X and Y'. Hermeneutic phenomenology departs from such suspicious approaches that are 'so wildly interpretive that they have lost all phenomenological (experiential) bearings' (van Manen 2014, 26). This approach may point to things that are hidden in our midst, but not to things that are operating behind our backs.

Hermeneutic phenomenology as a research method

Hermeneutic phenomenological research originates from an understanding that lived experience is soaked through with language: 'In one sense the notion of textuality becomes a fruitful metaphoric device for analyzing meaning. If all experience is like text then we need to examine how these texts are socially constructed' (van Manen 1990, 39). The affinity with the work of Gadamer means that this approach is reluctant to formalize its methodology into standardized step-by-step procedures. This anti-methodical stance makes it difficult to give an account of hermeneutic phenomenology as a method, but certain common traits or family resemblances can be drawn out across writings.

When it comes to the collection of empirical data, hermeneutic phenomenology's methodology resembles that of descriptive phenomenology in that it advocates starting with a Husserlian epoché: van Manen (2014) argues that it is helpful to perform a two-step reduction (stemming from the Latin *re-ducere*, which means to lead back) that consists of bracketing pre-existing assumptions about a phenomenon and returning to the mode of appearing of the phenomenon. According to van Manen, abiding by this reduction leads us back to lived experience. Briefly explained, the rest of the methodology consists in formulating a 'proper' phenomenological question (i.e., a question relating to the lived meaning of phenomena), empirically collecting lived experience descriptions (LEDs), thematically analyzing such descriptions in order to creatively grasp and elucidate meanings that are

‘embodied and dramatized in human experience represented in a text’ (van Manen 2014, 319), and then, finally, presenting these meanings in a rich and vibrant language. The qualitative interview still figures as the principle supply of meaning (Friesen 2012).

While the data collection of hermeneutic phenomenology may be similar to that of descriptive phenomenology, the two methodologies rely on strikingly different epistemologies: Compared to descriptive phenomenology, hermeneutic phenomenology involves a process of ‘contextualization and amplification rather than of structural essentialization’ (Hein and Austin 2001, 9). Hermeneutic phenomenology rejects the idea of fixed, timeless, and acultural essences of experience (Henriksson and Friesen 2012). Its epistemological goal is to interpret the texts of life in descriptions that are evocative and powerful, yet for the very same reason remain contestable: ‘A phenomenological description is always one interpretation, and no single interpretation of human experience will ever exhaust the possibility of yet another complementary, or even potentially richer or deeper description’ (van Manen 1990, 31). Because this method is anchored in the hermeneutic tradition, it places great emphasis on the poetic qualities of language and is very concerned with the textual presentation of its findings. It opts for creative forms of writing and its results are offered to readers as insights. When producing such insights, hermeneutic phenomenologists do not adhere strictly to the given (i.e., transcriptions), but also seek to evoke understanding through the use of examples from literary novels, short stories, painting, and poetry. ‘Phenomenology, not unlike poetry’, says van Manen (1990, 13), is a ‘poetizing project; it tries an incantative, evocative speaking, a primal telling, wherein we aim to involve the voice in an original singing of the world’. Compared to the veneration of science we find in descriptive phenomenology, hermeneutic phenomenology can be understood as more of an art that focuses on the performative aspects of language (Finlay 2012). Descriptive phenomenologists less generously describe the method as a confused amalgamation of Husserlian phenomenology and postmodernism that is ‘incapable of yielding rigorously scientific knowledge’ (Applebaum 2010, 47).

Eschewing the notion of essences does raise the question of validity: Which criteria do we have for deciding whether a study constitutes good phenomenology? According to van Manen (1990), a good phenomenological description resonates with lived life and evokes a *phenomenological nod* of recognition from the reader. The vital factor is not that research corresponds to an objective reality cleansed of human interest (or ‘subjective bias’), but that it taps into a shared realm of experience (Friesen 2012). Norm Friesen (2012) helpfully explains this hermeneutic epistemology through a discussion of personal pronouns: In order to distance itself from the subjectivism of the ‘I’ and the objectivism of the ‘it’, hermeneutic phenomenology opts for the intersubjectivity of the ‘we’. This ‘we’ designates the social realm of culture, norms, and language, which cannot be reduced to a plurality of first-person perspectives (a multitude of ‘I’s’). With a drop of grammar, this rhetorical maneuver effectively dissolves the accusations of subjectivism often made against phenomenology (see Greiffenhagen and Sharrock 2008).

Hermeneutic phenomenology’s receptivism: A critique

Due to its advanced epistemological apparatus, hermeneutic phenomenology adeptly counters all charges of essentialism that can be leveled against descriptive phenomenology. What I find odd

about this research method is therefore its inexplicable insistence that phenomenology is somehow *exempt from being a theory*. As an example, van Manen (2014, 23) claims that in order to do phenomenology one must ‘love the thinking of the great phenomenological minds even more than the work of their interpreters’, yet goes on to assert that a true phenomenologist ‘distrusts theory’ (65). He thus acquits phenomenology of being a conventional theory and instead envisions it as a sort of *attitude* (and not, say, a form of hermeneutic preunderstanding). According to this narrative, phenomenology simply helps researchers remain open and attentive. When describing the epoché, van Manen (2014, 223) enthusiastically describes the mind being ‘cleared of garbage’ and talks about ‘opening up and freeing oneself from obstacles’ (2014, 228). By using this method, we are liberated from the restraining shackles of theory and free to see the light of lived experience. Even as a proponent of phenomenology, however, I find it dubious to claim that phenomenology helps us remain open, whereas other theories lead to narrow, restricted, or closed perspectives. I believe we should discard this disposition, which a colleague poignantly called *receptivism*. In a sense, this critique follows but inverts the earlier appraisal of hermeneutic phenomenology as a rather confused amalgamation of Husserlian and postmodern philosophy: When embracing postmodern notions of interpretation, meaning, and antiessentialism, we must abandon notions of bracketing and untainted ‘openness’. Let me show why it is problematic if we do not.

At the most general level, van Manen has long suggested that a fundamental set of existentials pervades the human lifeworld and suggests that these existentials can serve as guides for research projects (in what is known as Guided Existential Reflection). In other words, existentials may direct researchers’ gazes towards important aspects of the lifeworld. In the now classic *Researching Lived Experience* (1990), van Manen describes these four existentials: Lived human relation (e.g., the warmth of a kind person), lived body (e.g., the self-awareness of public speaking), lived space (e.g., the solemn mood of a cathedral), and lived time (e.g., the quick flow of time when reading a good book). Human experience is relational, corporeal, spatial, and temporal. In the recent publication *Phenomenology of Practice* (2014), however, he quietly adds a fifth existential: Lived things. With almost any research topic, van Manen argues, we may ask how *things* contribute to our experience. With this material turn, hermeneutic phenomenology has widened its scope to include mundane artifacts such as blackboards, tables, pencils, books, computers, and other medium-sized dry goods that play crucial roles in educational practice. Unless we assume that phenomenological researchers conducting Guided Existential Reflections in the intervening 24 years discovered the importance of lived things by remaining ‘open’ to experience (in which case, why make the 2014 addition?), this development clearly illustrates that phenomenology is a theory that remains open to revisions. Even phenomenology relies on certain theoretical assumptions that can (and must) change, expand, and evolve by engaging with other theories. In the case of van Manen’s (2014) material turn, such ‘insight cultivators’ include postphenomenology and actor-network theory. Such developments will have profound implications for our attentive gazes, and we cannot neglect this pragmatic aspect of our theories and simply claim to be ‘open’ to experience. Moving on to postphenomenology, I thus consider its contribution twofold: An enhanced sensitivity to materiality and increased reflexivity.

Postphenomenological research

In the 1970s, Don Ihde became interested in technology, particularly technologies of science, and developed what came to be known as postphenomenology, a philosophy of technology that builds on phenomenological insights. The prefix 'post-' implies a movement beyond phenomenology, and this method does diverge from older strands of phenomenology in at least three important ways: First, it is not concerned with immaterial subjectivity, but with bodily relations to technologies. Embodiment thus replaces Husserlian consciousness and its 'disembodied view-from-nowhere' (Ihde 2008, 3). Second, it is committed to the notion of multistability, which ontologically replaces the essences of Husserlian phenomenology and refers to a technology's various partially determined trajectories in different contexts (Ihde 2009). A lighter, for instance, is usually used to light things like candles or cigarettes, but can also be used to open bottles. There is thus no 'essential' use of the lighter. New technologies like laptops, tablets, and smartphones are even designed to incorporate such multistability (Ihde 2012). Finally, Ihde (2009, 63) holds that hermeneutic phenomenology remains under the influence of a linguistic turn in twentieth-century continental philosophy in which 'the silent privilege of the linguistic continued to hold sway'. Ihde replaces this postmodern world-as-text metaphor with a perceptual-bodily referentiality. The anchor in postphenomenology, in other words, is *embodiment*. This bodily focus owes a great debt to Maurice Merleau-Ponty.³

Postphenomenology's philosophical background

Maurice Merleau-Ponty's (2002) phenomenology reveals the bodily nature of human perception. Perception is not the mental product of some conscious subject, but constitutive of our intentional bodily directedness towards the world (Carman 2008). In fact, much of our everyday activity is based on nonconceptual embodied coping skills that we share with prelinguistic infants and higher animals (Dreyfus 2006). Merleau-Ponty further argues that this embodied nature allows for the formation of certain habit structures. In time, well-practiced activities are sedimented into habitual dispositions. Merleau-Ponty's examples include the use of a feathered hat, a car, a blind man's stick, a typewriter and an organ. With practice, the blind man's stick changes his perceptual relation to the world. As the stick becomes transparent in use, the man's bodily-perceptual focus shifts from tool to world. He no longer feels the stick's pressure in his hand, but instead senses the sidewalk at the end of it. As such, this human-technology relation extends his perceptual awareness. According to Merleau-Ponty (2002, 166), such habits blur the classical distinction between subject and object, body and world: 'To get used to a hat, a car or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body. Habit expresses our power of dilating our being-in-the-world, or changing our existence by appropriating fresh instruments'. Accordingly, when we acknowledge the fundamentally embodied nature of human existence, we simultaneously have to take into consideration how the body prereflectively stretches onto things, uses things, and is in turn used by things. As Ihde (1998, 151) puts it, 'The postmodern hermeneutics of things must find ways to give voices to things, to let them speak for themselves'.

Postphenomenology as a philosophy of technology

Postphenomenology was originally designed to explore the technologies of science. It is true that this explicit focus on *materiality* seems to limit the scope of this approach. It is also true, however, that educational practice is practically bursting with materiality (Sørensen 2009). Hence, giving artifacts a voice is much needed in the ‘sociocentric’ field of education in which the role of things continues to be blackboxed (Waltz 2004). But how do we accomplish this task? To answer this question, we must first look at postphenomenology as a philosophy of technology.

We sometimes speak of things and technologies as neutral instruments, as mere means to human ends. The famous NRA slogan, ‘Guns don’t kill people, people kill people’ epitomizes this widely held belief. According to this instrumentalist view of technology, an inanimate object cannot change the latent compulsions of its user. Human subjects are active and intentional, while material objects are passive and mute. A main tenet of postphenomenology is that this characterization is in fact incorrect and that technologies actively *mediate* our everyday being-in-the-world (Ihde 1990). Being intentionally directed toward the world through a technology transforms our perception in accordance with the characteristics of that particular artifact. Another tenet of postphenomenology is that such transformation always involves a trade-off: Technologies are invariably non-neutral. Any technological artifact amplifying certain aspects of our experience of the world will, however subtly, simultaneously reduce others. Take glasses as an example: At first glance, glasses merely improve one’s visual acuity, but if we explore this mundane human-technology relation carefully, a number of ‘side effects’ appear (such insights have in fact been gathered online under the hashtag #GrowingUpWithGlasses): People with glasses are plagued by the impossibility of reading in bed while lying on the side. Glasses tend to limit one’s sense of spatial motility, which means they can be a nuisance for sports activities. Glasses get greasy, they get wet, and they steam up. As perhaps gleaned from even such short explorations, it is easy enough to provide a functional definition of a given artifact (‘glasses enhance vision’), but this too easily reduces the role of technology to sheer instrumentality. Postphenomenology shows how technologies do more than simply function: They *transform our experiences*.

Peter-Paul Verbeek (2005) has further developed postphenomenology by drawing on Bruno Latour’s actor-network theory (ANT) to argue that technologies not only transform our experiences (through amplification and reduction), they also *translate our actions*. Such translations have the structure of invitation and inhibition: Technologies invite or solicit certain actions while inhibiting others. A speed bump, for instance, materially says ‘slow down when you approach me’, while a Styrofoam cup says ‘throw me away after use’. Any given technology has a certain directionality, inclination, or trajectory that promotes a distinct way of being used. But technologies do not afford these action possibilities to pre-existing subjects with fixed goals and desires. To Verbeek (2005), the term ‘mediation’ designates how technological artifacts influence the relation between subject and world, so that both entities emerge only in their connectedness with each other. In this mutual constitution of subject and object, mediation becomes the origin of entities rather than a middle position between them. Postphenomenologists thereby dismiss what Verbeek (2009) calls *apartheid metaphysics* and instead regard material technologies as active mediators of human perception and action. Against the modern image of the autonomous subject, postphenomenology emphasizes an amodern, heteronomous subject whose comportment is always closely interwoven with the material

environment in which it plays out (Verbeek 2011). This technological mediation of intentionality, however, does not imply an elimination of human freedom. Technologies do not *determine* what we do: They set up spaces of possibilities that enable and constrain certain actions and perceptions, but the room for maneuver within these spaces is what constitutes human freedom. Human freedom is not an absence of technological influences, but the practice of coping with such influences. ‘Rather than clinging to a view of human freedom as absolute autonomy and sovereignty from technology, it seems wise to reinterpret freedom as a person’s ability to relate to what determines and influences him or her’ (Verbeek 2011, 156).

The posthumanist distribution of agency to humans and technologies calls attention to an abundance of overlooked yet relevant features of the human lifeworld. As postphenomenologists’ painstaking explorations have made apparent, however, surpassing strictly functional descriptions of technologies requires careful observation and know-how. Accordingly, postphenomenological analysis is best conceived as a sort of craftsmanship or skilled engagement with technologies. The method neither searches for unchanging truths nor moves its readers through poetic imagery, but meticulously explores ‘what things do’ (Verbeek 2005). Or, to put it in more formal terms: Whereas descriptive phenomenology can be seen as *modernist* in its search for essences, and hermeneutic phenomenology’s textualism resembles *postmodernism*, postphenomenology is closely aligned with the *new materialisms* of Donna Haraway, Bruno Latour, and Andrew Pickering in which materiality plays subtle and deep roles (Ihde and Selinger 2003). But postphenomenology not only advances phenomenology intra-theoretically, it also fills an inter-theoretical void left by other new materialist approaches to education like ANT (e.g., Fenwick and Edwards 2010, 2012). According to Latour (2005, 61), there is big gap between ANT and (post-)phenomenology that stems from ‘the excessive stress given by phenomenologists to the human sources of agency’. Instead, ANT treats material technologies (or ‘nonhuman actants’) on par with people and makes no *a priori* distinctions as to who can act in any given situation. As a consequence of this flat ontology, ANT deliberately downplays the qualitative experiences of human beings (Sørensen 2013). Kalthoff and Roehl (2011), however, have argued that this self-conscious maneuver makes ANT plunge into the pitfall of symmetry, namely *semiotic indifference*: A leveling of distinctions between humans, technologies, and signs ultimately leaves unexplored the differences between such elements of practice. Radical material-semiotic approaches like ANT can thus be faulted for depicting ‘every worldly entity as swimming freely in a kind of semiological soup’ (Scharff 2006, 136). Postphenomenology circumvents this issue by reinstating human beings at the core of its theory, albeit in a renewed, posthumanist sense: While not going so far as to claim that technologies have any agency in themselves, this approach insists that agency is distributed across human beings and technologies. ‘Human beings have the ability to experience a world, and to act intentionally in it; things don’t. But distinguishing humans and nonhumans should not lead to a *separation* of both’ (Verbeek 2009, 255). This move allows the approach to analyze the sensuous dimensions of lived experience. So while ANT is very well-suited for studying complicated networks of relations from a third-person perspective, postphenomenology enables us to explore human-technology relations ‘from within’ (Rosenberger and Verbeek 2015).

Postphenomenology as a research method

Can we convert these philosophical insights into methodological guidelines? In a recent field guide to postphenomenology, Rosenberger and Verbeek (2015, 10) argue that postphenomenologists often employ micro-scale case studies to investigate how technologies shape our choices, actions, and experiences of the world, but when doing this research, ‘there is no strict postphenomenological methodology that scholars could follow’. In agreement with this statement, I now switch to slightly speculative gears in suggesting two different approaches that we might follow when empirically exploring mediation: 1) In-depth exploration of the *typical use* of a given technology and 2) critical comparison of *multiple versions* of a technology. My aim in describing these two approaches is not to provide prescriptive models for empirical inquiry, but to provide safe footing for scholars venturing into the field of postphenomenological research. I conclude this section by discussing reflexivity as the postphenomenologist sees it.

The first approach is inspired by Catherine Adams and Terrie Lynn Thompson’s (2011) work on *interviewing objects*. The authors blend insights from postphenomenology, ANT, media ecology, and hermeneutic phenomenology to argue that qualitative researchers should interview educational technologies in order to disclose their material agencies. This somewhat peculiar request is based on the etymological roots of the word ‘interview’ and translates into catching insightful glimpses of artifacts in action. Already here, we spot a methodological novelty: Contrary to Howitt’s (2013, 128) argument that phenomenological methods are ‘inappropriate for participant observation data’ because they require detailed accounts of people’s experiences, postphenomenology seems open to ethnography and participant observation because of its focus on materiality (Aagaard & Matthiesen 2016). To assist researchers in catching such insightful glimpses of educational technologies, Adams and Thompson (2011) provide a list of eight helpful heuristics for exploring technological mediation that includes *recognizing the amplification/reduction structure of human-technology relations* and *attending to the invitational quality of things*. These heuristics help researchers perform in-depth explorations of technological artifacts. As a working example of interviewing objects, the authors demonstrate how PowerPoint invites a teacher to shape his or her knowledge in a particular ways through its layout: ‘Click to add title’, ‘• Click to add text’. Hence, PowerPoint invites a linear form of thinking that is expressible in terms of bullet points and, in turn, inhibits the dissemination of complex narratives and data forms. This analysis neatly illustrates the non-neutrality of the popular presentation tool. In addition to the (auto-)ethnographic data collection implied by this example of, I have personally found it helpful to interview other people (i.e., students and teachers) about their technologically mediated experiences (Aagaard 2015).

The second approach is based on Robert Rosenberger’s (2014) *variational cross-examination*. This method contrasts the various stabilities of a technological artifact (e.g., a lighter as-fire-starter and as-bottle-opener) for the purpose of exploring the dominant stability. This entails a two-step process consisting of variational analysis to identify a number of concrete stabilities followed by a critical contrasting of these stabilities through detailed comparison (or ‘cross-examination’) of their features. Such features include *contextual embedment*, *material make-up*, and *relation to embodied users*. As an example, Rosenberger analyzes the public bench by juxtaposing the bench-as-seat and the bench-as-bed stabilities: Its long horizontal surface makes the classic public bench a multistable technology on which we may both sit and sleep. The recent addition to many public benches of

vertical dividers between seats, however, creates ‘sleep-prevention benches’ that preclude lying down and forecloses the bench-as-bed stability. These benches are materially tailored to prevent homeless people from sleeping on them. For people accustomed to sitting on benches, however, the bench-as-seat option may be perceived so habitually that these changes go unnoticed. ‘Because the dominant bench-as-seat stability is not interrupted by this tailoring, and because the homeless population is disenfranchised, it could be easy for the functioning of this tailoring to go unnoticed by the bench-as-seat users’ (Rosenberger 2014, 388). By contrasting two versions of a public bench, variational cross-examination makes this development explicit. It helps create a critical awareness of how this version of the bench affects the human lifeworld. In an educational context, this kind of critical contrasting can be found in Anne Mangen’s analyses of digital versus analog books and writing tools (Mangen and Kuiken 2014, Mangen and Balsvik 2016). Both of these proposed methods, interviewing objects and variational cross-examination, help us illuminate technological mediations of perception and actions as they occur in the classroom.

Let me add a note on reflexivity: Dismissing classical phenomenology’s ambition to describe the world in itself, Verbeek (2005, 108) interprets phenomenology as a philosophical movement whose principal task is ‘to analyze the relation between human beings and their world’. Verbeek uses this interpretation to direct attention to technological artifacts’ mediating role in the human-world relation (human-technology-world), but this argument equally applies to the empirical field as disclosed by a theoretically informed researcher (researcher-theory-field): Theory is not a neutral lens through which we perceive a pre-given phenomenon, but an intellectual tool that shapes our research process all the way down to data collection. It influences what we see, which questions we ask, and what ultimately stands forth in our data as particularly significant. ‘Descriptions are never impartial; they are mediated at the very least by the vocabulary in which they are couched’ (Verbeek 2005, 162). Postphenomenology is just one among many theory-laden ways of making sense of the world, which is why it is crucial to be reflexive about one’s theoretical allegiances. This stubborn insistence on reflexivity also means that this approach replaces the bracketed scientist and the receptive poet with the situated researcher of feminist research: ‘Is she or he a member of the community within which the technology is used in its dominant stability? If not, then from whom has she or he learned about these practices? Is this investigator’s vantage point one of privilege, institutionalized recognition, marginalization, etc.?’ (Rosenberger 2014, 385).

In summary, postphenomenology helps researchers explore technological mediation, a vital and oft-neglected aspect of educational practice. This can either be done through in-depth exploration of the typical use of a given technology (e.g., PowerPoint) or critical comparison of multiple versions of a technology (e.g., analog and digital books). Regardless of data collection and analysis, such empirical explorations of technological mediations help us surpass instrumentalist views and gain nuanced understandings of educational technologies. As an empirical research method, however, postphenomenology entails strong epistemological commitments such as multistability (as opposed to essentialism), reflexivity (as opposed to receptivity), and posthumanism. It is my contention that both the method’s analytical promises *and* its epistemological demands are progressive and helpful in qualitative studies in education.

Postphenomenology's future challenges: Politics and discourse

Although the structure and content of this article emanates an unmistakable aura of progressivism, postphenomenology is by no means a perfect method. I therefore conclude the article by discussing two important criticisms of postphenomenology: Its conceptualizations of politics and discourse.

First, critics have argued that postphenomenology tends to treat technological mediation as an individual affair, which makes it remarkably 'apolitical' (Scharff 2006, Kaplan 2009). The critique is not that postphenomenology really *is* apolitical, but that it is too focused on technological mediations to critique the political systems in which these mediations take place: Only rarely does it discuss large-scale systems like financial markets, industrial systems, or political economies, and this lack of explicit political critique makes it complicit in current injustices. This argument thus reiterates the longstanding feminist critique that the concept of experience ultimately 'reproduces rather than contests given ideological systems' (Scott 1992, 25). Feminist phenomenologists have since addressed this critique: Michaela Ferguson (2009) argues that getting people to reflect on their everyday experiences *is* a political project. A good example is Iris Marion Young's essay *Throwing Like a Girl* (1980), which reveals how gender socialization inhibits women's spatial motility. Such awareness raising enables us to problematize the status quo (Oksala 2014). This rehabilitation of experience also applies to postphenomenology: On one hand, insisting on 'letting things speak' does impede large-scale critiques of capitalism, technocracy, or neoliberalism, because at this level of abstraction, technologies are too often reduced to mere symptoms (what Latour calls 'intermediaries') of such nebulous entities. On the other hand, micro-scale analyses of concrete technologies *do* help us contest specific practices by raising critical awareness: 'So public benches are designed to deter the homeless? That's so cynical'. Hence, postphenomenology may not have an inherent *politics*, but it certainly is *political* in that it paves the way for phenomenologically informed interventions. So while there might be a kernel of truth in the political critique (postphenomenology is indeed concerned with bodily relations to technologies), a wholesale dismissal of the methodology as apolitical seems unhelpful. In fact, even poststructuralist analyses of panoptic power revolve around some sort of technological mediation since disciplinary architecture presupposes embodied subjects (Crossley 1993).

Secondly, and perhaps more pertinently, is the issue of discourse. Postphenomenology rejected the *horror materie* of a postmodern current of thinking that reduces things to 'projection screens for our interpretations' (Verbeek 2005, 1). Instead, it sought to give things their due attention. This material turn was a turn from language to artifacts, from words to things. Coeckelbergh (2015, np.), however, argues that this enhanced sensitivity to materiality came at the cost of instrumentalizing language: 'When artefacts entered centre stage, language retreated to the background, to the point of disappearing'. In the process of giving voice to artifacts, postphenomenology has committed the opposite yet equally unhelpful error of neglecting discourse: Language has been muted. This is a major problem, Coeckelbergh (2015, np) argues, because language matters: 'It matters for instance if someone uses the word "robots" or "machines" as opposed to "assistive device"'. This critique undoubtedly hits a sore point: Issues raised by discursive psychology have long been lurking in the shadows of phenomenological research (Langdridge 2008)⁴. According to Coeckelbergh (2015), there are two ways to resolve this problem: One route returns to hermeneutic phenomenology where language is seen as *constitutive* of experience, while the other starts from postphenomenology and

sees language as semiotically *mediating* experience. Combining a constitutive view of language (the world-as-text) with an experiential sensitivity (perceptual-bodily referentiality) seems like a tricky task, but the second route sounds promising. I here leave this path open for future research.

Conclusion

Phenomenology has become a viable approach to conducting qualitative research in education. Established and popular methods include descriptive and hermeneutic phenomenology. Based on critiques of the essentialism and receptivity of these methods, however, this article offered a new phenomenological research method: Postphenomenology. This approach springs from a philosophy of technology that highlights the importance of technological mediation of everyday experience: Technologies transform our perceptions (amplify/reduce) and translate our actions (invite/inhibit). By philosophically fusing multistability (as opposed to essentialism) and reflexivity (as opposed to receptivism) with an experiential sensitivity to materiality, postphenomenology not only constitutes a step forward compared to its phenomenological predecessors, it also fills a void left by other new materialist approaches: It allows us to study human-technology relations ‘from within’ the human perspective. This article suggested two approaches that educational researchers might follow when empirically exploring technological mediations: In-depth exploration of the typical use of a given technology and critical comparison of multiple versions of a given technology. Using either of these approaches helps us surpass instrumentalist views and gain nuanced understandings of educational technologies, but entails strong epistemological commitments. Finally, it was argued that despite all its merits, postphenomenology still faces the challenge of combining an experiential sensitivity with attention to discourse.

Notes

1. This methodological hegemony does not include the relatively new phenomenological research method that is known as Interpretative Phenomenological Analysis (IPA). IPA has become a rather successful method of its own, but research method books tend to discuss IPA in chapters and sections that are separate from the ones devoted to ‘plain’ phenomenology (Smith 2008, Willig and Stainton-Rogers 2008, Howitt 2013).
2. This strictly descriptive logic has always confused me: If we accept the Husserlian premise that everyday experience is guided by a ‘realist’ natural attitude that needs bracketing plus Giorgi’s intimation that such bracketing requires a capability that we cannot expect from ordinary folks, why should we explore a phenomenon by sticking so closely to their descriptions? If material obtained from their descriptions is somehow deficient, wouldn’t our resulting claims be, too?
3. Postphenomenology also owes a great debt to Martin Heidegger, but has a rather ambivalent to the German philosopher. On one hand, postphenomenology explicitly builds on Heidegger’s (2008) famous tool-analysis and his account of a tool’s transparency in use. On the other hand, postphenomenology has self-consciously distanced itself from later Heidegger’s ‘backward-looking’ (Verbeek 2005) and ‘one-size-fits-all’ (Ihde 2010) conception of technology.
4. A fine example of this discursive challenge can be found in discursive-gone-phenomenological researcher Carla Willig’s (2007) qualitative study of extreme sports in which Willig notes how

her phenomenological methodology left unexplored the fact that her participants described their experiences by drawing on a biomedical discourse ('adrenaline buzz') instead of using more existential terms ('feeling alive').

Acknowledgements

I am deeply grateful to Robert Rosenberger for our constructive discussions of postphenomenology. I also thank three anonymous reviewers whose incisive comments have improved earlier drafts of this manuscript. All remaining errors, contradictions, and overgeneralizations are entirely my own.

Notes on contributor

Jesper Aagaard is a PhD student in the Department of Psychology and Behavioral Science at Aarhus University. He is interested in the relationship between using digital devices, paying attention, and becoming distracted as these phenomena coalesce and intertwine in the contemporary classroom.

References

- Adams, C. & Thompson, T. (2011). Interviewing Objects: Including Educational Objects as Qualitative Research Participants. *International Journal of Qualitative Studies in Education*, vol. 24(6), p. 733-750.
- Applebaum, M. (2010). Beyond Scientism and Relativism: Amedeo Giorgi's Commitment to Human Science. In: T. Cloonan & C. Thiboutot (eds.). *The Redirection of Psychology: Essays in Honor of Amedeo P. Giorgi*. Circle Interdisciplinaire de Recherches Phénoménologiques.
- Aagaard, J. (2015). Drawn to Distraction: A Qualitative Study of Off-Task Use of Educational Technology. *Computers & Education*, vol. 87, p. 90-97.
- Aagaard, J. & Matthiesen, N. (2016). Methods of Materiality: Participant Observation and Qualitative Research in Psychology. *Qualitative Research in Psychology*, vol. 13(1), p. 33-46.
- Carman, T. (2006). The Principle of Phenomenology. In: C. Guignon (ed.). *The Cambridge Companion to Heidegger*. Cambridge: Cambridge University Press.
- Carman, T. (2008). *Merleau-Ponty*. New York: Routledge.
- Coeckelbergh, M. (2015). Language and Technology: Maps, Bridges, and Pathways. *AI & Society*. Advance online publication. doi: 10.1007/s00146-015-0604-9.
- Crossley, N. (1993). The Politics of the Gaze: Between Foucault and Merleau-Ponty. *Human Studies*, vol. 16(4), p. 399-419.
- Dilthey, W. (1976). Ideas about a Descriptive and Analytical Psychology. In: H.P. Rickman (ed.). *W. Dilthey: Selected Writings*. Cambridge: Cambridge University Press.
- Dreyfus, H. (2006). Overcoming the Myth of the Mental. *Topoi*, vol. 25(1-2), p. 43-49.
- Fenwick, T. & Edwards, R. (2010). *Actor-Network Theory in Education*. London: Routledge.
- Fenwick, T. & Edwards, R. (2012). *Researching Education Through Actor-Network Theory*. Oxford: Wiley-Blackwell.
- Ferguson, M. (2009). Resonance and Dissonance: The Role of Personal Experience in Iris Marion

- Young's Feminist Phenomenology. In: A. Ferguson & M. Nagel (eds.). *Dancing with Iris: The Philosophy of Iris Marion Young*. Oxford: Oxford University Press.
- Finlay, L. (2012). Debating Phenomenological Methods. In: N. Friesen, C. Henriksson & T. Saevi (eds.). *Hermeneutic Phenomenology in Education: Method and Practice*. Rotterdam: Sense Publishers.
- Friesen, N. (2012). Experiential Evidence: I, We, You. In: N. Friesen, C. Henriksson & T. Saevi (eds.). *Hermeneutic Phenomenology in Education: Method and Practice*. Rotterdam: Sense Publishers.
- Gadamer, H.G (1976). *Philosophical Hermeneutics*. Berkeley: University of California Press.
- Giorgi, A. (1994). A Phenomenological Perspective on Certain Qualitative Research Methods. *Journal of Phenomenological Psychology*, vol. 25(2), p. 190-220.
- Giorgi, A. (1997). The Theory, Practice, and Evaluation of the Phenomenological Method as a Qualitative Research Procedure. *Journal of Phenomenological Psychology*, vol. 28(2), p. 235-260.
- Giorgi, A. (2008). Concerning a Serious Misunderstanding of the Essence of the Phenomenological Method in Psychology. *Journal of Phenomenological Psychology*, vol. 39(1), p. 33-58.
- Giorgi, A. (2009). *The Descriptive Phenomenological Method in Psychology: A Modified Husserlian Approach*. Pittsburgh: Duquesne University Press.
- Giorgi, B. (2006). Can Empirical Psychology be Drawn from Husserl's Phenomenology? In: P. Asworth & M. Chung (eds.). *Phenomenology and Psychological Science: Historical and Philosophical Perspectives*. USA: Springer.
- Greiffenhagen, C. & Sharrock, W. (2008). Where do the Limits of Experience Lie? Abandoning the Dualism of Objectivity and Subjectivity. *History of the Human Sciences*, vol. 21(3), p. 70-93.
- Guignon, C. (1983). *Heidegger and the Problem of Knowledge*. Indianapolis: Hackett.
- Heidegger, M. (2008). *Being and Time*. New York: Harper Perennial.
- Hein, S. & Austin, W. (2001). Empirical and Hermeneutic Approaches to Phenomenological Research in Psychology: A Comparison. *Psychological Methods*, vol. 6(1-3), p. 3-17.
- Henriksson, C. & Friesen, N. (2012). Introduction. In: N. Friesen, C. Henriksson & T. Saevi (eds.). *Hermeneutic Phenomenology in Education: Method and Practice*. Rotterdam: Sense Publishers.
- Howitt, D. (2013). *Introduction to Qualitative Methods in Psychology*, 2nd ed. Harlow: Pearson Education Limited.
- Husserl, E. (1965). Philosophy as a Rigorous Science. In: *Phenomenology and the Crisis of Philosophy*. New York: Harper.
- Husserl, E. (1983). *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy. First Book*. Dordrecht: Kluwer Academic Publishers.
- Ihde, D. (1990). *Technology and the Lifeworld: From Garden to Earth*. Indianapolis: Indiana University Press.
- Ihde, D. (1998). *Expanding Hermeneutics: Visualism in Science*. Evanston, IL: Northwestern University Press.
- Ihde, D. (2008). Introduction: Postphenomenological Research. *Human Studies*, vol. 31(1), p. 1-9.
- Ihde, D. (2009). *Postphenomenology and Technoscience: The Peking University Lectures*. Albany: State University of New York Press.

- Ihde, D. (2010). *Heidegger's Technologies: Postphenomenological Perspectives*. New York: Fordham University Press.
- Ihde, D. (2012). Can Continental Philosophy Deal With New Technologies? *Journal of Speculative Philosophy*, vol. 26(2), p. 321-332.
- Ihde, D. & Selinger, E. (2003). *Chasing Technoscience: Matrix for Materiality*. Bloomington: Indiana University Press.
- Kalthoff, H. & Roehl, T. (2011). Interobjectivity and Interactivity: Material Objects and Discourse in Class. *Human Studies*, vol. 34(4), p. 451-469,
- Kaplan, D. (2009). What Things *Still* Don't Do. *Human Studies*, vol. 32(2), p. 229-240.
- Klein, P. & Westcott, M. (1994). The Changing Character of Phenomenological Psychology. *Canadian Psychology/Psychologie Canadienne*, vol. 35(2), p. 133-158.
- Langdridge, D. (2008). Phenomenology and Critical Social Psychology: Directions and Debates in Theory and Research. *Social and Personality Psychology Compass*, vol. 2(3), p. 1126-1142.
- Latour, B. (2005). *Reassembling the Social: An Introduction to Actor-Network Theory*. New York: Oxford University Press.
- Mangen, A. & Balsvik, L. (2016). Pen or Keyboard in Beginning Writing Instruction? Some Perspectives from Embodied Cognition. *Trends in Neuroscience and Education*. Advance online publication. doi: 10.1016/j.tine.2016.06.003
- Mangen, A. & Kuiken, D. (2014). Lost in an iPad. Narrative Engagement on Paper and Tablet. *Scientific Study of Literature*, vol. 4(2), p. 150-177.
- Merleau-Ponty, M. (2002). *Phenomenology of Perception*. London: Routledge Classics.
- Moran, D. & Mooney, T. (2002). *The Phenomenology Reader*. New York: Routledge.
- Oksala, J. (2014). In Defense of Experience. *Hypatia*, vol. 29(2), p. 388-403.
- Packer, M. (1985). Hermeneutic Inquiry in the Study of Human Conduct. *American Psychologist*, vol. 40(10), p. 1081-1093.
- Ricœur, P. (1970). *Freud and Philosophy: An Essay on Interpretation*. New Haven: Yale University Press.
- Rosenberger, R. (2014). Multistability and the Agency of Mundane Artifacts: From Speed Bumps to Subway Benches. *Human Studies*, vol. 37(3), p. 369-392.
- Rosenberger, R. & Verbeek, P.P. (2015). A Field Guide to Postphenomenology. In: R. Rosenberger & P.P. Verbeek (eds.). *Postphenomenological Investigations: Essays on Human-Technology Relations*. Lanham, MD: Lexington Books/Rowman Littlefield Press.
- Scharff, R. (2006). Ihde's Albatross: Sticking to a "Phenomenology" of Technoscientific Experience. In: E. Selinger (ed.). *Postphenomenology: A Critical Companion to Ihde*. New York: SUNY Press
- Scott, J. (1992). The Evidence of Experience. *Critical Inquiry*, vol. 17(4), p. 773-797.
- Smith, J. (2008). *Qualitative Psychology: A Practical Guide to Research Methods*. London: SAGE Publications.
- Sørensen, E. (2009) *The Materiality of Learning: Technology and Knowledge in Educational Practice*. Cambridge: Cambridge University Press.
- Sørensen, E. (2013). Human Presence: Towards a Posthumanist Approach to Experience. *Subjectivity*, vol. 6(1), p. 112-129.

- Van Manen, M. (1990). *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*. Albany, NY: SUNY Press.
- Van Manen, M. (2014). *Phenomenology of Practice: Meaning-Giving Methods in Phenomenological Research and Writing*. Walnut Creek, CA: Left Coast Press.
- Verbeek, P.P. (2005). *What Things Do: Philosophical Reflections on Technology, Agency, and Design*. Penn State: Penn State University Press.
- Verbeek, P.P. (2009). Let's Make Things Better: A Reply to My Readers. *Human Studies*, vol. 32(2), p. 251-261.
- Verbeek, P.P. (2011). *Moralizing Technology: Understanding and Designing the Morality of Things*. Chicago: The University of Chicago Press.
- Waltz, S. (2004). Giving Artifacts a Voice? Bringing Into Account Technology in Educational Analysis. *Educational Theory*, vol. 54(2), p. 157-172.
- Wertz, F. (2010). The Method of Eidetic Analysis for Psychology. In: T. Cloonan & C. Thiboutot (eds.). *The Redirection of Psychology: Essays in Honor of Amedeo P. Giorgi*. Circle Interdisciplinaire de Recherches Phénoménologiques.
- Willig, C. (2007) Reflections on the Use of a Phenomenological Method. *Qualitative Research in Psychology*, vol. 4(3), p. 209-225
- Willig, C. & Stainton-Rogers, W. (2008). *The SAGE Handbook of Qualitative Research in Psychology*. London: SAGE Publications.
- Wittgenstein, L. (2009). *Philosophical Investigations*. Oxford: Blackwell Publishing Ltd.
- Wrathall, M. (2005). *How to Read Heidegger*. London: Granta Publications.
- Young, I.M. (1980). Throwing Like a Girl: A Phenomenology of Feminine Body Comportment, Motility and Spatiality. *Human Studies*, vol. 3(2), p. 137-156.