Perception and Recognition of Textual Genres: A Phenomenological Approach

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Abstract

North American Writing Studies (NAWS) has for more than 30 years found Miller's theory of genre as social action (1984) useful and productive. That theorizing is much indebted to the phenomenological tradition, as Miller's theory itself is based on Alfred Schutz's concept of typification (1989), drawn from phenomenological sociology, which Schutz in large measure founded. Similarly, current theories of embodied cognition are based on phenomenology, inspired by Merleau-Ponty, and his theory of embodied perception (2012). In this paper I put into dialog two recent formulations of the phenomenological perspective on writing: Charles Bazerman's theory of literate action (2013) and emerging theory on writing as embodied cognition (Dryer & Russell, 2017; Römmer-Nossek, 2015; Russell, 2017), in order to suggest a connection with a third perspective, information processing cognitive theories, in the tradition of John R. Hayes, which emphasize cognitive load limits. The connection is evolutionary cognitive load theory (ECLT), which measures the effects of cognitive load under conditions where participants can utilize functional systems developed prior to the acquisition of literacy, the inactive, embodied habits they have learned from the womb, in order to perform literacy tasks more efficiently, often surpassing the limits of working memory unaided by them.

Keywords: genre, embodied cognition, cognitive load, writing process

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Resumen

Por más de 30 años, North American Writing Studies (NAWS) (Estudios Norte Americanos de Escritura) ha encontrado muy útil y productiva a la teoría de género como acción social (1984). Este pensamiento tiene una gran deuda con la tradición fenomenológica, dado que la teoría de Miller está basada en el concepto de tipificación de Alfred Schutz (1989), desarrollado de la sociología fenomenológica, que en gran medida fue fundada por Schutz. De manera similar, teorías actuales de cognición encarnada están basadas en la sociología fenomenológica, inspirada por Merleau-Ponty y su teoría de percepción encarnada (2012). En este artículo, pongo en diálogo dos formulaciones recientes de la perspectiva fenomenológica sobre escritura: la teoría de actividad letrada ["literate action"], propuesta por Charles Bazerman, (2013) y teoría emergente sobre la escritura como cognición encarnada (Dryer y Russell 2017; Römmer-Nossek 2015; Russell 2017), para postular una conexión con una tercera perspectiva, teorías cognitivas de procesamiento de información, en la tradición de John R. Hays, las cuales enfatizan límites de carga cognitiva. La conexión es la teoría de carga cognitiva evolucionaria ("evolutionary cognitive load theory" o ECLT), la cual mide los efectos de carga cognitiva bajo condiciones donde los participantes pueden utilizar sistemas funcionales desarrollados antes de la adquisición de alfabetización, los hábitos enactivos y encarnados que se han aprendido desde la matriz, para entonces llevar a cabo tareas de alfabetización más eficientemente, muchas veces excediendo los límites que tendría la memoria de trabajo sin ellos.

Palabras clave: género, cognición encarnada, carga cognitiva, proceso de redacción

Introduction

North American Writing Studies (NAWS) has for more than 30 years found Miller's theory of genre as social action (1984) useful and productive. That theorizing has been much indebted to the phenomenological tradition, as Miller's theory itself is based on Schutz's concept of typification (1989), drawn from phenomenological sociology, which Schutz in large measure founded (Russell, 2010). Similarly, current theories of embodied cognition are based on phenomenology, inspired by Merleau-Ponty, the "philosopher of the body," as he has been called, and his theory of embodied perception (2012). I want to put into dialog two recent formulations of the phenomenological perspective on writing: first, Charles Bazerman's *Theory of Literate Action* (2013), which

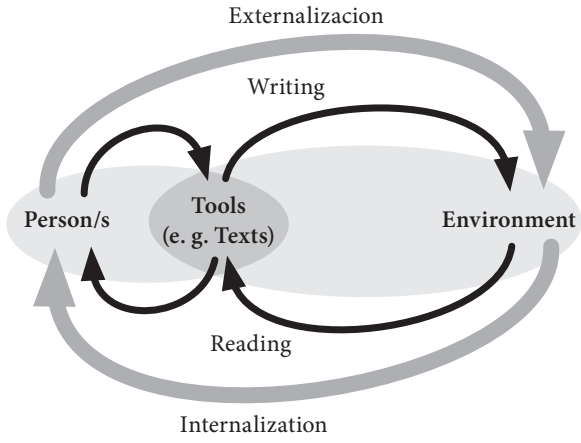
synthesizes Schutz's phenomenological sociology and Vygotskian psychology; second, emerging theory on writing as embodied cognition (Dryer & Russell, 2017; Römmer-Nossek, 2015; Russell, 2017), which applies to writing studies the phenomenological theories of embodied cognition (especially in the tradition of Varela, Thompson & Rosch, 1992). I do this not only to further connect the sociological and psychological dimensions of phenomenology for writing studies begun previously (Prior, 2013; Russell, 2010, 2015, 2017; Dryer & Russell, 2017), but also to suggest some implications for rapprochements with a third perspective, information processing (IP) cognitive theories, in the tradition of Hayes, which emphasize cognitive load limits.

From genre as social action to embodied cognition and back

For Bazerman (following both Vygotsky and Schutz) and for Embodied Cognition, writing is one tool or instrument (among many) for externalizing the internal, and reading is one tool (among many) of internalizing the external. Genre as typification is crucial to both internalization and externalization (see Figure 1).

In the NAWS view, genres are typifications, categorizations we make and use together to perceive the world and coordinate our actions (including literate actions). We internalize the ways with words and all the other externalities of the physical / social environment, and perceive the world through those typified ways of using tools, such as reading and writing. We then participate in the world by externalizing our consciousness, enacting our thoughts, emotions, plans, dreams, and desires, in more or less typified ways. Genres, then, are forms of life, not just forms of words, as Bazerman (2013) puts it, "The typifications and social-symbolic understandings that are brought to bear in the course of externalizing and internalizing meanings are strengthened (in both a neural network sense and a personal identity sense) in the course of their active rehearsal" (p. 84).

Recently, those neural networks have been explored through an embodied theory of cognition, which I suggest is very much compatible with Bazerman's (NAWS) theory of genre perception and recognition. In this view, perception is the ground of thought, reasoning, and language—prior to and older than thought (in evolutionary terms), and it precedes and grounds rational, propositional thought.



- People perceive the world by typifying (categorizing) experience
- People act on (and thus enact) the world in typified ways (categorizing)
- Changes what can be considered "environment"

Figure 1. Genre as typification: internalization/externalization

Source: adapted from Römmer-Nossek, 2017

Perception (and the nervous system and cognition built on perception) guides action to sustain and enhance life for an organism, and the organism guides perception, by controlling the focus and movements of our eyes, the position of our heads and bodies, as well as the instruments and tools we make and use. Cognition is not understood primarily in machine computing terms, as with IP cognitive psychology, but in biological terms, as an organism's (or group of organisms') homeostatic response to challenges and opportunities in the environment. By homeostatic response, biology means an organism's regulation of current necessities such as body temperature and stress levels through feedback from sensory perception: exteroception through the five senses, interoception of the body's internal state, and proprioception of one's own movement. But homeostasis can also involve future imperatives, both ontogenic and phylogenic, such as development and reproduction (Torday, 2015). This is called predictive homeostasis—an anticipatory response to an expected need to act, for survival or growth or reproduction, such as storing food for the winter, playing with siblings imitating adult hunting behaviors, or preening for potential mates. In this sense, homeostasis is not always

maintaining a particular state, but being able to change and grow in response to the inevitable environmental challenges/opportunities life brings—as an individual, a group, or perhaps even a species.

Following the neuroscientist Antonio Damasio (2012), I refer also to the homeostasis of *Homo sapiens*, which evolved what he calls "sociocultural homeostasis" with the advent of human consciousness.

> The conscious minds of humans, armed with . . . complex selves and supported by even greater capabilities of memory, reasoning, and language, engender the instruments of culture and open the way into new means of homeostasis at the level of societies and culture. In an extraordinary leap, homeostasis acquires an extension into the sociocultural space. Justice systems, economic and political organizations, the arts, medicine, and technology are examples of the new devices of regulation. (Chapter 1, A Preview of Main Ideas, para. 1)

Writing is, he says, one of those instruments of culture. Writing, like other means of homeostatic regulation, depends on perception (see Figure 2). And to perceive, we must typify—categorize experience—but in far more complex ways than, say, one-celled organisms need to categorize their surround as, for example, edible/inedible, safe/threat. Our perception itself is genred and genreing (to coin a term). In rhetorical terms, a perturbation in the environment (either perceived in the present or imagined in the future) that calls for a homeostatic response might be thought of in rhetorical terms an exigence: a perceived need to act.[1] Indeed, Bitzer's (1968) concept of exigence is the starting point of Miller's (1984) theory of genre.

The theory of embodied cognition posits four key qualities of perception/cognition: embodied, embedded, extended and enactive (Dryer & Russell, 2017). Cognition is embodied in the whole body not only in the head, embedded in our social world, extended in time and space, and enactive—participatory.

[1] Homeostasis has figured in previous theories of writing processes (Nystrand, 1989) and of rhetorical exigence (e.g., Oakley, 1999; Hunsaker & Smith, 1976), though in different ways than presented here.

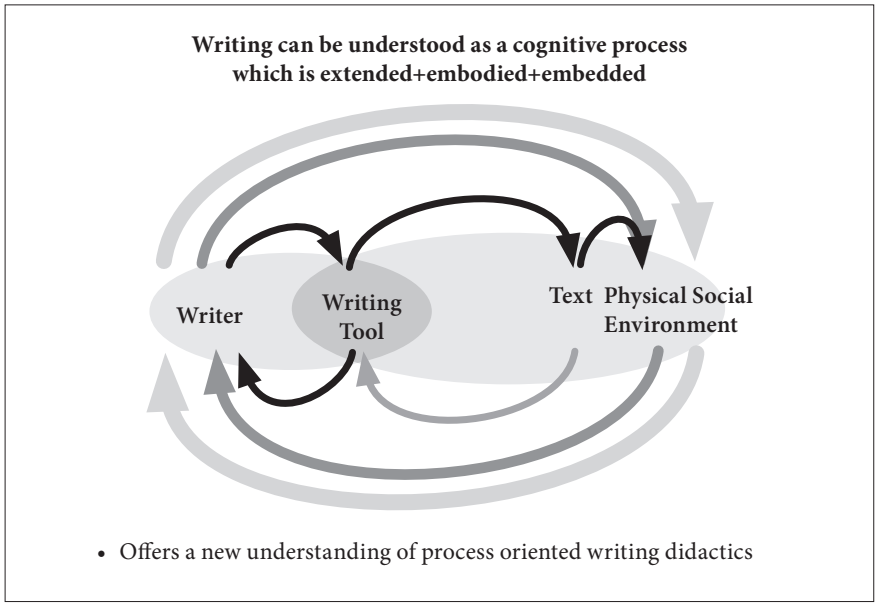


Figure 2. Writing as extended, embodied, and embedded

Source: adapted from Römmer-Nossek, 2017

Perception is enactive

Perception (as well as, more broadly, cognition) is enactive: organisms must move their bodies to perceive and perceive in order to move their bodies. Humans must externalize to internalize (and vice versa). In order to achieve homeostasis in body temperature, for example, an organism might move closer or further from a heat source. And social species, like humans, must participate with others in some form of life in order to perceive, and they must perceive similarly in order to act, including, in literate cultures, recognizing and producing textual genres. Humans in cold climates learn to build fires (and teach their children to), which involves social organization. Humans in societies with different technology for heating might need to enactively perceive literate tasks in various genres to maintain homeostasis in body temperature: for example, filling out forms to open a bank account and writing a check to the utility company. Maintaining livable temperature on a much larger scale might involve studying global climate change—a vast exercise in predictive homeostasis, one involving an enormous system of genres. Reproduction too may be intensely literate, with love messages, marriage licenses,

and match. Normal development in literate societies involves learning to read and write to learn, in order to cope with life and deal with anticipated challenges (whether the heating being turned off or the polar caps melting).

Perception is embedded

Thus, perception (and the nervous system and cognition) is also embedded in our experience with the environment. It is situated. Intelligent behavior is a direct interaction between organism and environment. In this view, unlike the IP cognitive view, there is no Cartesian divide between inner and outer, no need for matching mental representations to action, only an engaged response. We are, in Merleau-Ponty's phrase, "geared to the world" (2012). Genres are "forms of life," in this sense, not mental models independent of our moment-to-moment embedded interactions with the world. The situation or context is not the backdrop for cognition or sources of stimuli for perception; they are fully a part of it, for the behavior of the body and the brain that manages it is about our ongoing homeostatic engagement with what is inside and outside the skin barrier.

Perception is embodied

Perception (and the nervous system and cognition built on it) is embodied, quite literally. The various organs of perception—eyes, ears, nose, mouth, skin, as well as internal proprioceptors that monitor the different bodily systems, including the movements of muscles that allow me to type this—are connected through the nervous system. This allows coordinated perception and action. When the eyes register movement of a type that requires the eyeballs or head or torso or whole body to move (e.g., a baseball headed in one's direction; a letter from the IRS), the muscles engage, with complex electrochemical feedback loops through the nervous and endocrine systems.

The brain, in this view, is *not* primarily viewed metaphorically, as a computer-like information processing machine but rather literally, as an organ for managing the body, for coordinating the various internal functional systems—including the ones that carry out perception—in order to achieve homeostasis. Regarding writing, at the most embodied level, the perception of various kinds (of reading/viewing, of feelings/emotions, thoughts/images, proprioception of arm/hand/finger) grounds the action of muscles of the hand. And at every part and stage and organ of perception, categorization is going on (Genreing). In the endocrine system, for example, an increase

in cortisol during writing might be perceived/categorized as excitement or as anxiety, for example, leading to a burst of creativity or writer's block (Pennebaker & Chung, 2011).

Perception is extended

Perception is also extended, not only beyond the brain and nerves to the whole organism, including the vocal chords and fingers, in humans, but also beyond the individual organism, past the skin barrier, to other organisms (social cognition) and, again, notably in humans, to tools, including those forms of inscription we call writing. Writing extends perception with tools. "When the typist executes the necessary movements on the keyboard," as Merleau-Ponty puts it,

> these movements are guided by an intention, but this intention does not posit the keys as objective locations. The subject who learns to type literally incorporates the space of the keyboard into his bodily space. . . Habit resides neither in thought nor in the objective body, but rather in the body as the mediator of a world (p. 146).

Perception and the phenomenon of writing

Perception—no matter how socially grounded for humans—is organized and directed through the historical ontogenetic experience of each individual, which includes both prior experiences with things perceived as similar as well as with the social categories that have helped the individual come to perceive the world and experiences in certain ways. For both sociocultural theory in the traditions of Vygotsky and Luria, and the phenomenological traditions of Schutz and Merleau-Ponty, cognition, including perception, then, is not a matter of matching the world to internal representations, or manipulating symbols or propositions to match them, as with the IP cognitive perspective, but rather of coping, participating, with the environment to successfully act—in biological terms, to achieve homeostasis. How might genred and genreing perception relate to writing processes?

Writing processes are built on prior functional systems

Writing and reading are not natural. They are very recent in human evolution (about 5000 years ago out of some 70,000—estimates differ—since

the emergence of consciousness in *Homo sapiens*) (Harari, 2015). Literacy does not exist in some cultures; where it exists, literacy is immensely varied, not only among different cultures but also within a single culture (Scribner & Cole, 1981; Brandt, 2001). Writing is not embedded in human cognitive architecture, but built on prior functional systems, either those common in many other mammals (e.g., typifying perception, memory, problem solving action, sociality, cooperation) and built more specifically on prior functional systems developed in humans, such as indexing (pointing), tool making and use (especially incising or marking), and of course oral languaging. All normal humans learn/acquire these as part of their normal development in every society, literate or not. Functional systems exist within the individual, as theorized by Luria (1981) in the Vygotskian tradition and by Merleau-Ponty in the phenomenological tradition. But functional systems are also within social groupings, as theorized by Leont'ev (1978), Engeström (2014), and others in the Vygotskian sociocultural tradition, as well as Schutz and others in the phenomenological tradition. Internal and external functional systems are mutually embedded—engaged, as the internalization/externalization diagrams suggest.

Writing processes are built on typified perception

Writing processes, in both Bazerman's and the Embodied Cognition model sketched here, are built on the typified perception of the forms of life in which we participate or want or need to participate. Support for this view comes from research on how children perceive writing and written genres before they can write (as defined by adults). Two decades of research (Tolchinsky, 2016) have shown that children know a great deal about the writing system, and its function and social uses, long before they learn to read. Children learn/explore "superordinate graphic features of texts and the linguistic activities they afford" before they learn letter forms and sounds (p. 149). They learn the difference between drawing and writing as early as age 2. This knowledge is "somehow extracted from the world rather than resulting from a direct instructional strategy" (p. 151). Children early on recognize genre distinctions. They protest when reading a recipe from a storybook, or a fairy tale from a newspaper, at age 4 to 5. When children are asked to show "how grownups write" they scribble (p. 152). We do not need semantic content to perceive writing, to orient ourselves physically and emotionally and socially to it. Similarly, much NAWS qualitative research suggests that most of the time for most of us, we perceive textual genres intuitively, or rather enactively, as

part of participating in forms of life, just as children perceive adult written genres, even before they can write (Russell, 2001; Klein & Boscolo, 2016).

Prior functional systems reconstruct consciousness and cognition

The advent of literacy, for a child or a culture, reconstructs prior functional systems to allow for the forms of life of a literate culture. Schooling, law, technology, transportation, and so on are transformed through writing (though in very different ways for different literate cultures/subcultures). Consciousness and cognition, as well as culture, are transformed (also in variable ways) through literacy (Bazerman, 2006)—even in terms of brain architecture. For example, there is evidence that the development of reading in an individual has cognitive costs for facial recognition. In a 2010 study, learning to read, either as a child or as an adult, was associated with the appearance of an area of the temporal cortex specialized for words, but the area for face processing shrank (Dehaene *et al*., 2010). The authors theorize that literacy evolved too recently in humans for the brain's physiology to have adapted.

More importantly, literacy reconfigures the prior functional system of oral languaging (for the term, see Bottineau, 2010). Silent reading and writing are sometimes accompanied by subvocalization, movements of the speech apparatus, with implications for writing (Rose, 2015). Literacy reconfiguring the prior functional system of speech is observable at the neurological level as well. A body of research over the last 20 years shows the process of learning to read alphabetic script "provides important cognitive tools for the processing of oral language", including the concept of *word*, and the ability to produce the oral morphology of languages such as French, where written forms control aspects of pronunciation (Tarone & Bigelow, 2005, p. 85).

As IP cognitive psychology has shown, there are limits of working memory and attention that constrain writing processes (see for a summary Olive, 2012). The nervous system has not evolved in the brief (in evolutionary terms) 5000 years writing has existed to seamlessly manage the coordination of prior functional systems necessary for writing: languaging, graphic recognition, fine motor hand-eye coordination to manipulate marking tools, and so forth. Typically children must develop prior functional systems for several years before beginning formal instruction in reading and writing, and for adolescents and adults, many writing situations/genres require many years to master—and even then writing them is often a struggle, even for the most competent. However, those prior functional systems, built on typified perception, also provide affordances for writing processes that may help transcend

these limits of working memory and attention. Before I suggest lessons that NAWS and Embodied Cognition can learn from IP cognitive studies of writing, and perhaps vice versa, I must turn to a version of IP cognitive psychology that has not impacted writing studies as much —evolutionary cognitive load theory (ECLT) and research—in order to suggest how cognitive load might be understood in terms of NAWS and Embodied Cognition genre theory.

Rethinking writing processes in evolutionary and developmental terms

Evolutionary cognitive load theory (ECLT), like research in the IP cognitive tradition, measures cognitive load; that is, the limitations of working memory, and its effects of those limits on performance. IP cognitive writing research on writing has shown that a demanding writing task often requires remembering lots of things at pretty much the same time: letter forms (or key locations), spellings, grammatical constructions, purposes, audiences, contents, and so on. Writers studied in laboratory conditions, of different ages and levels of expertise, manage the cognitive load limits in different ways, by automatizing aspects of the writing process (e.g., letter forms, spellings, genre schemas) or offloading information (e.g., written outlines or notes) to free up working memory (Olive, 2012).

But unlike mainstream IP cognitive research, ECLT measures the effects of cognitive load under conditions where participants can also utilize functional systems prior to literacy, the socio-cultural enactive, embodied, embedded, extended habits they have learned from the womb, in order to perform literacy tasks more efficiently, often surpassing the limits of working memory unaided by them (Paas & Sweller, 2012; Sweller, 2008).

ECLT experiments ask subjects to perform school-type tasks, usually involving literacy, and then measure the effects on learning and cognitive load of interventions that incorporate pre-literate functional systems to help them perform the tasks. For example, to investigate the effect of face-to-face oral collaboration, secondary school biology students were asked to read brief materials on genetics and solve problems based on them. In a 2x2 study, students worked problems that require combining three pieces of information (classed as low cognitive load) or problems that require combining nine pieces (high cognitive load), either individually or in groups of three (Kirschner, Paas & Kirschner, 2011). Writing was not permitted until the students were tested. Measures included performance on the task (in part assessed by written

answers, some open-ended), time to solution, and a subjective measure of perceived cognitive load (validated in reference to more objective, probe-type measures) (see results below). As this example suggests, ECLT studies are usually not done in experimental situations but in situations (typically pedagogical) that have more ecological validity.

I want to emphasize that ECLT research has not studied writing *per se*, though writing has been an independent variable in studies such as the one described above. What I am suggesting is ECLT theory and research methods may provide a link between IP cognitive studies and phenomenological/socio-cultural studies of writing. IP cognitive studies of cognitive load might look more at the effects of prior functional systems (both ontogenetic and phylogenetic) on writing processes; phenomenological/socio-cultural studies of writing might broaden their focus to include systematic, comparison group studies of prior functional systems' effects on embodied cognition, individual or social, ontogenetic or phylogenic. Indeed, ECLT studies resemble sociocultural research methods, such as Vygotsky's forbidden color tasks and other tasks where children are given the opportunity to use memory markers such as cards.

Just as ECLT studies offer an evolutionary explanation of how cognitive load operates in learning, ECLT studies suggest how cognitive load might be operating during writing processes, through multiple interacting functional systems. These interacting systems may both afford and constrain ontogenetic writing development. Similarly, understanding ontogenetic writing development in terms of phylogenic or evolutionary development may yield new insights into cognitive processes, as the development of writing three millennia ago made possible the socio-cultural evolution from hunter-gatherer to agricultural societies, when writing-based bureaucracies allowed large-scale grain storage, property, money, laws, and so on (Harari, 2015).

I will look at three areas of ECLT research that show relevance for writing research.

Collective memory effect

A first ECLT finding relevant to writing is the "collective working memory effect." In a series of experiments, Kirschner *et al.* (2011) provided a cognitive load explanation for the consistent finding in composition studies that group work results in higher performance than individual work only when the task is of sufficient difficulty (Ede & Lunsford, 1990). They found that high cognitive load tasks are more efficiently done by distributing working

memory in a group, whereas low load tasks are more efficiently done individually. ECLT theory suggests that the prior functional system of face-to-face communication used in group work takes time and effort, but it has lower working memory costs, so group work is worth the time and effort only if the task is sufficiently difficult. Face-to-face communication is a more efficient way of performing complex novel tasks because it is already learned and practiced since childhood. In phenomenological terms, the genres of face-to-face communication allow participants to offload (externalize) cognitive costs in places where writing happens, in the wild. In the NAWS tradition, there is a good deal of qualitative work on "co-present writing" in the wild, particularly the work on "semiotic remediation" (Prior, Hengst, Roozen & Shipka, 2006; Prior, 2010), where participants co-construct texts using genres in oral, gestural, and other media to "write." ECLT tasks might be adapted to measure the cognitive loads involved.

Human movement effect

A second ECLT finding relevant to writing is the "human movement effect". Neuroscience has found that human neural pathways respond similarly to seeing someone else act and performing the action one's self. This reduces the cognitive load and makes learning an action easier. It also "primes" or prepares the neural system for performing the same or similar actions (e.g., Iacoboni *et al*., 1999). In both these ways, imitation is facilitated, in children and adults. In phenomenological terms, genre perception is closely tied to imitation, in that we internalize behaviors in the environment, which we can then externalize as imitation. A genre, as Miller (1984) put it, "shows what ends we may have" (p. 164), the possible, permissible or expected actions in some human context. In IP cognitive studies of writing performance, observational learning and the effects of model-observer similarity have been consistently documented (Rijlaarsdam *et al*., 2008; Braaksma, Rijlaarsdam, Van den Bergh & Van Hout-Wolters, 2004), findings that may in part be explained through the human movement effect. In terms of typification and genre, the point is that learning to write a genre involves making moves that we have internalized in reading or speaking. Again, ECLT tasks might be adapted to study writing. The human movement effect might be most pronounced and easily seen in early childhood play with writing instruments/keyboards, and so on. Later more subtle mirroring may involve high degrees of cognitive processing and interpreted analysis of behaviors, such as adopting rhetorical strategies based on perceived rhetoric of texts that were read.

Embodied cognition: haptics

A third ECLT finding relevant to writing is the "embodied cognition" effect. Recent psychological research has shown that motor processes are active during reading comprehension, mental arithmetic, and problem-solving (beyond expected ones such as eye movements in reading). Performing motor tasks activates semantic codes, strongly suggesting that sensorimotor processes are part of processes traditionally analyzed as cognitive. The most dramatic evidence comes from the gesture, a skill rarely explicitly taught but universally acquired as a pre-literate functional system. Research by Cook, Mitchell and Goldin-Meadow (2008), for example, showed that children who were taught to make certain kinds of gestures while learning mathematics made greater and more rapid progress than children who received only verbal instruction. Other studies have shown that "involvement of the more basic motor system in the form of gesturing reduces the working memory load during instruction" (Paas & Sweller, 2012, p. 38). Moreover, gesturing reduced the cognitive load whether or not the students were pointing at present objects or absent objects.

In phenomenological terms, sensorimotor processes are necessary for perception, as Merleau-Ponty (2012) and a long tradition of research have shown. Many of these are essential to writing and comprise its haptics: movements of eyes, head, arms, and fingers, as well as the body's relation to the writing instruments (sitting, standing, etc.) (Mangen & Velay, 2010, 2012). So the activation of physical states in emotive-motivational processes (excitement, anxiety, etc.) implicate not only the limbic system of the neural architecture but also hormonal and other chemical processes (Pennebaker & Chung, 2011). Hayes (2012) rightly alludes to these under "transcription processes," but haptics may affect all aspects of writing. For example, Watkins (2012) found that the physical postures students assumed in different genres of classroom management were strongly correlated with their writing performance in middle school.

These automatized behaviors or schemas and, conceived differently, genred typifications—perhaps rehearsed since infancy and early childhood—continue to operate and facilitate—or inhibit—performance in adults. As biologically/culturally "primary," these processes that do not have to be explicitly taught may help the learning of "secondary" knowledge or forms of participation such as formal schooling or a new discipline or profession. In NAWS and embodied cognition there is a tradition of writing interventions in higher education based on body awareness, such as Sondra Perl's (2004)

"felt sense" exercises. But there have been to date no intervention studies. ECLT studies suggest methods of doing so.

From NAWS and embodied cognition to IP cognitive models and back

ECLT may help us explore how writing processes are built on prior functional systems that lessen the cognitive load, where necessary, by distributing it: face-to-face communication (collective memory effect), imitation (human movement effect), and embodied cognition (haptics of writing). These systems—all prior to writing in ontogenetic and phylogenic terms—all depend upon and facilitate typifications necessary for perception and action. Though only textual typifications are usually termed genres in writing studies, the NAWS and embodied cognition traditions in writing studies have recently been attempting to understand writing processes in multi-modal ways, such as the group led by Prior on semiotic remediation, multi-modal composing, and co-present writing (Prior, 2010). ECLT has also been exploring multi-modal learning. This synthesis I am sketching here of genre as social action and embodied cognition may suggest ways of extending dialog with IP cognitive approaches to writing as well.

IP cognitive writing process theory, from its beginnings, has recognized that writing happens within complex socio-cultural environments. Hayes and Flower (1980) begin their first model with "the task environment," which specifically includes motivational influences, and they cite Britton *et al*., *Development of Writing Abilities (11-18)* (1975), which emphasizes cultural and institutional factors in motivation. The task environment also "includes everything outside the writer's skin that influences the performance of the task" (p. 12)—in their data, a classroom assignment. Their example of a beyond-the-skin influence is non-verbal, "the teacher's stern expression when he presents the assignment" (p. 12), which is part of a system of communication (and a facial musculature to support it) that evolved with primates (Hess & Thibault, 2009).

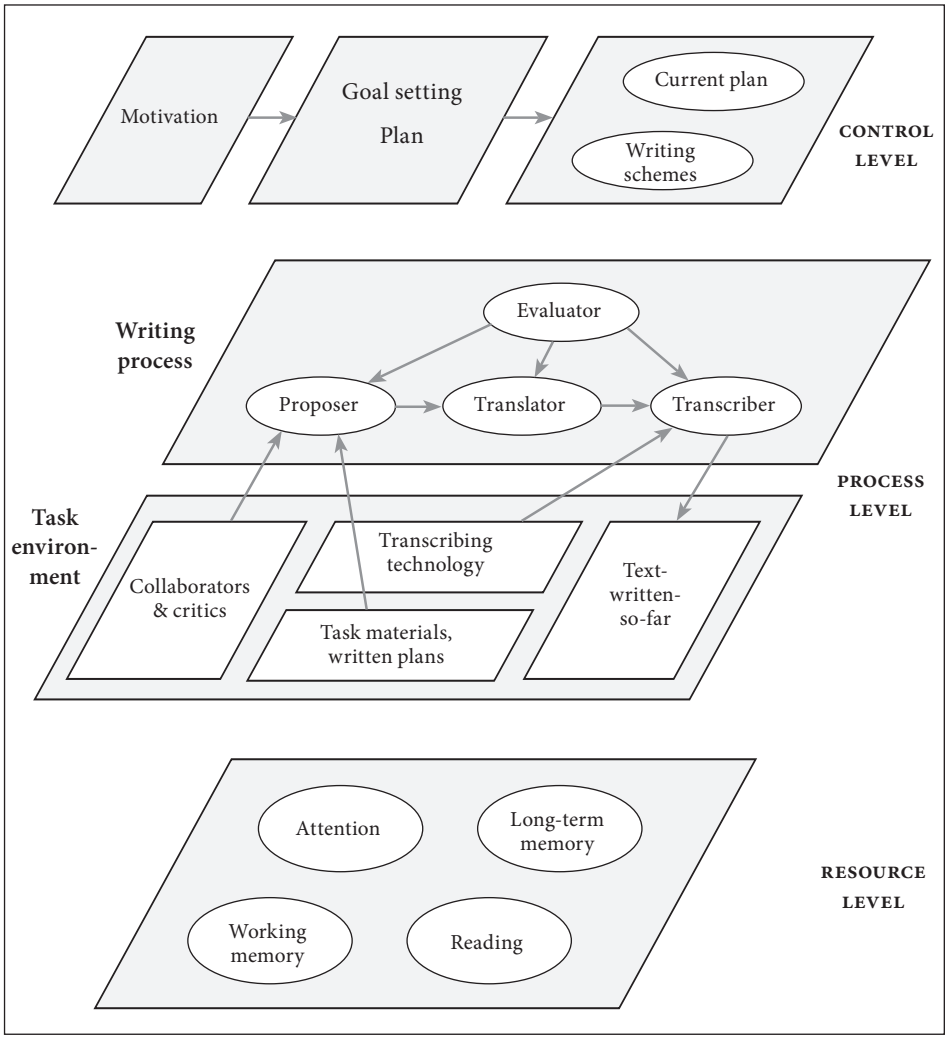


Figure 3. Hayes 2012 model of the writing process

Source: Hayes, 2012

Hayes's theory is a model of information processing, not a model of communication (Prior, 2013). Distant as this model is, seemingly, from the phenomenological theory I outline here, it can be viewed through this lens, particularly in Hayes's latest version (see Figure 3). In Hayes' most recent model (2012), the top level, what he calls the control level involves 1. Motivation, 2. Goal Setting (plan write revise), 3. Current plan and 4. Writing Schemas. These

are all, from a phenomenological point of view, aspects of genre perception, subsumed under perception.

1. Motivation is a perceived need to respond to some change or deviation in the environment, a dissatisfaction or exigence to restore homeostasis. In the phenomenological tradition, all perception is intentional, directed toward an object (Gallagher, 2012). We attend to something (the "aboutness" of experience) for some reason(s), having to do with maintaining homeostasis. As Miller pointed out, genred social actions are responses to an exigence, a perceived need to address some perturbation (1984). As noted, she goes on to argue that genres show us "what ends we may have" (p. 165). Once a person has selected a written genre(s), the range of motives for writing has been narrowed or even prescribed (a tax form, for example).
2. Goal Setting may be reconceived regarding what Merleau-Ponty calls the "intentional arc," "the feedback loop between the learner and the perceived world" (Dreyfus & Dreyfus, 2005). Perception is always set against a background, a "horizon," as he terms it, of motivated action and reaction, feedback. And those motives for action, those directions, are always already social, for we are all already born into a human world, before thought, before language. In this sense, all perception and all learning require participation in some sphere(s) of human activity. As Merleau-Ponty puts it, "Perception grounds the basic forms of all human experience and understanding . . . [P]erception is not a mode of thought; it is more basic than thought; indeed, thought rests on and presupposes perception" (p. xii). In this sense, goal setting may not be conscious. When we perceive the need to write, the exigence and the genre provide a direction and next steps. As the fly ball analysis suggests, specific representations of a desired future state are not necessary in order to act purposefully, to move in a way that will meet the exigence, in rhetorical terms, or maintain homeostasis, in biological terms.
3. The Current Plan is, in Merleau-Ponty's formulation of embodied cognition, what he calls "next-step monitoring," or what Perl (2004) terms the "felt sense" of where the writing will go next. Sometimes the current plan may be itself a written text, instructions, or some other artifact. But all that is necessary is a felt sense of what the next step is, in relation to the exigence, the intentional object.

4. Writing Schemas, in the phenomenological view developed here, are in effect our perception of some genre, or if the writer has written things, they consider similar, then, additionally, habits of responding to a perceived exigence. The body participating in the world actively is necessary for habits to exist.
5. An embodied theory of genred and genreing perception suggests another aspect of the control level: emotions in the body, which figure only indirectly in the Hayes model, through motivation and transcription. As the Expressive Writing research (Pennebaker & Chung, 2011) and writer's block (Flaherty, 2004) research suggest, managing emotion, and the hormonal levels it involves, are important at the control level in writing.

I am not suggesting that the current Hayes model is a useful description of writing processes from the point of view of phenomenology. They have radically different epistemologies and assumptions, as I have emphasized. I am suggesting that the current Hayes model, at what he calls the control level, contains elements that can be viewed usefully from a phenomenological perspective that highlights NAWS genre theory, and provides possible ways of connecting theory and research. (Klein in this volume suggests others.) Moreover, the control level utilizes functional systems that developed before writing, ontogenetically and phylogenetically.

Regarding other levels of analysis of writing processes (e.g., what Hayes [2012] terms the process and resource levels), seeing the cognitive load in evolutionary terms might further elucidate these. In their review of theories of working memory in writing research, Olive (2012) suggests that "translation [of speech to writing] has been shown to be the less expensive process," compared to critical reading and comprehension reading, "presumably because this process shares several mechanisms with the more practiced and thus more automatized processes engaged in speaking" (p. 131). Olive laments the "paucity of research on how difficulties encountered in text formulation affect the working memory demands" (p. 131). ECLT suggests both an evolutionary theoretical explanation of the relationship and possible methods of research, ones that allow for greater ecological validity. For example, recent study out of the phenomenological tradition suggests that sub-vocalization, which potentially reduces cognitive load in reading and writing, is more common in some adult writers than others, and is associated with the production of stylistic voice (Rose, 2015).

Other areas for ECLT methods combined with phenomenological theory may lie in the haptics transcribing technologies, the collaborative memory effects of the task environment, and the relation between the human movement effect and the perception and manipulation of resources, especially attention and memory.

As van den Bergh, Rijlaarsdam and Steendam (2016) lament, "There is no strong theory with testable claims about the effective coordination of the activities that constitute the writing process" (p. 69). Olive emphasizes the role of working memory in this task: "The challenge of writing research will be to successfully integrate these cognitive limitations in future models of writing in order to better reflect the production strategies used by writers to circumvent the limits of the cognitive system" (p. 136). I have suggested here that a step toward that may be to understand cognitive limitations—and affordances—in evolutionary terms, which make sense in terms of sociocultural and phenomenological theories of the production and reception of writing. Writing was developed a few millennia ago, after all, in order to, among other things, augment the limitations of human attention and memory, short and long term, individual and socio-cultural.

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