

## Articles

### Sensing the Sentence: An Embodied Simulation Approach to Rhetorical Grammar

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This article applies the neuroscientific concept of embodied simulation—the process of understanding language through visual, motor, and spatial modalities of the body—to rhetorical grammar and sentence-style pedagogies. Embodied simulation invigorates rhetorical grammar instruction by attuning writers to the felt effects of written language, prioritizing how syntactical structures move, look, and adjust meaning in fine-tuned ways. Simulation methods thus help ease a central concern of writing teachers: they bridge the gap between *knowing about* grammar and *knowing how to do* grammar. Embodied simulation research, when partnered with insights in embodied composition and disability studies, contributes to composition pedagogy an accessible, dynamic means of addressing the local in our students' writing.

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“The act of composing with writing cannot be severed from the act of composing with our senses.”

—Kristie S. Fleckenstein, *Embodied Literacies* (2003)

To begin, a familiar scene to the writing teacher: a first-year writing student of mine—I'll call her Mary—had come to my office to discuss an essay draft. She seemed most vexed by my comment that parts of her draft lacked “flow,” especially in the opening paragraph. I tried to minimize that concern, suggesting that she prioritize bigger picture questions first. We nevertheless began talking about flow, and I tried first to describe it: flow is when the reader feels connections that leap up and pull us along, I said. When flow lacks, each sentence feels like its own distinct island and the reader must laboriously swim to reach the next one. These attempts to describe flow to Mary—even partnered with my emphatic swimming gestures—were appropriately met with squinty eyes and mumbled “uh huhs.”

So I ditched flow, moving on to another means of talking about textual cohesion, the known-new contract. This concept, I told Mary, encourages writers to start a new sentence with the focus of the previous sentence. Known-new felt like a more concrete approach than flow; it could pull us down into the

architecture of Mary's sentences on the page. Mary clearly grasped the idea of known-new (before introducing something new, her second sentence should begin with what she had focused on in the first sentence), but she froze a bit when I asked her to spot the subject in her opening sentence. While this approach might have eventually gotten us somewhere, I abandoned it. I felt like I was quizzing her on parts of speech, sending a message that a sentence is a space only for the "proper" identification of parts and application of pre-set rules.

Finding myself out of ideas, my mind turned to some cognitive science research I had been reading recently—research that forms the focus of this article—about how we embody and visualize language in order to make meaning. I asked Mary to read her first sentence aloud. Gesturing out to the space in front of us, I showed her what her words made me picture. Mary's opening sentence, which was something like, "Students today use a lot of technology, like cell phones, Facebook, laptops and more," put me in a classroom of college students (one just like our classroom, I told her). All had big flat phones or tablets with the screens lit up. Because "picturing" something, for me, feels most like movement (rather than a flat movie or still image), I mimed how I saw the students typing feverishly on laptops while effortlessly pressing the phones to their ears. Mary nodded along. As Mary read me her next sentence—something like, "Textbooks have been an important part of school for a very long time"—I found myself sweeping my hand quickly to the left. Gesturing with my hands the shape of an open book, I was now looking down at a textbook as it became enmeshed in a time and place long ago, maybe back to the time of the Greeks in their robes, sitting in rows and looking into their (anachronistic) textbooks.

I asked Mary if she could feel how *physically far away* that second sentence felt, how *literally distant* the book and the Greeks seemed from those technology-juggling modern students. She nodded. I then asked how the second sentence might instead "keep us in the classroom," or keep the action of the scene focused on the multitaskers. After talking aloud a bit, Mary began writing above her second sentence. "Around all this technology," she wrote, "textbooks can seem out of place..." From there, Mary and I continued embodying her words through visualization, gesture, movement, and verbal description, and she redesigned her sentences to create more coherent moves.

I describe this scene first to highlight a challenge familiar to the college writing teacher: the struggle to find ways to talk about writing at the sentence-level. We dutifully dispense commonplaces to our students, but they can let us down. Though flow is well secured in the vernacular of composition teachers and peer-reviewing students alike ("your essay flows really well!"), the concept fails to reveal how to build flow on the page. And maybe more often, as in the known-new contract, familiar sentence-level strategies can feel like mental

formula, tricks to monitor sentences and ensure they are “right.” What’s more is that in composition’s current pedagogical mindset, writing teachers are unsure if we should be talking about sentences at all. That is, the sentence is practically *verboten* in our pedagogies (owed to, among other factors, the paradigmatic shift from current-traditional-error-seeking-red-pens to global-development-big-picture process, and to the fall of 1970s-era sentence combining and generative rhetoric (Connors)). The sentence survives today only as a pedagogic relic, and carries along with it the thorny question of grammar instruction. As Laura R. Micciche has noted, “In composition studies, grammar instruction is unquestionably unfashionable” (716), and this commonplace view is supported by a mountain of research concluding plainly that “we should not expect knowledge of grammar to influence the quality of writing” (Hillocks 76).

In contrast to this wave of sentence-eliding, however, efforts persist to reanimate the sentence as a central site of writing instruction, including, for example, authentic writing approaches to the study of grammar in context (Anderson; Dunn, “Does Bad Grammar”; Weaver). Rhetorical grammar pedagogies too have reimagined the sentence as a global compositional concern, not one of mere polishing or proofreading. “Understanding rhetorical grammar,” Martha Kolln writes, “means understanding the grammatical choices available to you when you write and the rhetorical effects those choices will have on your reader” (3). Any sentence-level intervention, though, may be undermined by students’ prior experiences with doing grammar. Students, it seems, still endure sentence diagramming and worksheets that reinforce sentence work as identification and error-hunting procedures only. As a result, college writers can freeze up when we talk about their writing at the sentence level, as happened with Mary. The question then becomes how do we get our student-writers to experience sentence-making as dynamic rhetorical action, to *feel* the effects of their constructions, as Kolln hopes?

The breakthrough I had with Mary represents a lively and novel way to reshape students’ conceptions of the sentence. Mary and I came to share in the experience of her meaning, I will argue in this essay, through making explicit the process of *embodied simulation*: the experiential processes of understanding language through visual, spatial, motor, affective, and other sensory modalities. A linguistic and neuroscientific theory of meaning-making, embodied simulation suggests that “we understand language by simulating in our minds what it would be like to experience the things that the language describes” (Bergen 13). Making simulation explicit and dialogic helped Mary make meaningful changes to the structure of her sentences. She observed my embodiment—my gestural, associative, and visual conception of her words—and intervened to redirect that experience toward more cohesive expression.

In what follows, I align embodied simulation research and theory with composition's established beliefs about visual and kinesthetic dimensions of composing. At the same time, through work in embodied composition and disability studies, I modify some of this theory's assumptions (e.g., the tendency to privilege sight over other senses) in order to imagine more inclusive classroom methods. I then connect simulation's claims about grammar to instructional scenes from my own rhetorical grammar and style classroom and to familiar sentence-style imperatives (e.g., use active verbs). When in conversation with composition, embodied simulation research contributes to our pedagogy an engaging, dimensional, and intuitive way to address the local—the sentence—as a dynamic embodied space.

### **Embodied Simulation, Embodied Composition**

Embodied simulation is a theory of meaning emerging in related disciplines including neuroscience, linguistics, philosophy, and cognitive psychology and is demonstrated through ongoing empirical study. As neuroscientist Benjamin K. Bergen describes it: “Meaning is a creative process in which people construct virtual experiences—embodied simulations—in their mind’s eye” (16). The concept of simulation emerges from a broader framework that cognitive psychologist Raymond W. Gibbs, Jr. names “the embodiment premise.” Gibbs outlines this basis for understanding cognitive and psychological phenomena as follows:

Human language and thought emerge from recurring patterns of embodied activity that constrain ongoing intelligent behavior. We must not assume cognition to be purely internal, symbolic, computational, and disembodied, but seek out the gross and detailed ways that language and thought are inextricably shaped by embodied action. (*Embodiment* 9)

What makes simulation impactful in the writing classroom is first that meaning-making is understood as a dynamic, creative process: reading or expressing language entails imagistic, bodily, associational, and sensory *action*. This bodily engagement is incited and directed by language, but its experience unfolds only by virtue of an individual's complex lifeworld. For example, simulation researchers might suggest that Mary's words first called to my mind a movie-like, two-dimensional image of tech-wielding college students. The vague imagery I experienced, however, was not abstract “stock” footage. Instead, I evoked specific visual memories of the classroom where I taught Mary. Her general mention of “a long time” took me back to the Greeks for perhaps no other reason than I was reading ancient rhetoric at the time. And

while, as a sighted person, visuality was a component of my experience of Mary's words, I experienced spatiality and movement through gesture most vividly. I was putting myself in the shoes of the action I perceived. According to Gibbs, I was creating a "meaningful construal by simulating how the objects and actions depicted in language relate to embodied possibilities. Thus, individuals use their embodied experiences to 'soft-assemble' meaning rather than merely activate pre-existing abstract, conceptual representations" (*Embodiment* 200-1).

Embodied simulation research<sup>1</sup> is also invigorating because its assumptions echo established work in composition studies that demonstrates the ineluctable corporeality of composing (Dunn, *Talking*; Fleckenstein, "Writing Bodies"; Fleckenstein, Calendrillo and Worley; Haas and Witte; Murray; Perl; Stenberg; Syverson). Pushing against our collective dualist Cartesian assumptions, disability studies and composition scholar Jay Dolmage writes:

The dominant discourse surrounding the teaching of writing focuses on texts and thoughts, words and ideas, as though these entities existed apart from the bodies of teachers, writers, audiences, communities. As a discipline, broadly speaking, we in composition and rhetoric have not acknowledged that we have a body, bodies; we cannot admit that our prevailing metaphors and tropes should be read across the body, or that our work has material, corporeal bases, effects, and affects. (110)

Our everyday classroom practices with texts, says Dolmage, continue to be implicitly disconnected from embodied experience. Simulation represents a way to address this disconnect: as psychology and embodied cognition scholar Arthur M. Glenberg puts it, following the assumptions of embodied simulation, "language is understood by driving the brain into states that are analogous to the perceptual, action, and emotional states that arise during perception of and acting in the real situation" (6). By extension, perception of syntactical constructions can be unlocked through processes of embodied sensing, picturing, and moving, or *sensing the sentence*. Indeed, drawing out the visual and kinesthetic dimensions of composing will likely feel familiar to compositionists; however, as I argue in this section, simulation research provokes us to see bodily sensation at the core of word work. At the same time, embodied composition and disability scholarship reframe some assumptions in simulation theory toward more inclusive classroom practice.

Simulation researchers are conducting a large number and range of studies using unbiased measures including reaction times, timed matching tasks, eye-tracking technology, and fMRI scans in order to validate simulation at the

level of neurological occurrence<sup>2</sup>. But the felt phenomenological experiences of simulation may already be familiar: the imaginative world-building that happens as you read a gripping novel, giving directions to a familiar place by twisting your body to move through a mental street map, or feeling disoriented as you watch the film version of a book you hold dear. While for some a good novel or sentence can spawn three-dimensional worlds almost automatically, for others (like some of our students) the experience of text may feel more like a flattened soundscape of words. Making simulation processes explicit and dialogic, then, may or may not initially resonate with students' cache of experiences, especially with the sentence. But inviting simulation into the writing classroom can be transformative for most, if not all. Glenberg, whose research explicitly links simulation to literacy, warns that for those students "who fail to make the link between the written word and the embodied experience, reading becomes a boring exercise in word-calling that rarely results in meaning" (8). Simulation evokes the transformative pedagogical power of emphasizing that words and sentences comprise *literal* action—language moves us, maps spaces, and makes us see and feel things in myriad and idiosyncratic ways.

This is not to say, though, that simulation is a panacea. There is risk, for example, of seeming to speak uncritically or with certainty about what brains and bodies do. Compositionists too may be weary of invocations of the brain as explanations of complex, social and cognitive literate processes, as in the past the field has perhaps been too eager to apply them (Newkirk 3; Rose). The ways simulation researchers talk about brain activity should also not be accepted simply as "a physical explanation for [the] behavioral phenomenon" of reading, composing, or language comprehension (Weisberg et al.). Simulation theory is not just about peering into the brain, though; it does maintain some social constructivist orientations. For example, the felt dimensions of simulation (visual, spatial, proprioceptive, gestural) are assumed to emerge from idiosyncratic worldly experience (Bergen 177). The theory accounts too for the constructedness of that experience; as stated by Gibbs, "Bodies are not culture-free objects, because all aspects of embodied experience are shaped by cultural processes" (*Embodiment* 13).

Research on embodied simulation also has a direct, though not unproblematic, connection to a book central to the humanities and close to composition, George Lakoff and Mark Johnson's *Metaphors We Live By*<sup>3</sup>. Lakoff and Johnson, we remember, demonstrated the embodiment of language by closely examining metaphorical clusters like "up is good" (which grounds phrases like *I'm on cloud 9*, *the stock market is soaring*, *I'm feeling upbeat*). These turns-of-phrase become meaningful, they argue, by virtue of collective physical and spatial experience in the world: "Our constant physical activity in the world, even when we sleep, makes an up-down orientation not merely relevant to our physical activity but

centrally relevant. . . . the structure of our spatial concepts emerges from our constant spatial experience, that is, our interaction with the physical environment” (56). This physical grounding of metaphor demonstrates the linguistic tendency to “conceptualize the nonphysical in terms of the physical” (Lakoff and Johnson 59).

And this bridge made by metaphor is crucial in simulation theory, as it helps account for the embodied basis of “language about things that we can’t see or do” (Bergen 196). Lakoff and Johnson’s intervention unites language with embodiment and demonstrates how simulation processes can extend to the abstractions of the academic discourses that preoccupy teachers of writing. At the same time, some assumptions founding this touchstone text are concerning. Critics have pointed out the ways this theory purports “a universality of both physical and conceptual experience” (Altman 500)—such as the supposedly fully shared experience of walking upright or the assumed connection between seeing and knowing (Vidali 34). As is well established in disability, gender, and constructionist discourses, “the construct of an ‘ideal’ or ‘universal’ body is a fiction, a fantasy” (Wilson and Lewiecki-Wilson 13). Forwarding simulation does risk unwittingly presuming universality in embodiment and continuing to overvalue the relationship of literacy and vision.

Visuality, indeed, has long been connected to language and knowledge. As Mark Sadoski and Allan Paivio suggest, imagery evokes a history as long as the discipline of rhetoric itself (ix), a long-standing tension “between an abstract, verbal emphasis and a concrete, imaginal emphasis in cognition and learning” (27). Compositionists too have argued in different ways for the importance of the visual: Joddy Murray suggests the image is “elemental to thought, to emotion, and ultimately to composing” (3); Hildy Miller links mental imagery with emotion in the writing process (116); Debra Innocenti helps students “facilitate a physical relationship with the words on the page” through dynamic mental movies (60). Even Linda Flower and John R. Hayes’ cognitive problem-solving theory of composing makes space for the nonverbal image (372). There has been, in other words, an established impulse to install seeing at the center of writing and its instruction, and embodied simulation theory could be said to reify this impulse. But, rather than proceed with presumptions about visuality (as the unimodal domain of the eyes), work in embodiment and disability studies provides nuance toward understanding seeing instead as multisensory and diverse.

Based on my discussion of simulation thus far, readers might be most reminded of Kristie S. Fleckenstein’s *Embodied Literacies: Imageword and a Poetics of Teaching*. Fleckenstein argues for the fundamentally imagistic nature of literate practice, or the “embodiment of literacy through imagery” (6-7). A central difference, though, between simulation and Fleckenstein’s imageword

is where the impetus for imagery is found. Fleckenstein establishes that the “prevalence of imagery in our lives indicates the extent to which imagery needs to transform our theories of meaning” (11). Living life now in the midst of a “pictorial turn” (2), literacy practitioners must turn to imagery as an “alternative imaginary” (2) because “our students already locate themselves and their writing-reading at the suture points of image and word” (Fleckenstein 14). While of course visual culture continues to stretch our conceptions of writing and its teaching, simulation theory offers a different, and perhaps more pressing, impetus. That is, after accepting some of the tenets of simulation, the visibility of literacy is not just fitting to shifts in culture but also increasingly characteristic of what researchers continue to discover about the embodied mind. Amassing simulation research suggests that we do not really *choose* to link imagery and word; rather, this link is the precise way in which meaning becomes possible at all.

At the same time, Fleckenstein’s nuanced construction of imagery contributes to simulation pedagogy a more responsive conception of what picturing language or sensing the sentence can mean. While imagery might be first associated with flattened “snapshots” or still mental images (19), Fleckenstein emphasizes instead the “multidimensionality” (21) of imagistic experience, asserting, “imagery encompasses a range of modalities that nest within one another” (19). Imagistic experience is necessarily and deeply multimodal:

Imagery comes in an unending stream and a range of individual modalities. Rarely do these modalities remain neatly demarcated. Images tend to nest a range of senses, resulting in meanings that are collaborative products of sound, sights, and touch, providing full and resonant . . . significance to meaning. “Seeing” doesn’t occur alone or in isolation but is accompanied by feeling. After all, the physiological system of visualization includes the apparatus to detect texture. (19-20)

While research in neuroscience and simulation reinforces the links Fleckenstein here establishes between feeling and seeing and the multimodality of imagery (see Lacey and Lawson), it is also true that Bergen, for example, tends to cast simulation most often through *seeing* metaphors, like “the mind’s eye” (or as discussed in the next section, grammar as a *movie* director). It is thus vital to keep Fleckenstein’s concept of multimodal imagery at the fore of simulation practices, enacted in inclusionary ways by encouraging its unfolding through a *range* of bodily modalities—showing, gesturing, narrating, and moving. It is equally imperative to proceed with awareness of the nuance that disability scholars have brought to “categories” of dis/ability, like blindness

and sightedness. As Julia Miele Rodas writes, “blind experience, like the range of visual experience, is infinitely diverse” (119). As simulation practitioners, we cannot presume the ways that a legally blind individual may experience a wide range of visual sensations, nor can we presume anything about the visual sensations of ostensibly “sighted” students. In sum, doing simulation ought not assume any standard ways of experiencing visuality and other bodily sensations, or any ease in doing so.

Simulation research focuses on action and movement as much as visuality and thus also has implications for the kinesthetic dimensions of literacy. For example, much simulation research shows that parts of the brain responsible for motor coordination (the areas of the brain connected to bodily movement in the world) also become engaged when action-oriented sentences are read. In one such study, participants read sentences that involved “hand verbs like grasp, foot verbs like kick, or mouth verbs like bite” (Bergen 91). Their fMRI scans demonstrated that “understanding language about actions measurably activates motor regions of the brain” (91). Ernest Davis expands upon this connection between physical action and language:

If you read the sentence, “John turned the key in the ignition” or “John screwed off the gas cap,” the part of the brain that controls motion of the hand is activated. Remarkably, after reading the first sentence, an experimental subject finds it easier to turn their hand clockwise than counterclockwise; the reverse is true after reading the second sentence. This kind of visualization and activation of motor control is known as “embodied simulation.” (1)

Neuroscientists are demonstrating that understanding language, as far as the brain is concerned, is a lot like physically moving in the world. This idea that reading about actions is akin to doing them is enjoying increasing visibility (Berns et al.; Tamir et al.), making the adage that words transport us into other worlds and lives much more literal. Or, as Bergen puts it, “Understanding language, in multimodal ways, is a lot like being there” (92).

Just as with the interaction of simulation and visuality, this motoric aspect of simulation theory has implications for the relationship compositionists have assumed between the kinesthetic and linguistic. This influence can be illustrated through Karen Klein and Linda Hecker’s essay, “The Write Moves: Cultivating Kinesthetic and Spatial Intelligences in the Writing Process.” Following the assumptions established by Patricia Dunn and by Howard Gardner’s multiple intelligences theory (89), these pedagogues argue that students need ways of capitalizing on intelligences beyond linguistic prowess. In working with both “visual thinkers” and “dyslexic students,” the authors discovered that “many

individuals struggling to express their ideas on paper could build models of how ideas relate using pipe cleaners, Legos, or Tinkertoys, or they could walk those ideas across a room, changing direction to indicate changes in logical structure” (89). These activities “help students generate language as well as organize it. Holding or touching an object or moving our bodies through space appears to simulate the flow of language” (89-90).

Klein and Hecker suggest some “appearance” of a relationship between physical movement and language, emphasizing the power of “*cross-fertilizing* students’ linguistic abilities with spatial or kinesthetic intelligences” (89, emphasis mine). But language and corporeality are ultimately understood by Klein and Hecker as separate modes: under the guidance of multiple intelligences theory, linguistic intelligence is fully distinct from spatial, visual, and kinesthetic ones. Simulation theory, by contrast, implies that spatial and kinesthetic intelligences are fully entailed within linguistic intelligence and vice versa. The spatial experience of walking the structure (where students follow their transitions and organizational logic to physically move through a room) would become not just a helpful alternative avenue for understanding what has been assumed to be the linguistic abstractions of essay structure. Those spatial experiences are a necessary part of how meaning is constructed: transition words, under the influence of simulation, are better understood to move us *literally* through an essay. Signal words like *moreover* incite us to place new information over or on top of what is already known. Linguistic intelligence then is more aptly understood as *inseparable from* spatial, kinesthetic, and other sensory modes.

This interpretive shift impacts how we conceive of kinesthetic practices and our students. Consider Mary: under the influence of the theory of multiple intelligences, we might think of her as a visual or kinesthetic learner in need of a physically grounded way to understand textual coherence or flow. Or, as Dunn might frame it, Mary needed the chance to use visual, aural, spatial, emotional, kinesthetic, and social ways of knowing (*Talking* 1) as an alternative to the “primacy of language” (*Talking* 21) that dominates writing classrooms. Dunn has championed the idea of the “multiple channel strategy” (8), which rightly insists on giving students space to contribute their knowledge in ways that go beyond the word, like sketching, three-dimensional modeling, or moving. Embodied simulation provides what I see as a complementary multiple channels strategy. Since simulation implies that literate processes already entail within them a complex mix of visual, motor, spatial, and other sensing modalities—more plainly, that all literacy is multiliteracy—then *no intelligence or mode* is beyond Mary’s grasp. Opening multiple channels with simulation would mean not turning *away* from words to other modes, but instead drawing out dialogically the visual, spatial, gestural experiences of those words. Simulation is then another means of enacting the inclusivity and access that

Dunn and others have sought. Embodied simulation research encourages us to bring inclusive embodied methods to our baseline composition practices in order to impact inclusion and engagement and to continue anew Dunn's declaration that "[a]ll writers . . . benefit from multiple pathways" (1). To enact a simulation approach to teach transitions, or essay structure, or, as I discuss below, rhetorical grammar and sentence style is ultimately to make explicit and dialogic our varied embodied experiences, or simulations, of language.

### **Simulation as Rhetorical Grammar and Sentence Style Method**

Simulation theory and research has much to say about the formative, shaping roles of grammar in meaning making. Bergen devotes much space in his book *Louder than Words* to describing grammar as an engine that guides and directs simulation experiences. If words, Bergen suggests, "provide the cast of characters, props, and sets," then it is grammar that "directs the action so that the scene plays out in the intended fashion" (94). Grammatical structures can dictate perspective, detail, and focus within simulations and bind details, like color, movement, and size, to their relevant objects (Bergen 118). Bergen casts grammar's role as that of the "director" (114), finely shaping how (textual) action is visualized and embodied, a conception echoed in Joan Didion's well-known essay "Why I Write." In Didion's words, "To shift the structure of a sentence alters the meaning of that sentence, as definitely and inflexibly as the position of a camera alters the meaning of the object photograph. . . . The arrangement of the words matters, and the arrangement you want can be found in the picture in your mind. The picture dictates the arrangement" (Popova). Accepting the premise that grammar "modulate[s] what part of an evoked simulation someone is invited to focus on, the grain of detail with which the simulation is performed, or what perspective to perform the simulation from" (Bergen 118) supposes that grammar is indeed not best understood as a matter of "correctness," but of—just as rhetorical grammarians have told us—*choice*, a pursuit fundamentally connected to meaning. Simulation invites us to understand sentences not as deadened objects to diagnose and label. Rather, sentences incite action, as we intuitively and dialogically construct meaning, perceiving structures as choices with embodied, visualized effects.

In this final section, I demonstrate simulation methods as they emerged in a 300-level course I taught on rhetorical grammar and style at a large mid-western university, a course populated mostly by English majors interested in improving their writing. Using Kolln's *Rhetorical Grammar* and Donald A. Daiker, Andrew Kerek, and Max Morenberg's sentence style and combining approaches in *The Writer's Options*, we engaged in class discussion and exercises to help students consider the rhetorical actions of sentences. I recre-

ate these scenes not to provide a set of “should-do”s or to offer “proof” that these methods work. Instead, I share them to inspire possibilities for recasting sentence work as embodied meaning work in a range of ways. Doing so can be invigorating not only in specialized writing courses like mine, but also in the context of first-year writing or writing centers. I am also measured in my belief in simulation, not knowing for sure how this approach may or may not connect with any given individual writer, including those identified as L2, underprepared, multilingual, or as writers with a range of visual, cognitive, or aural differences. But practicing simulation by emphasizing its multisensory and diverse nature helps ensure that it is as ethical and accessible as possible.

I discovered the usefulness of simulation in this course very early in the term, as I was trying to formulate questions about direct objects. We were looking at examples: *Jim builds his daughter a sandcastle at the beach.* “So where is the direct object here? And what does it *do*?” I began. My generous students offered textbook-type definitions: it receives the action. Okay, I thought (instantly questioning the value of identifying direct objects at all). “But what if we *picture* or try to put ourselves into the action of this sentence? Who’s there? Show and tell me what they are doing.” Students offered simple scenes at first: “Uh, Jim is building a sandcastle at the beach,” they said, laughing a little. “Yes,” I said, “But, really try to imagine this action concretely! Close your eyes.” I read the sentence again and they offered more specificity: a baby sits in the sand playing with a shovel; Jim digs tirelessly. The sun is out. Another version: Jim’s tween daughter stares at her phone as she sits in a beach chair; Jim (now a little older) keeps looking back at her hopefully as he shapes the castle. As we imagined possibilities for the scene, my students quickly established the differences between a direct and indirect object as we explored the relationship between the action and objects in the scene and sentence. Significantly, students’ conceptions of indirect and direct objects emerged through the specificities of their simulations, as opposed to the traditional strategy of *naming and defining*. By inviting students to simulate, this previously unmemorable sentence was now *alive* in very different ways across the room and the functions of its parts intuited rather than labeled.

Starting discussion with simulation also led to fruitful debates and decreased students’ need to call upon familiar grammar dictates or tricks. One student, for instance, asked if a sentence like “He feels hurt” could be said to have a direct object because, he argued, “hurt” answers a familiar formulaic question that grammar handbooks provide for finding a direct object: *What does he build? A sandcastle. What does he feel? Hurt?* I turned the question back to the students, asking them again to embody the action of these sentences. We perceived and discussed the differences in the nature of the action of *feeling* compared to the action of *building*, which led us to a discussion of transitive

and intransitive verbs. It was not a discussion based on those terms and definitions, but rather primarily on the experienced nuance of embodied meaning (seeing and gesturing how the action of *feels* is different than that of *builds*). Embodying the sentence allowed students to *discover* the differences between grammatical constructions, a process reflected in simulation insights: “Readers use their embodied abilities to immediately create construals of the different perspectives, and the shifts of perspective, of the objects and actions described by language” (Gibbs, *Embodiment* 199-200). Simulation, moreover, reduces the *risks involved* in talking about a sentence, the risk of misnaming a grammatical part or “being wrong” about how a sentence is constructed. Sharing each individual’s varied sense experiences of a given sentence is also valuable in itself. The multiplicity in a sense “proved” to students that adjusting the construction of a sentence is a matter of shaping meaning; subtle syntactical choices impact how a reader experiences the writer’s meaning, and even the smallest adjustment can radically reshape that experience.

After inviting students to produce a few more simulated example sentences, I decided to explicitly introduce simulation as a method of our course. I explained some of the research that supported it and that we would continue to practice it throughout the term. I asked students to reflect on the simulating they had done: we discovered Fleckenstein’s “nesting” sensory quality of picturing, the vagueness and variability of the mental picture, the ways that perceived action as movement seemed to feel most vivid. I spoke a bit about Bergen’s idea of grammar as a movie director. They named the simulation approach the “grammera” (or “grammar camera”) and we called upon it often for the rest of the term.

As the course progressed we examined and composed various structures, like appositives, participial phrases, and absolutes, as outlined in *The Writer’s Options* and *Rhetorical Grammar*. In our discussion of absolutes, for example, we began by exploring examples like this one from Flannery O’Connor: “There was no bus in sight and Julian, his hands still jammed in his pockets and his head thrust forward, scowled down the empty street” (Nordquist). Students began by noticing the phrases set off by commas and their focusing effects. We then turned to Kolln’s description in *Rhetorical Grammar*: “Absolute phrases are, indeed, noun phrases,” Kolln writes. “This pattern, with a participial phrase as the postheadwork modifier, is our most common form of the absolute, although sometimes that modifier is a noun phrase, sometimes a prepositional phrase” (212). If, as with Mary, simply finding the subject of a sentence leads to paralyzed silence, what happens to students faced with this kind of definition? Much previous knowledge is required to get a handle on it. This familiar definitional and classification approach, echoed in most other

grammar handbooks, gets caught up in first *categorizing*, instead of leading with why a writer would want to *use* an absolute phrase.

So we left this definition behind for a moment and deployed the “grammera” on examples like the one above. Students experienced the relationship between the absolute phrases and the main focus of sentences. They felt the varied cinematic effects of the structure: lingering focus, artful repetition, or delivery of subtle detail. These phrases direct the reader’s focus, they said. One student noticed, in a sentence that contained several absolutes in a row, that the reader was made to linger on elements of a character’s body, creating an objectifying gaze. He described this effect as “inception description”—in other words, absolutes piled on top of one another creates the sense of ever-narrowing detail, moving the focus further and further toward the subject. By picturing these new structures *first*—or in essence, by *discovering* their meaning through movement and visualization and thereby discovering how they impart nuanced meaning—students intuited why a writer would choose the absolute form as well as patterns for producing the structure in their own writing.

In this way, simulation modifies the baseline approach of rhetorical grammar by prioritizing the intuitive, embodied experience of any grammatical structure, which in turn demonstrates its rhetorical effects and leads writers to understand when and how they might deploy it. And prioritizing intuition is terribly important because it affirms what we know about how writers operationalize grammar knowledge when composing. As Patrick Hartwell defines it, grammar begins as the operative “grammar in our heads,” which is “tacit and unconscious knowledge” (111). The problem for instruction, as Hartwell notes, is that while this internalized sense of grammar “is eminently useable knowledge—the way we make our life through language...it is not accessible knowledge; in a profound sense, we do not know that we have it” (111). The goals of rhetorical grammar, though, are to “raise consciousness about style, to encourage [writers] to make the kinds of stylistic choices that send an important message” (Kolln 211). How can consciousness be raised about a body of knowledge that is profoundly unconscious?

Kolln characterizes this consciousness-raising process as systematic and rules-based, as she writes, “Consider that there is stored within you, in your computer-like brain, a system of rules, a system that enables you to create the sentences of your native language. The fact that you have such an internalized system means that that when you study grammar *you are studying what you already ‘know’*” (1, emphasis in original). But this grammar system, as Hartwell helps us understand, is not conscious knowledge of rules or terminology. Our life with language is not best understood as a system of rules in our computer-like brains. Simulation methods can transform rhetorical grammar practice because it prioritizes the *sense* of the sentence gained through intuition and

forged through a history of reading and the ability to creatively assemble meaning. As Gibbs asserts, “embodiment shapes...*people’s intuitions about*, and immediate understanding of, the meaning of various words, phrases, and linguistic expressions” (“Embodied” 2, emphasis added). Instead of swimming through complex definitions—instead of starting with identifying the subject, instead of thinking in terms of noun or participial phrases, instead of perceiving sentences as a set of separate elements we can label—we can simply ask students to dive in and sense the sentence. Kolln herself opens the door to this adjustment when she describes the absolute phrase metaphorically (unfortunately, in just one little sentence in a three-page description of this structure): “the absolute phrase moves the reader in for a close-up view, focusing on a detail, just as a filmmaker uses a camera” (212). What if *Rhetorical Grammar* led with and elaborated upon embodied descriptions like these? How might that change students’ eagerness and ability to recognize and build their “conscious knowledge” of sentence constructions? What if all our discussions of sentence-level style began with the premise that we embody meaning?

As we neared the end of the course and a major revision project, my students commented on their newfound ability to “see” sentences. I think they meant this in two ways: the grammara, of course, but also seeing in terms of perceiving, assembling and ably rearranging the bricks of a sentence in different ways. With this discovered outcome, we turned to familiar writing handbook edicts on style that would help inform their revision processes. We discovered—not surprisingly—that embodied simulation provides felt rationales for familiar writing handbook advice and links various imperatives together, as demonstrated in the following examples.

One of the most familiar commandments we discussed was to “use active verbs.” For example, in the Purdue OWL’s directives about resume writing, we read, “You should use action verbs in workplace writing because they make sentences and statements more concise. Since concise writing is easier for readers to understand, it is more reader-centered. Because reader-centered writing is generally more persuasive, action verbs are more convincing than non-action verbs” (Brizee, Jarrett, and Schmaling). This is well-reasoned advice, though ironically, the explanation is not so concise. It is of course true that concision is friendly and persuasive to readers. But this description does not elucidate what an active verb is and, more importantly, why in this particular rhetorical situation, active verbs are persuasive. A simulation perspective can consolidate and clarify the rationale: using specific and carefully selected verbs helps the reader embody, or gain “visual proof” of the writer’s previous work experience. If we make meaning by imagining “being there,” then focused active verbs propel the virtual embodied experience in a maximally vivid and specific way. In this genre, active verbs *show* job experience rather than vaguely *tell* about

it (yet another of our writing missives already tinged with the assumptions of simulation). Simulation also helps writers judge the effects of their own writing: they can ask if they are helping the reader really *see and experience* the world their words create, a much more accessible measure than more elusive ones like persuasion or reader-friendliness.

Consolidating and clarifying these rationales is of great import to our writing students given just how *many* sentence-style directives we ask them to consider. Take, for example, the following list of imperatives in John J. Ruskiewicz, Maxine E. Hairston, and Christy E. Friend's *SF Express* handbook, each separately elaborated in sections on clarity and economy: use vigorous verbs, do not overuse *to be* verbs, reduce the number of passive verbs, replace cluttered verb phrases with single lively verbs (143), cut nominalizations, and cut *It is* and *There are* sentence openings (149). Though useful advice, following each of these edicts would take much time and concerted effort. Simulation intervenes to unify these instructions around the question of *movement*. For example, nominalizing transforms actions that are easy to see and feel into inert, immobile things. *There are* constructions eliminate action. Cluttered verbs confuse or hide the action. A simulation perspective consolidates these concerns about verbs with one: choose an active, lively, fitting verb that propels readers' embodied experiences. Writing students are repeatedly told simply to "avoid" the passive voice and nominalizations but are not offered explanations as to why. Simulating passive/active variations like "There is considerable destruction in the neighborhood from the storm" versus "The storm destroyed much of the neighborhood" produces different visual and embodied foci. Rather than rotely abiding by the edict to "avoid the passive voice," a rule that students tend to understand as gospel, simulation provides an accessible means of judging which action and focus best fits rhetorical aims. As my rhetorical grammar students and I discovered, once simulation becomes the baseline for understanding the work of sentences, new ways emerge to understand and act upon familiar writing concepts.

If individuals fine-tune meaning from the smallest of grammatical differences, then writing teachers are wise to spend time attuning students to how their grammatical choices can shape and direct embodied experience. Doing so explicitly and dialogically in the classroom helps students develop awareness of how they and others experience language. And while simulating cannot ensure that students always create acceptable and compelling structures, it does intervene in the central problem in teaching grammar: the gap between *knowing about* grammar and *knowing how to do* grammar. As Kolln writes, "Your grammatical knowledge is largely subconscious: You don't know consciously what you 'know.' When you study grammar you are learning about these grammar rules that you use subconsciously every time you speak" (2). Kolln's

is a familiar attempt to build a bridge from the subconscious “grammar in our heads” (Hartwell 111) to the systemic study of rules-based grammar. But, in light of simulation, we do not really need the rules much, nor the names or definitions that *knowing about* grammar traditionally entails. Simulation allows us, as Hartwell advises, to “shuck off our hyperliterate perception of the value of formal rules, and to regain the confidence in the tacit power of unconscious knowledge” (121). But rather than leaving that power tacit, sensing the sentence uniquely provides a method—a shared vocabulary of language, gesture, movement, seeing—that accesses and makes social our intuitive language experiences so that writers may perceive and adjust their written meanings. Embodied simulation thus contributes to composition pedagogy an accessible means of addressing the local in our students’ writing, as the sentence becomes an inhabited, dynamic, and embodied space.

## Notes

1. My discussion of simulation is mostly based on Benjamin Bergen’s accessible and comprehensive book as well as Gibbs and Glenberg, but the following sources also inform my discussion: Berns, Blaine, Prietula, and Pye; Gibbs, “Embodied”; Falck and Gibbs; Fischer and Zwaan (840-843); Jacob; Lane, Kanjila, Omaki, and Bedny; Mendelsund; Santana and de Vega; Tamir, Bricker, Dodell-Feder, and Mitchell.

2. An example of how this research aims to validate the occurrence of simulation may be helpful. In one such study on “implied perspective,” conducted by Rolf Zwann and described by Bergen, participants were asked to read a sentence (e.g., *The carpenter hammered the nail into the floor*), then shown a picture of an object and asked to decide if that object had been mentioned in the sentence. Researchers mixed in non-matching images and varied how matching object images were oriented in the picture (the whole nail might be shown lying on its side or just the head of the nail). Participants affirmed that the object (the nail) was mentioned *much faster* when “the orientation of the object implied by the sentence matched the orientation of the picture” (Bergen 54). The response is faster, this kind of study argues, because individuals had just been *simulating this action as though they were performing it*. Studies like these assert the occurrence of implied perspective through quantifiable time measurements only, not by asking if the participants “saw” the nail or embodied the action. A simulation pedagogy, by contrast, is chiefly interested in drawing out the varied, subjective experiences of simulation.

3. Lakoff and Johnson’s connection to embodied simulation extends beyond their well-known book. Lakoff trained Benjamin Bergen, and Mark Johnson’s subsequent works elaborate on embodied meaning (Johnson, *Body in the Mind*; Johnson, *Meaning*; Lakoff and Johnson, *Philosophy in the Flesh*).

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