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Metaphor and Inquiry

by

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Abstract

Metaphor and Inquiry

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In this paper, I address the relationship between metaphor construction and the educational practice of inquiry. I argue that metaphor construction is a subspecies of inquiry. When we create metaphor, we engage in inquiry, which furthers inquiry. I draw upon contemporary metaphor theory and academic literature to explore contemporary uses of metaphor in education and the process of metaphoric comprehension. I then detail the process of metaphor production. This process is then explored in light of its relationship to the inquiry process as described in three seminal texts regarding education and inquiry. I discuss further implications of the relationship between metaphor and inquiry and call for further research.

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Chapter 1: Introduction

Now it is a city hospital on a Monday morning. This is the obstetrical ward. The doctors and nurses wear scrubs of red, blue, or green, and white running shoes. They are, according to the tags clipped to their pockets, obstetricians, gynecologists, pediatricians, pediatric nurse practitioners, and pediatric RNs. [...] Should we not remove our shoes, drink potions, take baths? For this is surely the wildest deep-sea vent on earth: This is where the people come out.

From Annie Dillard (1999), *For the Time Being*, p. 36

BACKGROUND

An essay is like a duck. Or can be:

An introductory statement can be like a duck beak.

A thesis statement can be like a duck brain.

The transition between introduction and the first body paragraph can be like a duck neck.

The body of an essay can be like a duck body.

A conclusion or concluding point can be like a ducktail.

The duck model of the essay may not be a great or revolutionary thing in and of itself (though it has helped me to explain the structure of a basic essay to tenth and eleventh graders, to college students, and, I will be honest, to myself when I am facing my own sometimes lost-and-wandering writing). What is novel about the duck model of the essay is that I made it up. I made it. One day, in my first college-level advanced writing class, I did not have a well articulated, working knowledge of the structure of an essay, and then, minutes later, I did. I drew the duck and created the duck model of the essay as my

advanced writing professor stood at a blackboard and chalked out an inverted V, a cubist hourglass, a totem pole of rough geometric shapes—all efforts to visually represent the structure of an essay in a memorable and easily recognizable fashion. They were for me neither particularly recognizable nor memorable. And so I asked a question, “What does an essay look like?” and I drew a duck.

That day in class, I sat looking at my desktop where the labeled duck drawing lay, and I felt lit up, resonant, like a still-vibrating gong. I had made a metaphor. I made one. And it was good.

This experience prompted me to begin thinking explicitly about my relationship with metaphors. I wanted to better understand how it is that I make metaphors, why, and when, and what good I think it does. I began to notice metaphors everywhere, in virtually every explanatory or expository piece of text, in all my science classes, on the pages of my favorite books, coming out in my conversation, and at the heart of my faith. As I thought about metaphor, I wanted to know what others were thinking about it, had thought about it, had theorized or researched or advocated about it. I wanted to know what thinking people had concluded about the good of metaphor and the craft of metaphor, and if, perhaps, perhaps, someone in education was doing something about it. I dreamt of taking classes in metaphor appreciation and metaphor creation, with longing and a little bit of bitterness. “Why was I twenty before I ever began thinking about metaphor as something besides the cousin of simile?” I thought. “Why has no one ever talked to me about this, taught me how to make metaphor, taught me how to structure and be structured by it? How can I fix this? What needs to change?”

This thesis is an attempted response to these questions, to that moment, when I made a metaphor and realized that it was good, that it would be useful, that making metaphors is a power and a skill and a craft, and that, if we talk about it, teach it, practice it, we could maybe do great things. Great things. Great and beautiful.

OVERVIEW

The crux of my argument is this: when we create metaphors (with intentionality), when we are engaged in the metaphor-creation process, we are engaged in a process of inquiry. The relationship between metaphor production and inquiry is, simply, that the one includes the other. To create a metaphor with any kind of engagement, any kind of intentionality, is to *do* inquiry, to assume a stance of finding out, of going beyond, of wondering. This is true for each of the reigning definitions and theories of inquiry. These theories, detailed and developed by various researchers and educators and philosophers, apply to metaphor production, even when considered in light of their theory-specific trappings, addenda, and requirements. I will demonstrate this further in the body of my thesis, but here my point is that this moment, this space, in which metaphor and construction and inquiry and exploration are all considered together, has essentially been unexplored, unprobed. If we as educators are committed to inquiry, to engaging our students in inquiry and to understanding what it is we understand about inquiry processes, then we can/should inspect this space, this place where inquiry is born, where metaphor comes out.

In order to understand this connection between metaphor and inquiry, we should, at minimum (or as much as possible), inspect the following:

- Metaphor Theory—What we generally know about metaphors and where that knowledge has come from, how we have come to define “metaphor,” what questions are of issue and related to metaphor, and what have been the major accomplishments and/or progress in contemporary metaphor theory
- Metaphor in Education—What education has done/is doing with metaphor, how it has been used, and how it is commonly used in current educational discourse and practice
- Inquiry—How inquiry is defined in education, what education considers and values in inquiry, what theories and elaborations of inquiry are preeminent within education, and where educators have been looking for inquiry (in what exercises, in what kinds of pedagogy, in what kinds of classrooms and classroom activities).

Evidently, to fully treat each of these topics and questions would be to overreach the scope of this thesis. But I will, I hope, present the research and theory that most bears on my topic and purpose, which is, more than anything this: to continue the conversations regarding metaphor theory and inquiry and, too, to jumpstart a conversation focused on what happens during and what follows when a person makes a metaphor.

Chapter 2: “Metaphor”

“Hope” is the thing with feathers –
That perches in the soul –
And sings the tune without the words –
And never stops – at all –

And sweetest – in the Gale – is heard –
And sore must be the storm –
That could abash the little Bird –
That kept so many warm

From Emily Dickinson (1960), *The Complete Poems of Emily Dickinson*, p. 116

METAPHOR, DEFINED

Though a definition of metaphor is central to any further discussion of metaphorical thinking, merely defining metaphor is a surprisingly complex and debated issue. Recent metaphor theory arose in contrast to the definition of metaphor that had prevailed for centuries. Both Hobbes (qtd. in Cohen, 1979) and Locke (qtd. in Cohen, 1979) wrote disparagingly about the metaphor, expressly when it is considered anything but an extraneous and ornamental piece of language. They considered metaphor nothing but a false statement used for decorative purposes—hope is not a thing with feathers, despite what Emily Dickinson may claim (Dickinson, 1960). Hobbes condemned

metaphor for being deceptive (though, he acknowledges, metaphors confess their inconstancy and so are less dangerous than other duplicitous figures of language). Locke, too, noted the deceitful nature of metaphor, explaining that metaphors are like beautiful women, unnecessary but too beautiful to be spoken against.

By the late seventies, when contemporary metaphor theorists really began growing into a vocal intellectual community, the debate about the ontology and quality of metaphors had long moved metaphor out of the literary doghouse and onto an academic mainstage. The primary definition of metaphor rests on the Aristotelian notion that “a good metaphor implies an intuitive perception of the similarity in dissimilars” (qtd. in Harries, 1979, p. 71). Others have supported this kind of similarity-in-dissimilarity definition. Quine (1979) calls it “a resemblance of occasions” (p. 160). Shiff considers it a bridge between two different worlds. Davidson (1979) expresses it simply: “a metaphor makes us attend to some likeness, often a novel or surprising likeness, between two or more things” (p. 31). Lewis (qtd. in Harries, 1979) agrees with these definitions, though he notes that it is rather through the “collision” of images that we see their similarities than it is through their “collusion.” Gentner and Markman (1997) seem to clarify this, recounting research in which participants were able to list more differences between a hotel and a motel than between a magazine and a kitten, perhaps reflecting the participants’ feeling that it is senseless to contrast two items with seemingly little alignment.

Conversely, there are those who argue that a metaphor is not a thing unto itself, necessarily, as much as it is a moment in which some action is necessitated or completed.

Lakoff and Johnson (1980) obliquely define metaphor in this way: “The essence of metaphor is understanding and experiencing one kind of thing in terms of another” (p. 5). Their book *Metaphors We Live By* is an explication of just this *structuring* essence of metaphors, by which we understand and experience other concepts. Similarly, Fraser (1979) invokes an active definition and defines metaphors not so much by what they are as what they do or require. He says a metaphor is “an instance of the non-literal use of language in which the intended propositional content must be determined by the construction of an analogy” (p. 176). Thus, a metaphor is a use of language that requires the metaphor receiver or metaphor understander to do something, to create. That, Fraser implies, is how we define or recognize a metaphor.

Fraser’s definition of metaphor, as a use of language requiring the receiver to do something (in this case, construct an analogy), introduces another potential set of metaphorical definitions: definitions that, at least in part, rest outside of the words themselves and, instead, in the mind of the receiver. This lies outside Black’s (1979) claim that “the rules of our language determine that some expressions must count as metaphors” (p. 29). Each of the previously discussed definitions places the ontology of the metaphor in the metaphor itself. But Harries (1979) implies a definition that rests not on the words themselves, necessarily, but in the domain of the receiver. He compares a metaphorist to a poet, whose words only gain authority if they do two things: (1) are issued in response to a reality of the poet, and (2) stir their receivers/listeners to recognize the reality to which they are intended as a response. To overly simplify, Harries says that a metaphor is a metaphor only if it corresponds to a reality that the metaphorist *and* its

hearers recognize. Thus, if the metaphor's intended receivers do not receive or understand the metaphor or the reality it is in response to, it loses "ontological significance" (p. 87). It is not a metaphor.

According to Harries and, in part, to Fraser, it is the domain of the listener or receiver that is a part of the definition of metaphor. This contrasts the early research of Gardner and Winner (1979), which questions the role of the metaphor creator's intent in discerning what is and what is not metaphor. Gardner and Winner researched the development of metaphor production in children. They reported that the preschool children created the highest number of appropriate metaphors¹ of all the age groups being researched (children studied ranged in age from preschool to college); however, preschool children also created a greater number of inappropriate metaphors (ex. "quiet as a nose," "sad as a shirt") than other age ranges (p. 131). Gardner and Winner then asked the question: what ought to count as a metaphor? They suggest that there are subtle psychological distinctions that can be invoked which would require that, by definition, metaphors be created with some consciousness of effect, some awareness of the metaphorical tension, some desire to override the tension, and some knowledge of or experience with the conventional uses of the words, all on the part of the metaphor creator. (This, of course, would complicate, among other things, the research on early metaphor and children.) While Gardner and Winner do not here propose that we accept

¹ It is important to me that I stress a distinction between metaphor as I am using it here and metaphor as it is used as a discrete type of figurative language. I have noticed that in the English teaching community particularly the distinction between metaphor and simile is often stringently and repeatedly taught. As I am using metaphor in this paper, it includes and extends beyond both of those sentence-level, local literary elements. (See subsection "Why 'Metaphor'?")

this definition (though others do—Wilson, 2002), they do suggest that it is a possibility, and an intriguing one.

It is Wayne Booth (1979) who enables an end to the dialectic of the discussion: he says, “What metaphor *is* can never be determined with a single answer” (p. 173). He argues that our understanding of what a metaphor is has become so intertwined with our notions of similarity and dissimilarity and that complex and “irreducible plurality,” that we will never be able to distill a single, fixed definition of a metaphor (p. 173). Booth urges that the metaphor theory community needs to instead develop taxonomies of metaphors, thus moving out of the heated debate of this frozen and consequently unhelpful discussion.

WHY “METAPHOR”?

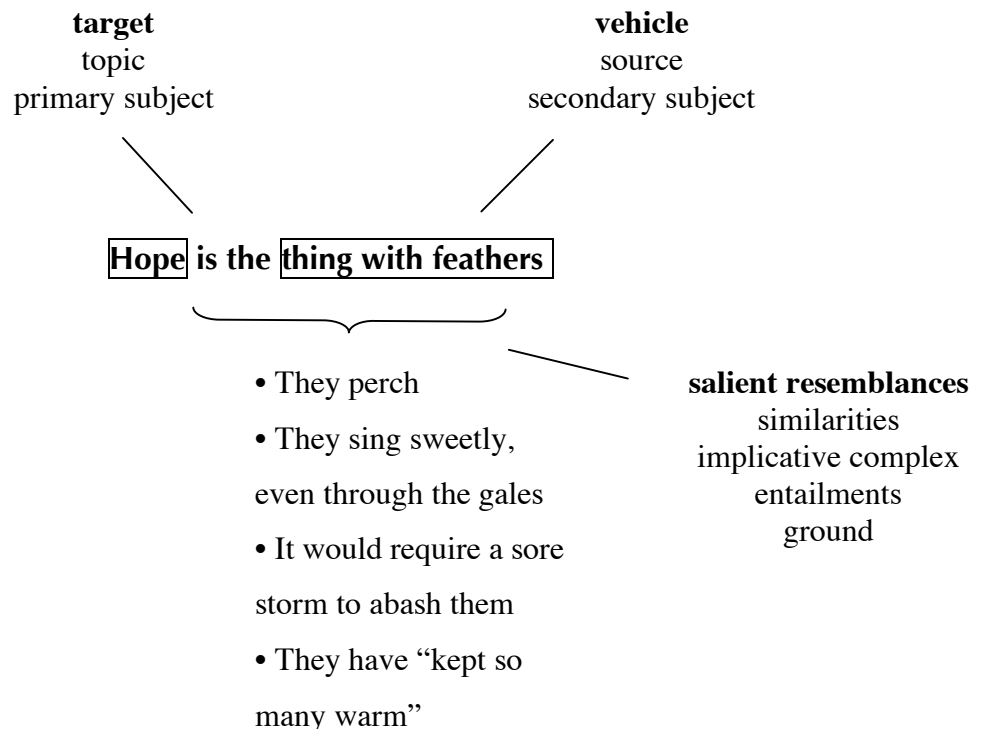
For the purposes of this paper, I will use the term *metaphor* as an umbrella term, as others have (Leino and Drakenberg, 1993). I am, however, not intending or advocating a discrete set of terms included in that umbrella category: simile, allegory, metonymy, analogy, model, etc. When I use the term metaphor, I am intending it to carry the weight of this unresolved conversation, in which there are vibrant and real intellectual concerns and discussions regarding its denotation. I am using metaphor as Leino and Drakenberg do, to represent an implicit analogy, the positive comparison of (typically two) disparate items.

I have chosen *metaphor* rather than *analogy* for a guiding term because of its connotative qualities. “Analogy” seems to me to convey a comparison between items or concepts of disparate natures that rests on a finite list of points in common. Where

“analogies” are limited and listable in the relationships between their components, metaphors share larger, broader, more ineffable, unlistable characteristics. Analogy is utilitarian; metaphor is rich. It is a connotative issue, but for me, an important one. Thus, in this paper, I will use the terms metaphor and metaphorical thinking interchangeably.

ANATOMY OF A METAPHOR

Though the terms used to describe the anatomy of a metaphor vary from theorist to theorist and theory to theory, some terms have become more standard than others. The following annotated diagram of the metaphor from an Emily Dickinson poem is meant to detail the various parts of a metaphor. (I have presented in bold the terms I will typically use.)



The *target* is typically the term in a metaphor stated first. The illumination of the target is the formal purpose of the metaphor. This is accomplished by comparing the target to the *vehicle*, which carries along with it (hence the title “vehicle”) certain attributes, characteristics, and connotations. The attributes shared by the target and the vehicle are their *similarities*. Thus, Dickinson’s poem “Hope is the thing with feathers,” compares hope (the target) to a “thing with feathers” (the vehicle), in order to use the similarities to illuminate our perception of hope.

Chapter 3: Metaphor Theory

Words are the garb, or clothing, of thought, necessary not for thought but only for conveying it.

From John Dewey (1933), *How We Think*, p. 230

METAPHORS IN THEORY: “WHAT ARE METAPHORS FOR?”

Just over ten years ago, a comprehensive and elegant review of metaphor theory, its history, and its current components was written by two Finnish researchers, Anna-Liisa Leino and Margareth Drakenberg (1993). While I would suggest anyone interested in a truly broad and thorough representation of metaphor theory (particularly as its development has fed into education) review their work, it is necessary here, I think, to present a brief overview of the general conversation surrounding metaphor theory, focusing specifically on one question: What does the conversation say metaphors are good for? Addressing the history of metaphor theory and the academic conversation in light of this question will provide an appropriate backdrop for an exploration of metaphor production and its relationship to inquiry.

Despite Aristotle’s contention that we must master metaphor—“It is a great thing, indeed, to make proper use of the poetic forms, ... But the greatest thing by far is to be a master of metaphor”—the view of metaphor as merely ornamental language dominated until the early twentieth century (qtd. in Lakoff & Johnson, 1980, p. 190). This changed when Max Black published his famous article “Metaphor,” which was reprinted in his 1966 book, *Models and Metaphors* (Leino & Drakenberg, 1993). In “Metaphor,” Black detailed two theories regarding the definition and use of metaphor: the substitution and

the interaction theories. The substitution theory states that a metaphor can adequately and fully be replaced by a simile, that the difference between the two is purely a “like” or an “as.” For example, the substitution theory contends that there is no meaningful difference between the simile “I am like the bread of life” and the metaphor “I am the bread of life.” One can be substituted for the other with no change in meaning. Conversely, the interaction theory contends that a metaphor is fundamentally different than a simile and that the difference lies in the interaction between the terms of the metaphor—the vehicle and the target. This interaction generates something else, some ineffable, indefinable meaning that could not be expressed with a literal statement.

By the late seventies, metaphor theory had begun to take root in various disciplines, and the first conference on metaphor was held in 1978 (Booth, 1979). At the conference, the participants discussed issues growing out of metaphor theory (substitution theories, interaction theories, issues of meaning and truth, etc.), but they also discussed the role of metaphors in various fields, addressing Ortony’s famous question, “What are metaphors for?” (Ortony, 1979, p. 16; Sachs, 1979).

The conferences in the late seventies and their subsequent publications, *Metaphor and Thought* (1979) and *On Metaphor* (1979) were followed in 1980 by *Metaphors We Live By*, a work by Lakoff and Johnson that prompted metaphor theorists, academics, and all those involved with conceptual and linguistic matters to rethink the role of metaphor in language and in thought, namely, to begin to consider metaphor as more than merely helpful or provocative, but to consider metaphor fundamental to our ways of thinking. These early texts—*Metaphor and Thought*, *On Metaphor*, and *Metaphors We Live By*—

were profoundly influential in determining the direction and dictates of metaphor theory and the subsequent use and development of metaphor in various disciplines.

Theorists engaged in the conversation about metaphor theory, as represented in these texts, either obliquely or specifically addressed purposive metaphor usage. Davidson (1979) points to the most basic and common use of metaphor, which is, of course, to highlight resemblances. But seeing resemblances where they were not seen before can itself serve other purposes—to move us from concrete experience to the abstract (Kliebard and Dickmeyer in Leino & Drakenberg, 1993); to strengthen skills of analysis and synthesis (Sticht, 1979); and to shift us back and forth from domains we know to domains we do not, and back again (Shiff, 1979). The shift from the known to the unknown enabled by metaphor is essentially what Petrie (1979) argues is metaphor's prime purpose in education—"to transfer learning and understanding from what is well-known to what is less well-known in a vivid and memorable way" (p. 439). This is also, Berthoff (1981) argues, what enables metaphor to make theory accessible. Thus, an apt metaphor can take us from what we know to what we do not, from the concrete to the abstract, from experience to theory.

Metaphors have, too, an evocative use (Fraser, 2003; Quine, 1979). Quine's (1979) presentation of this, which aligns with the interaction theory presented by Black, says that skillful metaphor can provide for the hearer/listener the feelings that are almost mystical, which feelings resist literal, explicit communication. He adds that "metaphor, or something like it, governs both the growth of language and our acquisition of it," perhaps because, as we experience emotions that are hard to verbalize or codify, we are

compelled to search for expression for them (p. 160). Fraser (2003) notes that metaphors also allow the metaphor creator to give expression to emotion and personal insight: “Such uses of metaphor brings [sic] to the surface [the creators’] awareness of their inner lives and reinforces the validity of [their] emotional insights” (n.p.).

Though contemporary metaphor theorists debate the specific uses of metaphor, they generally agree that metaphors are somehow fundamental—to thought, to philosophy, to language, to learning, to society (Booth, 1979; Perelman in Karbach, 1997; Lakoff & Johnson, 1980). Perelman (qtd. in Karbach, 1997) summarizes: “Today whether it is a question of metaphors living or dead, awakened or dormant, the certainty prevails that philosophic thought, and perhaps all creative thought, cannot do without them” (p. 4).

METAPHORS WE LIVE BY: A LOOK AT LAKOFF AND JOHNSON (1980)

Metaphors We Live By, by Lakoff and Johnson (1980), is perhaps the single most important contemporary text on metaphor. Lakoff, a linguistics professor at University of California at Berkeley, joined with Johnson, a philosophy professor at University of Oregon, to explore the issue of metaphor and its role in conceptual structuring. What they produced was *Metaphors We Live By* and a theory of metaphor that informs any academic conversation about metaphor.

Essentially, Lakoff and Johnson detail the fundamentally metaphorical nature of our conceptualization of experiences. They argue that we experience everything—emotion, aesthetics, sound, taste, color, texture, reason, etc.—in metaphorical terms. This theory rescues metaphor from its place in the marginalia of the academic tradition and

grants it a dominant role in our understanding and daily meaning-making experiences. Because *Metaphors We Live By* comprises (at minimum) the default thinking about metaphor in the general academic arena, it deserves closer inspection, that its relevance (or not) to my specific argument regarding metaphorical construction and inquiry might be made clear.

Though slim, *Metaphors We Live By* is a dense text. The central point of the text is this: our conceptual systems are metaphorically structured; that is, we understand concepts in relation to and terms of other concepts. Our conceptual systems are primarily webs of metaphor that overlap, that highlight truths, that hide truths, and that dictate how we perceive the world and how we interpret those perceptions.

Lakoff and Johnson repeatedly return to metaphors such as ARGUMENT IS WAR, LOVE IS A JOURNEY, HAPPY IS UP, and IDEAS ARE OBJECTS to explore the details of their metaphor theory. They argue that metaphors such as these comprise not just how we talk about arguments, love, happiness, and ideas, but how we *conceive* of them. For example, if we view (as many of us do) argument as war, then when we argue, we will do things such as attack, defend, gain ground, stick to our guns, try to win, try not to lose this argument, etc. Lakoff and Johnson argue that if we were to view argument as something other than war, something such as dance, then we would actually engage in the argument differently. We might, for instance, view the goal of the “argument” as engaging in an aesthetic and balanced interchange. Rather than a winner and a loser, arguments might then have partners, each who finish the argument feeling successful and satisfied, not because they “won” but because they participated well and gracefully. In

this manner, the ARGUMENT IS WAR metaphor is not merely determining isolated linguistic expressions we use to talk about the act of arguing, but it changes how we perceive the interchange and what we do to make it a successful (or “victorious”) experience.

There are three general types of metaphors explicated by Lakoff and Johnson: structural metaphors, ontological metaphors, and orientational metaphors. Structural metaphors are metaphors in which a concept is structured in terms of another (such as LOVE IS A JOURNEY). Ontological metaphors cast events, emotions, ideas, activities, etc., as entities or substances, discrete entities bounded by surfaces. Structural metaphors are, apparently, made up of a series of ontological metaphors, though the authors do not sufficiently clarify this distinction for a detailed explication (p. 219). In contrast to both structural and ontological metaphors, orientational metaphors view concepts in terms of relationships. The most prevalent (and broadest) of the orientational metaphors is, perhaps, GOOD IS UP. This arises in statements such as the following:

Things are looking up.

We hit a peak last year.

Everything’s going downhill.

That is high-quality.

Throughout *Metaphors We Live By*, Lakoff and Johnson argue that these metaphors arise from experiential bases. We experience phenomena, and those experiences translate into conceptual metaphors, which define (or, at least, strongly

influence) how we perceive future phenomena and, therefore, how we interact with those phenomena. Thus, metaphors are *grounded* in experience.

Lakoff and Johnson use the experiential basis of their metaphor theory to support their larger claim about the superiority of experientialism to either objectivism or subjectivism. *Metaphors We Live By* dedicates the final six chapters to a discussion of the faults and inadequacies inherent in either the objectivist or subjectivist perspective. According to Lakoff and Johnson, objectivism does not give an adequate account of human understanding and its related issues—the human conceptual system, the nature of human rationality, human language and communication, the human sciences, moral and aesthetic values, scientific understanding via the human conceptual system, and the basis of mathematics in human understanding. But where Lakoff and Johnson fault objectivism for being too obsessed with absolute truth, they reject subjectivism because it rejects any natural or external constraints on truth and meaning. The authors’ inspection of the internal and external systematicity of metaphors—that is, the widespread (though not complete) fittedness or systematic nature of the parts within metaphors and between metaphors—obviates for them the possibility that each individual human is randomly, singly, and arbitrarily construing metaphors by which to live. (Hence the book title: Lakoff and Johnson are intent on discussing the metaphors *we* live by, positing that there are groups of us together operating under the guidance of consistent metaphorical conceptual mappings.) In short, neither objectivism and subjectivism accommodates both rationality and imagination, Lakoff and Johnson say, because neither acknowledges

the fundamental role metaphors play in our conceptualizations of experience and, therefore, not the fundamental role metaphors play in our experiences themselves.

In addition to tackling (toppling) objectivism and subjectivism, *Metaphors We Live By* addresses other attempts to explain the use of metaphor in our language (abstraction and homonymy) and other common, metaphor-related issues (such as truth and paraphrasing). The detail and vigor with which Lakoff and Johnson explore these issues are evidence of at least one of their prime claims: metaphor is more than merely the stuff of florid language. It can accommodate serious intellectual grappling. This has not always been the predominant viewpoint. Lakoff and Johnson write:

Metaphor is for most people a device of the poetic imagination and the rhetorical flourish—a matter of extraordinary rather than ordinary language. Moreover, metaphor is typically viewed as characteristic of language alone, a matter of words rather than thought or action. For this reason, most people think they can get along perfectly well without metaphor. (p. 3)

Lakoff and Johnson painstakingly work to dislodge (or dissolve) this sentiment. *Metaphors We Live By* accomplishes this by first focusing on the role metaphors play in how we *conceptualize* truths or experiences. And second, by addressing the potential metaphors have for *creating* new similarities, new truths. Lakoff and Johnson address the objectivist claim that similarities exist regardless of our perception of them by specifying that their sole interest is in experiential similarities. (Lakoff and Johnson reject the possibility of any absolute, external-to-experience truth, so they are uninterested in objective similarities.) Generally, their position is that conceptual metaphors are grounded in correlations—experiential cooccurrences and experiential

similarities. We experience occurrences that correlate (e.g. we add water to a glass and see the water level rise; we add a positive number to a number and see the number “rise”). And we experience similarities that correlate (e.g. we perceive actions in life as gambles, thus in life we can win some and lose some). If, then, we create new metaphors or extend old metaphors, we can see new correlations and will have created new (experiential) similarities.

Metaphors We Live By is an appropriate backdrop for my metaphor work in that it has been instrumental in rescuing metaphor from the realm of mere literary accessory. Over the two decades since it was published, its insistence that metaphor is a viable, fundamental, weighty conceptual concern has placed metaphor on a main stage of academic thought.

It would be helpful, I think, to clarify where *Metaphors We Live By* is irrelevant to or insufficient for the work of this thesis. In *Metaphors We Live By*, Lakoff and Johnson are concerned with exposing our reliance upon metaphors for conceptual structuring. They use this argument about and evidence of metaphorical concepts to debunk the “myths” of objectivism and subjectivism. This seems to be their larger concern—to promote experientialism as the only viable and explicable theory of truth(s) and understanding.

I do not intend to engage in this larger debate about Truth. My concern, at this point, lies solely in exposing and explicating an unexplored aspect of metaphorical thinking: that is, that when we create metaphors, we engage in inquiry.

This highlights the second important point of departure for my metaphorical concerns: the substance of Lakoff and Johnson's work is what they call *conventional metaphors*. Conventional metaphors are what I call implicit metaphors, the metaphors that overlap and structure our conceptual understandings of the world, usually without our being aware of their existence or influence. I am concerned primarily with explicit metaphors, what Lakoff and Johnson call *new metaphors*. In this way, my argument and area of concern are perpendicular or tangential to Lakoff and Johnson's. They are interested in exposing the metaphors that we do not readily see; I am interested in exploring the metaphors we individually and intentionally make.

A SHORT WORD ON SYNECTICS

Synectics is an "operational theory" created by a group of men in the mid-twentieth century, who were interested in determining a mechanism to improve a group's ability to creatively problem-solve (Gordon, 1961; Springfield, 1986). In order to address the potential confusion between my claim regarding the inquiry nature of metaphor construction and the theory of synectics, I think it prudent to write a short word about synectics here. This theory and the early work of its creating organization, Synectics, Inc., is detailed in a book by William J. J. Gordon (1961).

The potential for confusion between synectics and my theory regarding the relationship between metaphor-creation and inquiry emerges from two key components: (1) the use of the term "synectics"; and (2) the Synectics group's claim about the relationship between creating analogies and creative thinking or problem-solving.

"Synectics" is a Greek word meaning "the joining together of different and apparently

irrelevant elements” (Gordon, 1961, p. 3). This is, of course, the fundamental process of metaphor construction. In this way, any discussion of the creation of metaphors is a discussion of synectics. However, the word “synectics” has become solely connected in academic literature with the work of Synectics, Inc., specifically their problem-solving process (which in Gordon’s time comprised fifteen steps but now seems to have been streamlined to three, at least for use in education) (Gordon, 1961; Weaver and Prince, 1990). In addition to which, “synectics” was (at least in 1990) trademarked by Synectics, Inc (Weaver and Prince, 1990).

This is not to say that synectics theory, as detailed by Gordon, does not apply to my concern with considering the creation of metaphor, specifically the subconscious, recursive, implicit process, which is the generator for and validator of an apt metaphor. On the contrary, Gordon’s work with the synectics group presents a strong advocacy for the creative, inquiry-driven capacities of metaphor and metaphor creation. And others, who have continued promoting synectics as a problem-solving and creative-thinking process, have applied it to the broad work of education and the local work of classrooms (Springfield, 1986; Weaver and Prince, 1990). Thus, I will be referring to work regarding synectics, but only where their work augments the more theoretical and general use of metaphor I am advocating.

Chapter 4: Metaphor in Educational Literature

Before I go into these, however, I must observe that the theory of relativity resembles a building consisting of two separate stories, the special theory and the general theory.

Albert Einstein, from “What is the Theory of Relativity?” (in *Of Bunsen Burners, Bones, and Belles Lettres*, edited by J. Nolan, 1996, p. 121)

METAPHOR IN EDUCATIONAL LITERATURE: FOUR CONTEMPORARY EXAMPLES

Reviews of literature pertaining to metaphors in education tend to focus on the historical development of metaphor theory itself, with short attention paid to current uses of metaphor in education (Ashton, 1997; Leino & Drakenberg, 1993; Wilson, 2000).

Arguably, this is due in part to the relatively recent emergence of metaphor theory as an explicit and well-developed academic discussion. Thus, educators have had only a few decades in which to transfer a developed metaphor theory into educational contexts and to develop our own discipline-specific applications and discussions.

Though no current authoritative metaphors-in-education books exist, educators and educational theorists have produced a large body of literature regarding specific, contemporary uses or manifestations of metaphors in education. In order to convey a sense of the way the uses of conceptual metaphors are presented in contemporary educational literature, I will highlight four pieces, each (re)presenting a distinct use of metaphor(s) in education:

1. Metaphors as structures of global change
2. Metaphors as structures of personal change
3. Metaphors as local pedagogical tools

4. Metaphors as indicators.

While these may not be the only uses of metaphor discussed or presented in contemporary educational literature, they are present and distinct, and discussing them will help us begin to get a sense of the ways metaphors are treated in current educational discourse.

METAPHORS AS STRUCTURES OF GLOBAL CHANGE: LOUIS GOLDMAN'S (1989) "THE REVOLUTION IN EDUCATION"

Goldman (1989) wrote this article during what he saw as "one of those rare periods in history when large numbers of people are receptive to major changes in education" (p. 47). In fact, Goldman assumes that sooner or later there will be more than educational reform: there will be educational revolution. However, this revolution will only occur if old paradigms are replaced by new paradigms, which will have to at least appear to solve the problems the educational community deems most critical. Goldman explains that it will be useful in discussing these new paradigms, to address them in terms of "root metaphors," a term that denotes any central metaphor used to describe or represent a complex situation. Education is replete with root metaphors, Goldman says, and a successful revolution will be require a new root metaphor to guide how we see, assess, and address the problems within education.

Goldman introduces and analyzes four root metaphors that have influenced or are influencing education at present. These are "the nature or growth metaphor," "the potter or clay metaphor," "the factory metaphor," and "the medical metaphor" (p. 53-55).

Goldman dismisses the nature or growth metaphor with little discussion because it is

“pervasive and unavoidable” and because it would be “folly” to suggest its replacement (p. 53). On the other hand, he suggests that the potter or clay metaphor has already been replaced by the factory metaphor. Both metaphors suggest that students are inert matter, sent to school merely to be worked on by the teachers. But the potter metaphor invokes the possibility for loving craftsmanship, which has been eliminated, Goldman says, because of the Industrial Revolution and the move from cottage-industry, studio-type labor to mechanized, assembly-line work.

The factory metaphor’s predominance in education reflects a solid confidence in the practices and philosophies of two fields: business and science. The metaphor rests on a division of labor, with the administration as management, teachers as line workers, and students as products. There has been an accompanying move to make the classroom “teacherproof,” as industry works to make the factory “workerproof,” and to standardize the product, as much as possible and within certain allowable limits of aberration. Goldman notes that this model of business is not even a reflection of current best business practice, which recognizes that employees perform better if they are actively involved in decision-making and problem-solving. Though teachers have been told to “do things as they are done in business,” they are “now forced to do things as they are done in *poor* businesses, not good businesses” (p. 55). Goldman says the factory metaphor repels teachers, who feel reduced to unskilled laborers, and primes them for the medical metaphor.

To Goldman, the medical metaphor is a desperate attempt on the part of teachers and educators to pretend they are specialized professionals, compensating for a lack of

societal respect with doctor-like cryptic terminology, “undecipherable acronyms,” and pseudo-technical diagnoses (p. 55). Goldman does not fault the medical metaphor for these pretenses; he faults it for transferring the “curative” approach of medicine to education: “Our procedures seem medically sound; the operation is a success, but the patient dies” (p. 56).

In conclusion, Goldman proposes his own metaphor: school as family. Goldman believes that if we can discard paternalism, then this kind of nurturing, multi-aged, organic organization, in which each individual must function according to his own talents and the needs of the family, will foster the brotherhood, unity, and interdependence we need in our own lives, in our countries, and in a global community.

Goldman’s article and his impassioned advocacy of the metaphor of school as family both acknowledge the power that root metaphors have to structure how we conceive of something and how, if we change our metaphors, we can change our schools, our communities, and education as a whole.

METAPHORS AS STRUCTURES OF PERSONAL CHANGE: KENNETH TOBIN’S (2001) “CHANGING METAPHORS AND BELIEFS: A MASTER SWITCH FOR TEACHING”

Tobin (2001) wrote a small article for *Theory Into Practice* regarding the role of metaphor in teacher change. It grew out of studies he had conducted concerning how and why teachers act, and how understanding this can help teachers change the way they implement curriculum. Tobin noted that over the five years of the study, through observations and interviews, metaphors emerged as being influential on teachers’

perceptions of teacher roles. Thus, Tobin argues, if teachers understand the metaphors they use to conceptualize their place in the classroom, then they can better understand why they do what they do. Perhaps more importantly, they can evaluate the metaphors structuring their perceptions of the experience and, if necessary, switch metaphors to increase teacher efficacy.

Tobin lists some of the metaphors that the teachers he studied were using to conceptualize their roles: captain of the ship, entertainer, comedian, distant assessor, distant manager, miser, and saintly facilitator. In multiple, Tobin could observe the influence of these metaphors on the teachers' teaching styles. For example, Gary, a black belt in karate and a believer in the teacher as intimidator, deterred student misbehavior by his posture, classroom movement, and "intent stare" (p. 122); and Jonathon, a teacher by day and preacher by night, operated as a teacher as preacher, lecturing students from the front of the class with his textbook as bible.

Through Tobin's work with these teachers, other (perhaps more appropriate) metaphors were suggested and explored: gardener, researcher, mentor, and curriculum developer. One teacher named Sarah specifically worked on transforming her teaching by adopting the role of social director. She wanted to manage her classroom in a way that sponsored organized opportunities for students to learn. She wanted to approach her students as though they were guests and had been invited to her classroom. To do this, Tobin and his research team worked with Sarah to develop a classroom centering on constructivist teaching practices. Sarah herself developed classroom rules reflecting this

new conception: students should not be rude to their host (the teacher), and students should not disrupt other students' enjoyment of the party (their learning).

Tobin developed a metaphor to explain the changes that arise from a simple replacement of metaphor: the master switch. He explains: "If a switch is thrown (i.e., the metaphor is changed) a host of changes follow (i.e., as new beliefs are deemed relevant to the role)" (p. 126). As the teachers Tobin worked with re-envisioned their work in terms of one or, more typically, multiple metaphors, they were able, according to Tobin, to change their teaching, revitalize their classrooms, and improve their students' experiences.

Tobin's article is another representation of the predominant way metaphors are viewed or used in educational circles: metaphors are tools we use to understand things. While Goldman (1989) explored this in his article on a larger, organizational, comprehensive, overarching scale, Tobin addresses it here on a personal level. If we can make explicit our metaphors or change them, we can better understand ourselves and improve our behavior. In this way, metaphors are structures that, if revised, can be a means for personal, individual change.

**METAPHORS AS LOCAL PEDAGOGICAL TOOLS: JOAN KARBACH'S (1997)
"METAPHORS AS COMMENTS IN CLASSROOMS"**

In this paper, presented at the 1997 Conference for College Composition and Communication, Joan Karbach discusses the results of a small-scale study she conducted to investigate college composition teachers' use of conceptual metaphors. She based her

study on the work of Lakoff and Johnson (1989), *More Than Cool Reason*, which, like *Metaphors We Live By*, argues that metaphors are an “indispensable tool for understanding” (Karbach, 1997, p. 1). Karbach was interested in these various conceptual metaphors (the basis for the instructor’s metaphorical comments), the internal consistency/ies within the instructor’s usage(s) of these metaphors, and the usage (or lack thereof) of those metaphors by other writing instructors. Karbach inspected the end comments written on the papers of two freshman composition classes by their graduate instructor. She classified the metaphoric comments of 100 commentaries into six categories of metaphors, which the graduate instructor had drawn upon to convey various writing principles and elements to her students:

1. Adherence—involving words such as “stick,” “connect,” “link”
2. Building—involving words such as “build,” “support,” “develop”
3. Tailoring—primarily involving the word “tailoring” but also occasionally “thread” and “pin down”
4. Hunting—“pursue,” “snare,” “prey” (ex. “you have fallen prey to assuming..”)
5. Personification—invoking such ideas as promising, being lost, and being fat (ex. “you have a fat focus” and “your focus is promising something”)
6. Original analogies—seemingly a catchall category, highly individualized (in this instance, examples include “You will hatch a focus” and “Too many options send you into overdrive”)

Karbach explains that the categories of personification and original analogies seem to be individualized, invoking the instructor's highly personalized and stylized metaphoric senses. But, she concludes, the first four categories represent metaphors fairly common in composition discourse—adherence, building, tailoring, and hunting. The recurrence of these metaphors represents writing instructors' continued attempts to help students understand abstract composition principles via (more) concrete, metaphorical examples, thus demonstrating the indispensability of metaphors in both discourse (as argued by Lakoff and Johnson) and in (academic) metadiscourse.

Karbach's study specifically addresses the way one graduate instructor uses conceptual metaphors to convey compositional principles, in its specificity her work is an example of a contemporary treatment of metaphor in educational literature—the metaphor as a tool for limited, local, pedagogical purposes. In this paper, the local pedagogical purpose is teacher feedback. In other papers, the specific pedagogical purpose differs: In McKenna's (2000) work, the local purpose for metaphor use is entertaining teacher talk. McKenna advocates using metaphors in class to encourage students in fun ways—tell the girls that editing is like adding accessories to encourage drafting before spellchecking. And in Fraser (2003) the purpose is to engage children in a short creative language exercise. Though the specifics of these uses vary, in each case their scopes are limited and narrow, but pedagogical and meant to aid a teacher as she negotiates the local instructional demands arising from daily classroom interaction.

METAPHORS AS INDICATORS: BARRY HYMER'S (2003) "IF YOU THINK OF THE WORLD AS A PIECE OF CUSTARD...": GIFTED CHILDREN'S USE OF METAPHOR AS A TOOL FOR CONCEPTUAL REASONING"

Hymer (2003) conducted a "small-scale qualitative study" to explore children's thinking and learning as revealed by their language use, specifically in situations that encourage them to talk, argue, discuss, and debate in groups (p. 151). Hymer worked with a group of 9 to 11-year-old boys in an after school Philosophy Club. Hymer attempted to create a "community of enquiry" by encouraging the students to frame questions based upon their interests for a group discussion facilitated or conducted in a manner designed to expand their thinking and perspectives (p.152).

In the discussion recorded for and reported in this article, Hymer's group was focused on the question, "Why not forget when it hurts to remember?" (p. 158). Hymer felt as though the boys' discussion centered on the metaphor THE WORLD AS CUSTARD, which was introduced by a boy named Gary. Gary said:

If you think of the world as a piece of custard! And you can stand on custard and it can be really soft and squishy. And that's like hatred and yeah, and it can be really strong and brittle and that's like love and everything so if you didn't have wars and everything was peaceful and then as Jake said like a meteor comes in and someone gets a virus and everyone gets a cold yeah? And everyone's going to be like screaming their head off except that makes it, the custard, squishy. (p. 153)

Hymer suggests that this metaphor arose as an attempt to explain the subtle and fragile distinction between love and hate, but here, in its inception, it isn't a complete metaphor. It seems, Hymer suggests, to be seeking some sort of resolution. The boys begin discussing Gary's metaphor, sometimes drawing the conversation away from it but

frequently returning to and extending it. Hymer notes a contribution made by an otherwise less-than-excited student named Jake. Jake redirects the conversation back to the custard metaphor:

Let's go back to this custard because Gary's just put this brilliant deep thought in my mind, like imagine this custard skin and a little legoman walking along it because that's just about the right size – and right when you walk on the custard skin, the custard skin doesn't cover the entirety of the custard, it leaves little holes and gaps so when you stand on this custard skin the evil which is the runny stuff underneath comes out of these gaps so when you're being good for yourself, you're squeezing evil out somewhere. (p. 155)

Hymer is impressed with Jake's elucidation of the tension between good and evil within the context of the metaphor, particularly as it leads to further metaphor and concept clarification by another student named Barnaby. Barnaby inserts another hypothetical in to the situation (“Say evil does not exist as evil...”), this time to present what is to Hymer a more measured approach to the topic. Barnaby attempts to refine Jake's assertion that “if you're trying to be kind and helpful, you're making badness” by returning to the metaphor: “If we do it [good] for other people we could practically FLY over that custard or hover almost” (p. 155).

Thus, the boys end the discussion with a fairly well developed metaphor, which attempts to explain or address the inevitable relationship between good and evil, love and hate, while simultaneously promoting living that is selfless, caring, good, and other-oriented. Hymer concludes that this kind of deep and probing thinking, this metaphor, arose because the children were engaged in an activity (enquiry) that both allowed and encouraged their mutual contributions, their imagination, their appeals to reason and

understanding, and their attempts to use whatever discussion and conceptual tools they have at their disposal. The WORLD AS CUSTARD metaphor was one such tool, an “unexpected” product of the children’s harnessed creativity and imagination (p. 157). In the end, Hymer’s article advocates creating opportunities for students to have discussions like the one represented here.

While Hymer ostensibly presents his study as an argument for viewing and using metaphors as a critical thinking tool, the unprompted origination of the metaphor within the students’ discussion belies this. Hymer did not introduce metaphor into the students’ discussion as a critical thinking tool; instead, the students introduced the metaphor, for purposes of expression and discussion of their own. In this case, Hymer assumes that the appearance of a metaphor in the students’ group conversation is an indicator that they are thinking critically, that they are engaging in probing and imaginative talk and thought, and that they can do it successfully in a group setting. (See Fraser (2003) for another example of this.)

CONCLUSION

The four articles summarized above were each selected to characterize a different educational use of metaphor. These four uses—structure for global change; structure for personal change; local, pedagogical tool; and indicator—may not exhaust those found in educational literature, but they dominate it. These dominant representations of metaphor’s role in education reap the benefits from metaphors when they are fully formed, whole, intact. Though the power of these uses is evident, particularly in the

change made possible by metaphor's structuring, organizing nature, we have not yet fully mined metaphor for its potential educative value. We are neglecting possible goldmines cause we have not yet adequately considered the power, the benefits, the good that arises from interacting with metaphors—comprehending them and, particularly, creating them. The work of this thesis, then, is to do just that, to explore the process of the production of metaphor and, having shined light on its caverns and rocky installations, to show that what we find, what we can find, is a rich process bearing the marks of inquiry.

Chapter 5: Metaphoric Comprehension

And at last, slowly, afraid he would find nothing, Douglas opened one eye. And everything, absolutely everything was there. The world, like a great iris of an even more gigantic eye, which has also just opened and stretched out to encompass everything, stared back at him.

Ray Bradbury (1976), from *Dandelion Wine*, p. 9

THE METAPHORIC COMPREHENSION PROCESS

The literature bearing on metaphoric comprehension sprawls across fields, topics, and purposes, from exploring children’s cognitive development (e.g. Castillo, 1998; Winner and Gardner, 1977) to teaching negotiation in business education (Gentner et al., 2003). Because my purpose here is to present a brief overview of metaphoric comprehension as a prelude to a further discussion of metaphor production, I will synthesize the information regarding the comprehension of metaphors in a general fashion, rather than detail the complex models of individual researchers and theorists. Though this approach threatens to be overly reductionist, it will, I think, serve our purposes.

The comprehension of metaphor is a fundamental and everyday linguistic experience (Ashton, 1997; Gentner & Markman, 1997; Lakoff & Johnson, 1980). Ashton (1997) notes that the process of metaphoric comprehension—the unpacking of a metaphor—begins when the hearer/reader/receiver of a metaphor realizes that a typical, literal explanation of the metaphoric text is inadequate and identifies the text as a “statement of nonliteral similarity” (Readence, Baldwin, & Head, 1986, p. 338). This (subconscious) realization prompts the hearer to engage “cognitive processes not

ordinarily called upon” (Winner qtd. in Fraser, 2003, p. 17). The listener is challenged to interpret the nonliteral language and make sense of the (momentarily) insensible.

SEARCHING

The hearer searches for meaning by first “assum[ing] a resemblance” (Tvorsky qtd. in Ortony, 1979, p. 193) between the seemingly disparate elements of the metaphor and then searching for salient similarities (Castillo, 1998; Winner qtd. in Fraser, 2003; Gentner et al., 2003; Gentner & Markman, 1997; Ortony, 1979; Tversky qtd. in Ortony, 1979; Paivio, 1979; Readence et al., 1986). This search for similarity can only begin if the metaphor receiver finds a connection between his or her real world experience and some aspect of the metaphor (Miller, 1979). The hearer searches through his or her cognitive stores, his or her long-term memory, for pertinent perceptual experiences, images, verbal associations, and abstract representations—related elements that might illuminate the metaphor at hand (Paivio, 1979). Ricoeur (1991) adds that it is this search for memory and experience that helps metaphors begin to *mean*. Because the vehicle provides more information about the target than vice versa (what is called the *asymmetrical nature* of metaphors), the vehicle is often a more helpful mental search term (Gentner & Markman, 1997; Paivio, 1979; Readence et al., 1986). In other words, it is more productive (in terms of metaphoric comprehension) to map similarities from the vehicle to the target rather than from the target to the vehicle. So, as the hearer attempts to comprehend a metaphor, he or she searches his or her cognitive capacity to find knowledge about the vehicle that can be comprehensibly transferred or related to the target. Some argue that it is only our knowledge of the vehicle, target, and their

surrounding conceptual domains that keeps us from mapping inappropriately (Tourangeau and Sternberg qtd. in Leino & Drakenberg, 1993).

MAPPING

As we map between the vehicle and the target, our search for salient resemblances, or similarities, helps us to overlook or downplay the differences between the concepts (Gentner et al., 2003; Lakoff & Johnson, 1980). Thus we can understand the metaphor, or at least we can feel we have reached some of the author's intent in relating the topic and vehicle, despite the differences between the two concepts; if successful, our mapping will have moved our attention from noticing the differences between the concepts (which originally made nonsensical a literal interpretation of the metaphoric text) to spotlighting the resemblances between the concepts. And we will have comprehended the metaphor. (At least minimally.)

The process outlined above is merely a skeleton of metaphoric comprehension. The bodies of work that overlap and circle and fit to form the process as I have described it do address other issues related to metaphoric comprehension, including two that are particularly worth mentioning (due to their recurrence in the literature): prior knowledge and explicit teaching, and their effects on metaphoric comprehension.

AFFECTING METAPHORIC COMPREHENSION

Multiple researchers have been interested in how prior knowledge affects children's ability to comprehend metaphor (see Wilson, 2000). Winner et al. (in Wilson, 2000) notes that, for instance, a child's failure to interpret the metaphor "the prison guard

was a hard rock” might not be due strictly to his or her lack of metaphoric capabilities: it may be due to his or her unfamiliarity with either prison guards or the personality characteristic we refer to as “hardness” (p. 97). But others’ research seems to indicate that a lack of prior knowledge regarding the two concepts involved in a metaphor may not be a disadvantage, that, in fact, unfamiliarity with pertinent information is either not an obstacle or it is a boon (Gentner et al., 2003; Pearson, Raphael, Tepaske, and Hyser qtd. in Wilson, 2000). Gentner et al.’s (2003) work dealt specifically with analogical case studies, but they discovered that novice business students were able to learn from a comparison of case studies sharing underlying principles, even if the business students only partially understood the shared principle. Though the business students did not have much prior knowledge about what the case studies had in common, they were able to benefit from comparing the two case studies. There is, as yet, no absolute consensus regarding what role prior knowledge plays in a person’s ability to comprehend a metaphor, but it is an active, recurring question, with implications bearing on our understanding of metaphoric comprehension.

Just as researchers and theorists are investigating how what a person *knows* affects his or her ability to interpret metaphors, they are also exploring how what a person *learns* can improve their metaphoric comprehension. Readence, Baldwin, and Head (1986) constructed a study regarding direct explicit instruction of metaphoric comprehension. They targeted third-grade students who failed to correctly interpret metaphors while nevertheless demonstrating word knowledge adequate to the task. In one experiment, they tested their hypothesis that teaching these students with the direct

explicit instruction method (with instruction that made the students aware of the lesson's purpose and that included teacher modeling the strategy, guided practice, think-alouds, and gradual release of responsibility) would improve students' ability to comprehend metaphors. In a second experiment, they compared the efficacy of this approach with another instructional approach advocated by current basal reader materials.

Though this study tested students' ability to recognize rather than produce metaphoric interpretations and all of the metaphors used to evaluate students' comprehension were isolated sentences, used without context or visual aids, Readence et al. concluded that students' metaphoric comprehension could be improved by instruction. Castillo (1998) found similarly. Her study involved gifted children who were asked to verbally complete and explain four-term analogies (e.g. a crown to a king is like a roof to a house). The results showed a marked improvement in the children's ability to make metaphoric sense when they had received explicit instruction and modeling. These two studies, while limited, do demonstrate two points pertinent to a contemporary understanding of metaphoric comprehension: (1) metaphor researchers and theorists are interested in how a person's ability to comprehend metaphors can be improved, specifically through instruction, and (2) contemporary metaphor theory allows that, while individual abilities to comprehend metaphor may differ, they can (in some contexts, with some contingencies) be improved.

IN SUMMARY

Contemporary metaphoric comprehension theory is summarized as follows: a person engages in a process when trying to comprehend a metaphor. First, he or she must

recognize the text as a metaphor and as needing a metaphorical interpretation. Second, he or she searches his or her cognitive capacity—past experiences, prior knowledge, etc.—for salient resemblances between the vehicle and target of the metaphor. Third, the salient resemblances are mapped from vehicle to target, emphasizing what is common between them and deemphasizing what is divergent. This is metaphoric comprehension. And a person’s ability to do it successfully is (arguably) affected by that person’s prior knowledge regarding the vehicle, the target, and their contextual conceptual domains, and by whether or not or how that person has been instructed in metaphoric comprehension.

Understanding what contemporary metaphor theory says about metaphoric comprehension is helpful. With the metaphoric comprehension process and related issues in mind, we can compare and relate them to how contemporary metaphor theory treats metaphor production, and we can get a sense for the lacunae, the disjunctions, and the rifts within/between contemporary metaphor theory and the educational theories of inquiry.

Metaphor Production

Swimming the butterfly is like...it's like eating broccoli.

A woman overheard speaking to her swim coach at the UT Swim Center

METAPHOR PRODUCTION: TWO ISSUES

In order to understand current thought on metaphor production, we must negotiate two issues: First, the body of literature dealing explicitly with metaphor production is small in comparison with the work dealing with metaphoric comprehension. This lack of explication and detail on metaphor production would be less of an obstacle were it not for the second issue: making metaphors is not merely an inversion of the process of understanding metaphors. In other words, if the processes of making and understanding metaphors were mirror processes, we could fairly directly convert the research and theorizing on metaphoric comprehension in order to understand metaphor production. But (for reasons I will detail below) we cannot. Thus, to flesh out an understanding of how it is we make a metaphor, we will draw from metaphor theory and from other work bearing on what we are doing when we are engaging in generative, reflective, and imaginative thinking.

Typically, metaphor production is addressed in the literature as a (sometimes specifically delineated) subset of a larger topic such as “metaphorical thinking” or “reasoning by analogy” (see Black, 1979; Clay, 1996; Eisner, 2002; Ricoeur, 1991; Wilson, 2000). These references are often brief and oblique, but they do provide some

information about elements of metaphor production that can be synthesized to create a complete description of how it is that we make metaphor.

METAPHOR PRODUCTION AND METAPHORIC COMPREHENSION

Despite what we may learn from metaphoric comprehension about metaphorical thinking in general and metaphor production specifically, an understanding of metaphor production requires attention apart from what we know of metaphoric comprehension because the two processes are not reciprocal. In fact, the prime divergence occurs before either process actually begins: it occurs in their purposes.

Metaphoric comprehension and metaphor production serve different purposes and so, require different processes. The purpose of metaphoric comprehension is just that—to comprehend or understand an existing metaphor. When a metaphor is presented the hearer knows three crucial things (after s/he registers it as a metaphor): (1) the target, (2) the vehicle, and (3) the presupposition that the two are related. The metaphor hearer's work, then, is to search their cognitive warehouse and locate or identify or create those things—attributes, relationships, functions, connotations, etc.—that relate the target and the vehicle to each other. However, the purpose of metaphor production is to settle on a vehicle that will illuminate the desired target, the comparison of which will comprise the metaphor, which the hearer can then attempt to understand. In other words, metaphor producers have to somehow sort through a large and effectively infinite universe of possible vehicle candidates to find what they are looking for, while metaphor comprehenders need only sort through what they know about the target and the vehicle (which, admittedly, is itself large) to find what they are looking for. Thus, metaphor

production deserves or requires its own theory and analysis, related to but distinct from what we know of metaphor production.

THE PROCESS OF METAPHOR PRODUCTION

While there is much we do not understand about metaphor production, we do know enough to detail some description of what happens in a mind while it is creating a metaphor. And what happens is a process that is recursive, discursive, reiterative, and narrowing. Simply, the process is as follows:

1. The producer decides² to generate a metaphor for a particular target.
2. The producer searches through his/her cognitive capacity for a candidate term to serve as vehicle and selects one.
3. The producer tests the vehicle's candidacy by organizing the features of the target and vehicle, searching for similarities and attempting to minimize differences.
4. The producer uses the information from step 4 to either return to step 2 or to finalize metaphor. (An unsuccessful candidate term test would lead to a return to step 2; a successful candidate term test would lead to step 5.)
5. The producer finalizes, or accepts as sufficient, the metaphor.

In order to clarify the metaphoric generation process, I will discuss each of the steps of the process in reference to an example of my own metaphor generating.

² I use "decides" carefully here: this outline of the metaphor production process is perhaps reductionist. All of the predicates used in this depiction of the metaphoric process are typically subconscious, subtle,

1. The producer decides to generate a metaphor for a particular target.

The students in my eleventh grade English classes and I were reading The Great Gatsby, and as I read chapter seven I realized that there was something familiar about the arc of the story in that chapter specifically. In chapter seven, Gatsby wants his lover, Daisy, to confront her husband, Tom, and end their marriage. All three are having drinks together, and Daisy, with Gatsby's prompting, does confront Tom. She does tell Tom she wants to leave him, but she does not say what Gatsby really wants her to say: that she never loved Tom. As Daisy is wavering in her decision to leave Tom, Gatsby demands she say the final thing, and she, in an explosion of wild energy, turns on Gatsby, saying that he asks too much, and effectively ending their affair. She does not leave Tom. As I read and considered this, I thought to myself, "This is familiar. I've felt something like the energy in this chapter before. How can I explain the 'energy' in this chapter to my students and why it's familiar? What's familiar about it? What is this chapter like?"

What Sternberg, Tourangeau, and Nigro wrote in 1979 remains true: "We are certainly a long way from a full description of what leads people to generate certain metaphors, and in particular, those metaphors rather than others" (p. 352). But we can assume that the metaphor is initialized by the producer's desire to explain or understand some concept or situation, which becomes the target. The target term of a metaphor is just that, the target, the goal. The purpose of the metaphor is, on some fundamental level, to illuminate the target. Generating a metaphor as a whole may serve another social or

instantaneous actions. Please see the explication of the process for a more nuanced treatment of the

external purpose; it may be an attempt to solve a problem (see Gordon, 1961), create social policy (see Schön, 1979), fulfill a classroom assignment (Wilson, 2000), or merely to communicate, but it is, in all cases about describing or coming to understand or communicating or exploring the target term. In this way, metaphor creation begins with the producer's identification—voluntary, assigned, subconscious, or explicit—that there is an issue, idea, or concept at hand (the target) and that it merits illumination.

In this example, the metaphor is initialized by my feeling that there is something familiar about the rhythm of the chapter, about the build-up of tension and the sudden, precipitous decline of tension and hope. The feeling of familiarity was, I think, a feeling that a metaphor could be found for this aspect of the story. And I wanted to be able to communicate that aspect and that understanding to my students, to model engaging the text, to add depth to our study of this chapter, and, flatly, to get it off my chest. To know what I wanted to say, to say what I wanted to say, and to be heard.

2. The producer searches through his/her cognitive capacity for a candidate term to serve as vehicle and selects one.

I considered Daisy's actions in chapter seven and what it was about them that I wanted to communicate as I went about my life, teaching, running errands, talking to friends. I did not think about it all the time, but every once in a while I would be reminded of The Great Gatsby or of that thing I wanted to convey but couldn't, and I would send what felt like a mental searchlight through my mind, passing over the things I know and feel and have stored over the years. After a time (A few days? A few hours? I

producer's agency in this process.

don't remember.), I remember focusing my attention on the words, "What does that [meaning chapter seven] feel like? Where do I know that feeling?" And then, one day, it hit me: handstands. My roommates and I had been doing a lot of handstands, in our living room, in our driveway. I had even begun doing them in my classroom. I realized that I knew the feeling in chapter seven from doing handstands. As soon as I thought it, I was pretty sure that something about handstands was in fact the familiar thing I had been searching for all along.

The search for a possible vehicle is much like the search described in the metaphoric comprehension process: the metaphor producer searches through his or her cognitive stores for pertinent perceptual experiences, images, verbal associations, and abstract representations (Paivio, 1979). This searching continues until, in some way we do not quite understand, the mind seizes upon a possibility. This may happen repeatedly on a subconscious level, selecting and discarding possible vehicles before one comes to the forefront of thinking. It is in this moment, when the producer becomes "aware" (at least on some lower, analytical level) of the vehicle as a candidate and the metaphor is "triggered," as Schön (1979) terms it (p. 257). The moment a vehicle is selected for testing may often be accompanied by a feeling of success or unusual energy, as indicated by both the idea "hitting" me in the example and by Schön's example of the man who exclaimed, "You know, a paintbrush is a kind of pump!" (p. 247). Perl (1990) explains this kind of dawning/dawning awareness in her discussion of writing in general: she calls it "a dawning awareness that something has clicked" and says that it is often followed by

the feeling that if this avenue of thinking is pursued, then “words will continue to come which will allow them to flesh out the sense they have” (p. 36).

It is important to note, however, that this selection of a candidate vehicle term often happens explicitly before any kind of analytical point-for-point metaphorical matching or justifying occurs. In other words, somehow we select from a universe of candidates one that we get a sense will be more fruitful than others before we even test it out. Thus, this step in the metaphor production process relies heavily on the power of our internal or cognitive sensing. This seems to put the cart before the horse. Instead of being rejected, it should, at minimum, be accepted as further evidence that our brains work in ways we do not quite understand.

3. The producer tests the vehicle’s candidacy by organizing the features of the target and vehicle, searching for similarities and attempting to minimize differences.

After I realized that what was familiar in chapter seven of The Great Gatsby was related to some function of handstands, I mentally scrolled through my handstand experiences, particularly looking for things that could be related to what I was calling the arc or energy of the chapter. I tried to skip over and not dwell on those things that I sensed were not similar. I don’t remember explicitly deciding that I wouldn’t think about the colors of the clothes in the text or how doing too many handstands hurt my wrists, but I do remember the sense of “this won’t be productive, move on” that continued my mental analysis until it reached what I thought was probably the thing about handstands most similar to chapter seven: the experience of attempting a handstand, almost

completing it, almost being vertical, but then, suddenly, coming down again, feet planted where they were on the ground in the first place. An almost handstand.

*So I attempted to explain to myself why doing handstands was an appropriate metaphor for chapter seven of *The Great Gatsby*. I decided that what Daisy did was very much like almost completing a handstand. During the chapter, the tension was escalating, was arcing towards the moment when Daisy would confront Tom, tell him she never loved him, and would finally be able to leave with Gatsby, triumphant, reunited, and free. Instead, she did what I've done when I've attempted a handstand but don't quite make it: she pushed herself off the ground with almost enough energy, almost enough conviction, almost enough force to reach the climactic moment and stand, successful and vertical. But in handstands and in climaxes, almost isn't good enough. Just at the moment when Daisy was pausing (as my legs pause just before reaching the zenith of my handstand arc), her energy to proceed halted, and she came crashing down, forcefully hitting the ground she'd attempted to leave, without having fully asserted herself.*

Black (qtd. in Leino & Drakenberg, 1993) describes each term in a metaphor as having an “implicative complex,” which is the web of implications associated with a given term (p. 16). He says that the maker of a metaphor “selects, emphasizes, and organizes features of the primary subject [vehicle] by applying it to statements isomorphic with the members of the secondary subject's [target's] implicative complex” (p. 16). When we are testing a vehicle for a metaphor, we take all that we know about the

vehicle, relate what might be pertinent or illuminating to the target and ignore or downplay what we know about the vehicle that might not be pertinent or illuminating. Ricoeur (1991) calls this the making of “predicative pertinence” (p. 173). Because, to be a metaphor, the target and vehicle terms must be different, they will inevitably have different features, different implicative complexes. This means that in order to make a metaphor, one must *make* the match, organize the features of the two terms, rationalize why A is like B even when they have much (or most) that is not in common. Though the analyzing of the similarities between target and vehicle may feel as though the metaphor were being revealed, the positive relationship is in fact being created by the mind that is analyzing or testing it. In order to test a vehicle candidate, the metaphor producer’s mind does what the metaphor comprehender will do: put in relief those features of the target and vehicle that are too dissimilar for illuminating comparison and bring to the forefront those common features that will, potentially, make the metaphor a successful one.

4. The producer uses the information from step 4 to either return to step 2 or to finalize metaphor.

I was satisfied with what I detailed as being in common between the plot arc in chapter seven and an almost successful handstand. I wasn’t necessarily satisfied with my attempts to explain it—there’s something there that I don’t quite say, that I can’t quite communicate, but I attribute that to the subtle and highly abstract nature of what it is I’m sensing and trying to say. So, I didn’t consider any other metaphors that could have potentially explained to my students what I was feeling as I read chapter seven. Any further mental searching I did in relation to this metaphor was for the express purpose of

communicating more clearly this metaphor, DAISY'S ARC CHAPTER SEVEN OF THE GREAT GATSBY AS ALMOST SUCCESSFUL HANDSTAND.

Like most generative thinking, the metaphor production process is undeniably a recursive one (Clay, 1991; Gordon, 1965; Perl, 1990; Wilson, 2000). As the metaphor producer considers a vehicle in light of its potential relationship with a desired target, the relationship being shaped in turn shapes the metaphor producer's decision to either select a new vehicle for candidacy or continue with this one. If the metaphor producer determines that either the differences between the target and vehicle terms are too great to support or to merit a positive comparison, or that, when compared, the vehicle's implicative complex does not provide sufficient illumination on the target, then the vehicle term will be rejected and another will be selected (if the metaphor producer continues with the metaphor creation process and does not then just give up). But if the metaphor producer determines that his or her analysis of the vehicle and target as a metaphorical pair is sufficient, then he or she will no longer be searching for a vehicle term (testing the vehicle terms candidacy) and will, instead, finalize the metaphor.

5. The producer finalizes, or accepts as sufficient, the metaphor.

Once I'd decided that comparing an almost successful handstand to the energy of Daisy's actions in chapter seven helped to communicate what I felt about chapter seven, I was excited. I tried to explain it to my roommates, to force myself to say the words aloud in a way that other people might comprehend. It wasn't particularly successful. But I decided to share it with my students anyway, hoping that having said it aloud at least once would help me to verbalize it again more clearly. So, one afternoon, as one of my

eleventh grade classes and I talked about Daisy in chapter seven, I told them my metaphor. I used a hand motion to accompany it, to convey the incline of my feet as I attempt a handstand, the pause just before my legs are fully vertically extended, and then the rush of energy that drives my feet into the ground when they drop. I used this same hand motion when detailing Daisy's approach of Tom and then subsequent dramatic turn on Gatsby. I don't know if they understood it exactly, but I do remember being so glad that I was able to say it, so glad that there was some thing I could use to even try to communicate what I had sensed as I read.

It might be sufficient to say that at this point, the metaphor has been created. The vehicle has been chosen, and its metaphoric relationship to the target has been (at least minimally) explored and justified. But, as evidenced by experience creating the handstand metaphor, the process of finalizing a metaphor can extend throughout the life of a metaphor, particularly through our first attempts to explain it, to ourselves and to other listeners, and to codify it. Even as I wrote the experience down here, I could feel myself pushing to form words and clarify ideas that had been left untended in the metaphor, despite its being two years old and its having been verbalized at least three times.

Each time we implicitly accept a metaphor as sufficient and put the chosen metaphoric terms together for exploration or explanation, we can view the target and vehicle in tandem. We can see their relationship in new or clearer ways and produce a better, more fully formed, more explicitly justified metaphor. There is power in the act of

putting together; it can force us to create what did not exist and to give body to what is only emerging (Berthoff, 1981; Perl, 1990; Ricoeur, 1991; Wilson, 2000). In this way, the final step of the metaphor production process is a series of final pushes from the inchoate and wordless towards clarity and the communicable.

CONCLUSION

Any explanation of this process is deceptively linear and sequential. Our attempts to make metaphor are, at all points, marked by halted attempts, half ideas, pregnancies, senses and sensory perceptions that surface and sink, swirl and unwind, dominate and recede. It seems as though any of the five steps can segue into any other step at any point and circle back again, in and out of vehicle term selection, reasoning, finalizing. Most of the work of metaphor production is an “essentially subliminal process,” occurring below and behind and before any of our conscious cognitive processes (Gordon, 1961, p. 117). The slipperiness and unlocate-ability of the metaphor production process is largely why we do not have more research and theory regarding it. As Gordon said, “We tend to slide past the moment of inception, to regard [metaphor making] as mysterious and sacrosanct, to call it inspiration” (p. 117). But this view of metaphor generation removes from the metaphor makers any kind of real agency. Acknowledging that much of the metaphor creation process occurs without the metaphor producer’s explicit direction, we nevertheless locate the authorship of the metaphor in the producer: it is the metaphor producer’s subtle and involuntary mental processes that form the metaphor.

Though it may be difficult to understand how we make metaphors, we cannot devolve into thinking that we are not the ones making the metaphors. If a metaphor

maker is merely a conduit (to invoke a metaphor) for metaphors-from-on-high, then we cannot change or influence our abilities to create metaphor. If we cannot sow the seeds of metaphor and teach good agricultural practice, then we cannot reap the fruits of metaphor production with any reliability or have a productive or pertinent conversation regarding the benefits of metaphor production. We are solely reliant upon manna to provide us with the good that can come from metaphors and metaphorical thinking. And I am arguing that, in addition to the good explicated by the current literature on metaphor theory and metaphor in education, metaphorical thinking fosters and is fostered by the educative good we call inquiry.

Chapter 7: Metaphor and Inquiry

Topology is a geometry in which all lengths, angles, and areas can be distorted at will. Thus a triangle can be transformed continuously into a rectangle, the rectangle into a square, the square into a circle. Similarly a cube can be transformed into a sphere. Because of these continuous transformations, topology is known popularly as “rubber sheet geometry.”

Fritjof Capra (1996), from *The Web of Life*, p. 126

CONNECTING METAPHOR TO INQUIRY

With a solid understanding of what we do when we create metaphor, the connection between metaphor production and inquiry becomes clear: inquiry makes metaphorical thinking possible and, in turn, is furthered by metaphorical thinking. In other words, metaphor is a species of inquiry. In order to explore and explain this relationship, I will draw upon the work regarding inquiry in three seminal texts: Dewey’s (1933) *How We Think*, Lindfors’ (1999) *Children’s Inquiry*, and Wells’ (1999) *Dialogic Inquiry*. Though these three texts approach the issue of inquiry and its role in education with different agendas, they describe the process and purposes of inquiry such that we can clearly recognize inquiry in the process of metaphoric construction, and we can recognize metaphoric construction for what it is: a process of inquiry.

Together, these three works enable a relighting of the metaphor production process: we can see it as the recursive, internal, cognitive process (Dewey, 1933), for which the inquirer has taken an open, tentative stance (Lindfors, 1999; Wells, 1999), in order to reach beyond one’s own knowing (Lindfors, 1999), with multiple interpersonal

and social ramifications (Lindfors, 1999; Wells, 1999) that is inquiry as detailed by Dewey, Lindfors, and Wells.

I will address two central questions: (1) how does the process of metaphor production relate to the specifications of inquiry, as delineated by Lindfors (1999), Wells (1999), and Dewey (1933)? And (2) why does it matter?

METAPHORS, TENTATIVELY

In *Children's Inquiry*, Lindfors (1999) confronts what she sees as the increasingly laissez-faire definitions of inquiry, with an intent to clarify what it is that deserves the name of inquiry. She says:

Twenty years ago, concerns about how teachers should ask questions dominated the professional literature. Today it is the word *inquiry* that dominates. I rarely pick up a new issue of our standard language education journals these days without being greeted with the word *inquiry*. This is a major shift and a most welcome one. I worry, though, whether this word is bandied about so freely that, rather than indicating a serious trend, it threatens to become merely trendy, something we thoughtlessly say we are doing because it is the thing to say. (p. 127)

For Lindfors, what inquiry is, is not a specific process or set of steps or formula or procedure; “it is not the form or feeling or content of our talk that identifies it as inquiry” (p. 106). Inquiry is identified, instead, by an “articulation of uncertainty” and an “articulation of invitation” (p. 107). It is a two-way turning (turning toward partner and toward subject), a two-way purpose (having the social purpose of engaging another and the intellectual purpose of increasing understanding), and a two-way reaching (reaching toward another and beyond what one knows).

Lindfors recognizes that these subtle and abstract features of inquiry can make it difficult to identify when individuals are engaged in inquiry and when they are doing something else. This is why, she says, we have looked for inquiry and have purported to have found it where it actually was not—in games of Twenty Questions, in stilted question-generating sessions, even in dispassionate and formulaic reciprocal teaching sessions. Asking questions does not guarantee engagement in inquiry. They can be a part of inquiry, but only if they are asked by one who is actively and personally reaching to understand, taking a “tentative stance,” and “attempt[ing] to go beyond present understanding with the help of another” (p. 61-62).

Lindfors’ description of inquiry resonates with the definition Wells (1999) uses to identify a community of inquiry in his *Dialogic Inquiry*, using, in fact, similar terminology:

In our way of using the term [...], inquiry does not refer to a method (as in “discovery” learning), still less to a generic set of procedures for carrying out activities. Rather, it indicates a stance toward experiences and ideas—a willingness to wonder, to ask questions, and to seek to understand by collaborating with others in the attempt to make answers to them. (p. 121)

But if inquiry is a reaching, in stance and in purpose, and no longer considered the exclusive domain of questions, then we can look for inquiry in other forms, such as classroom literature discussions, bedtime storytelling between siblings, bedtime storytelling between parent and child, a car ride conversation between Mom and preschooler (Lindfors, 1999). Participants engaged in these activities are engaged in inquiry *if* they and their thinking are open, wondering, tentative, reaching.

Lindfors (1999) and Wells (1999) both advocate a definition of inquiry that allows us, when looking for inquiry, to look to linguistic and conceptual forms we might have otherwise overlooked. This is because their specifications of inquiry focus primarily on the stance of the inquirer, when engaging in mental or linguistic activities, rather than on the formal aspects of those activities. For instance, question-based definitions of inquiry would not necessarily differentiate between someone screaming, “WHAT ARE YOU THINKING?” and a teacher gently probing a student with “What are you thinking?” *expressly* because these utterances both take an interrogative form and are followed by question marks. Lindfors and Wells’ identification of inquiry as being a quality of interaction or approach as opposed to a form allows us to consider metaphors, specifically the production of metaphor, as a process that can support the stance of inquiry.

There are two aspects of metaphor production that can manifest inquiry: purpose and process. On a general level, one can create a whole metaphor with a tentative or wondering purpose. Each time we create a metaphor to *maybe, somehow, hopefully, in part, perhaps, sort of, partially, halfway* explain or illuminate or clarify a subject, we are engaging in inquiry as per Lindfors and Wells’ most basic specifications. For example, I once created a metaphor during a conversation with a classmate. I was trying to explain to her the particular way I valued her contributions in class discussions. Her comments were informed by disciplines and experiences outside my own but were revelatory and surprising in their pertinence. And so, in the moment, in an effort to say something, to say it in some way that might communicate some of the nuance and delight and quality of the

way I appreciated her, I said something like, “It’s like... Did you ever make those paper fortune-teller things in elementary school, where you write a different number or fortune under each flap, and then you move it in and out and expose the flaps and read the fortunes? You’re like that, kind of. Your comments are like that, like those fortunes, surprising and contributing and, I don’t know. But in a good way.”

This metaphor was created as a possibility, as an explanation, as a hopeful attempt to say some of what I wanted to say. The tone of it, its tentativeness, qualifies it as a manifestation of inquiry, according to the definitions of inquiry as set forth by both Lindfors and Wells.

I do think, however, that inquiry is more fundamental to the construction of metaphor than this example evidences. The searching, hypothesizing, testing, and recursive nature inherent in the metaphor production process, specifically manifested in steps two and three, may indicate that, on some level, metaphor production is always tentative, is always a reach beyond what we know and what is clear to us. If the purpose of constructing a metaphor is to illuminate one subject by comparison with another, then the very process of metaphor construction entails a reaching beyond what we know that Lindfors says defines inquiry, at least in part. Thus, if a metaphor has been successfully constructed, it will have successfully completed its purpose, and will have enabled the creator to reach beyond his or her understanding. And it will be both metaphor and manifestation of inquiry, by sheer definition.

THE SOCIAL ASPECTS OF METAPHOR

Though Lindfors (1999) and Wells' (1999) descriptions of what inquiry looks like are largely the same, they each have one significant additional stipulation regarding inquiry's social nature. Lindfors describes inquiry as being a reaching beyond what is known but also a reaching toward another for help, and Wells stipulates that inquiry must serve a larger social purpose, to render an individual more able to act "informedly and responsibly" (p. 121). Metaphor production meets these social stipulations by virtue of the internal dialogue inherent in the process of metaphor construction and by virtue of the way that making a metaphor can contribute to larger social dialogue.

The question is, how can metaphor production be social if it occurs, as I have described it, within an individual? Lindfors herself addresses this, as it applies to inquiry as a whole. If inquiry is by definition social, a reaching toward another, then how can it occur within individual? To answer this, she explains that for inner dialogue to exist at all, it requires inquiry; just as the inquiry act is "fundamental" in social dialogue, it is required by inner dialogue (p. 245). She supports this by relating Bakhtin's description of dialogue as a chain: each link is an inquiry utterance connected to other links. When the inquiry acts end, the chain ends. Inner dialogue ends. The strength of this claim is supported by Bakhtin's belief that meaning or sense comes only with inquiry; Bakhtin is asserting that understanding only arises from "that which we construe within an inquiry-response relationship" (p. 246). For Lindfors, then, inquiry does occur within an individual's own mental processes, and when it does, when inquiry acts are "impelled inward," they take the form of "dialogue with self" (p. 247).

The five steps of the metaphor production process are essentially a script for an individualized “dialogue with self.” How does one search for a candidate term, select one, test its potential comparison with the target term, explore their differences and similarities, decide whether to accept the term or reject it and keep searching, and do all of these things again and again and again until arriving at a successful metaphor *without* posing and answering one’s own questions, without directing and responding, confronting and defending, weighing and judging, discussing and arguing and dialoguing within one’s own mind? This is particularly true when we count the subvocal level of mental process as part of the metaphor production process. It is true, as Lindfors says, that inner dialogue is not as linear or sequential as social dialogue; “it is a-temporal, an all-at-onceness rather than a one-by-one procession of words in time” (p. 242). Nevertheless, it “retains a dialogic structure” (p. 243). Or can, as Lindfors notes, because our inner dialogue is affected by the social dialogue that we are engaged in, are familiar with, and have experienced. This final point helps shape what we conclude about the need for experience with metaphor production, but it does not affect how we appropriately categorize the process of metaphor production: as a manifestation of Lindfors’ “two-way reaching” inquiry, and as a process requiring the integral functioning of inquiry.

Whereas Lindfors (1999) considers the need for inquiry to be a social act (in addition to its tentative, open, and searching stance) in regards to its *participants*, Wells (1999) is concerned with the social *purposes* of inquiry, its social consequences. His larger social purpose explains why he adds an additional clause to his definition of

inquiry: “the aim of inquiry is not ‘knowledge for its own sake’ but the disposition and ability to use the understandings so gained to act informedly and responsibly” (p. 121). (Lindfors’ discussion of inquiry does not invoke any notion of social *responsibility* growing from inquiry; she is concerned merely with the nature of inquiry.) Thus, rather than tending to inquiry with utterance-level scrutiny, as Lindfors does in *Children’s Inquiry*, Wells discusses inquiry as the general shaping and driving force of his conception of what education should be. Wells says, simply, “Education should be conducted as a dialogue about matters that are of interest and concern to the participants” (p. xi). Thus, the book’s title. With what stance and purpose should we approach learning and education? The stance and purpose of inquiry. What should that inquiry look like, what form, participants, and mode of interaction should characterize it? The forms and participative interchanges germane to dialogue.

Wells draws his understanding of this participative, social model of education from the work of two men: Vygotsky and Halliday. *Dialogic Inquiry* centers on fitting together these men’s respective notions of language as “a means of achieving the goals of social living”—Vygotsky being most interested in “inner speech” and Halliday, in the mutually influential relationship between language and culture—in order to advocate a classroom and educational system in which due attention is given to the ways we can construct knowledge and understanding in communities as we engage in personally vested dialogue with each other (p. 6).

To understand how metaphor production can retain its claim to inquiry in light of this consideration, I turn to Wells’ work regarding the relationship between “social” and

“inner” speech. He adopts but amends the Vyogotskian theory of the internalization of social speech, which held that the functions and practices of speech appear first on a social level and then on the individual’s psychological level. Wells revises this view by arguing that, rather than inner speech being the internalized form of social speech, it is the “inner, self-directing analogue of the external, social behavior” (p. 117). But inner speech is both informed by and in turn informs the social realm: “the utterances of inner speech respond to earlier utterances by others as well as self, and are often prospective rehearsals of what one intends to say (or write) on some future social occasion, or retrospective of what one did not say but now wishes that one had” (p. 118).

Thus, the knowledge that is constructed as part of one’s inner discourse has manifest social potentiality:

Even when most alone and engaged with “internal representations,” our solo activity is mediated by artifacts that we first encounter externalized in social activity; furthermore, the representations we ourselves create are given shape and definition as they are externalized in artifacts that then contribute to further social activity. In sum, although knowing is necessarily an activity carried out by particular individuals, it has its purpose and its fullest realization in the socially-oriented creation and use of the artifacts in order to represent and extend our understanding with and for others. (p. 70-71)

Metaphor produced by an individual’s inner, mental processes is one such “internal representation,” designed to extend understanding for its creator, which, according to Wells, can, or will, affect the social world in which the creator daily operates.

METAPHOR PRODUCTION: AN ENGAGEMENT IN REFLECTIVE THINKING

Thus far, I have demonstrated both the tentative and social nature of metaphor production, characteristics required if metaphor production is a species of inquiry. For a final consideration, I turn to Dewey's (1933) *How We Think*. Dewey's purpose in writing *How We Think* was, through a general description of multiple ways of thinking, to advocate one kind of thinking in particular, namely reflective thinking. Though Dewey uses the word "inquiry" occasionally throughout his discussion of reflective thinking, typically to denote the limited act of searching or questioning that culls information, it is his broader notion of reflective thinking that best harmonizes with contemporary definitions and discussions of inquiry, and it is this notion that will inform our discussion of metaphor and inquiry. Reflective thinking, according to Dewey, requires a certain kind of active engagement from the participant, a certain kind of searching intentionality, a personally vested consideration and thoughtful thoroughness. Considering metaphor production in light of Dewey's model of reflective thinking, I draw two conclusions: (1) metaphor production is once again established as a subset of inquiry, and (2) as such, metaphor production is an opportunity for active learners to work toward new understanding, to be engaged in knowledge construction. I will address each of these conclusions in turn.

First, the five parts of Dewey's (1933) model of reflective thinking reestablish the inquiry nature of metaphor production. These five states of thinking exist between the "perplexed, troubled, or confused situation" and the "direct experience of mastery,

satisfaction, enjoyment” that delimit the reflective thinking experience (p. 106-7). The aspects, or phases, of Dewey’s reflective thinking are

1. Suggestion—“in which the mind leaps forward to a possible solution”
2. Intellectualization—“an intellectualization of the difficulty or perplexity that has been *felt* (directly experienced) into a *problem* to be solved, a question for which the answer must be sought”
3. The Guiding Idea, Hypothesis—“the use of one suggestion after another as a leading idea, or *hypothesis*, to initiate and guide observation and other operations in collection of factual material”
4. Reasoning—“the mental elaboration of the idea or supposition as an idea or supposition”
5. Testing the Hypothesis by Action—“testing the hypothesis by overt or imaginative action” (p. 107).

Together, these five states describe a process of thinking that can serve as a general, broad description of the metaphor production process. The process of metaphor production is a tailored incidence of reflective thinking, with the specific and immediate goal of creating a metaphor. Where reflective thinking is general, metaphor production is specific.

As evidenced by the chart below, the processes are largely compatible. Dewey does place emphasis on parts of the process that our model of metaphor production does not (i.e. differentiating between the mind’s first knee-jerk suggestion and its more fully formed hypothesis), but Dewey himself seems unconcerned with either the fixedness of

the number of steps or the order of the steps. He points out that additional phases may be added: significant subphases in complicated processes, or a sixth phase involving a forecast for a prediction. Or the phases may “telescope” or occur out of sequence.

Phases of Dewey's "Reflective Thinking"	Description	Steps of Metaphor production
Pre-reflective activity	a state of perplexity, puzzlement, trouble, confusion begging resolution	(1) Decision to generate metaphor
(1) Suggestion	the mind's first leap to a possible solution or action in response to the perplexity	(2) Search for and selection of candidate vehicle term
(2) Intellectualization	a reinspection of the conditions of the problem	(3) Test of the vehicle's candidacy
(3) Hypothesis	the tentative formulation of potential solution to the problem	(4) Decision to return to step 2 or proceed to step 5
(4) Reasoning	a refinement of the hypothesis by application of pertinent knowledge, experience, and observation	(5) Finalization of metaphor
(5) Testing the Hypothesis by Action	a move to verify the hypothesis by some overt action	
Post-reflective Activity	a state of clarity, dispelled doubt, mastery, satisfaction, resolution	

The fluidity of Dewey’s model of reflective thinking effects two things: (1) it allows for the process of metaphor production to be considered a specific species of reflective thinking, despite differences in emphasis, and (2) it comprises a crucial aspect of metaphor production, thus strengthening the apparent connection between reflective

thinking and the creation of metaphor. Dewey's words about the recursive nature of reflective thinking are strong evidence of its close kinship to the production of metaphors:

The five phases [...] or functions of thought, that we have noted do not follow one another in a set order. On the contrary, each step in genuine thinking does something to perfect the formation of a suggestion and promote its change into a leading idea or directive hypothesis. [...] Each improvement in the idea leads to new observations that yield new facts or data and help the mind judge more accurately the relevancy of facts already at hand. The elaboration of the hypothesis does not wait until the problem has been defined and adequate hypothesis has been arrived at; it may come in at any intermediate time. And as we have just seen, any particular overt test need not be final; it may be introductory to new observations and new suggestions, according to what happens in consequence of it. (p. 115)

Though in this passage Dewey refers to facts, data, and accuracy, and our conception of metaphor construction seems to deal more readily with images, experiences, and effectiveness, he is nonetheless describing the very process described in "Metaphor production" in this volume. It becomes difficult, at least in discussions of theory, to distinguish between reflective thinking and the process of metaphor production. In the end, the relationship seems to be this: reflective thinking is a general process of thought, which metaphor production engages to compare two disparate subjects (concepts, items, etc.) in order to highlight what is common between them. Metaphor production is using reflective thinking to make metaphors.

Reflective thinking positions its practitioners at the head of the process; those engaged in reflective thinking must be *engaged* in reflective thinking, even if it occurs on a subconscious level. The reflective thinker wonders, searches, hypothesizes, tests,

determines, and proceeds. When reflective thinking, a reflective thinker is very much the agent of the action. This engagement present within Dewey's reflective thinking model is also part of the metaphor production process. Those creating metaphors must do so with some level of intentionality. Though the action of the metaphor making might happen without the maker's express involvement, as happens when metaphors seem to spring forth fully formed from our mouths or our pens, on some level, the work of the metaphor creation is being done by the thinker, by the maker. Thus, when one creates a new metaphor, one has inevitably participated in the multi-step process of metaphor production (and, too, reflective thinking). One has, by definition, been engaged in the construction of knowledge, in active learning, in an active working toward new understandings.

This is not to say that individuals cannot participate in metaphor production halfheartedly (or halfbrainedly). They can. And, as evidenced by much high school writing, they do. Metaphors arrive on the page, weak, shallow, dull, lacking any of the vitality, clarity, and newness possible in active mental production. However, I would posit that, if a new metaphor has been created at all, an individual's "I," her "self," has been present. By virtue of process. By virtue of the searching, hypothesizing, testing, evaluating, etc., described in both Dewey's model of reflective thinking and in the metaphor production process.

Thus, metaphor production, like all modes of inquiry, enables individuals opportunities to be engaged, to be vested, to be active in learning and working to understand. If they are not engaged by or in the process, if an individual is attempting to

create a metaphor without positioning himself intentionally, then he will be unsuccessful. He will not have engaged in inquiry. We cannot be engaged in inquiry, or in metaphor production, without being engaged.

IN SUMMARY

Though Dewey (1933), Lindfors (1999), and Wells (1999) each address the issue of inquiry from different positions, with different agendas, and different sets of specifications, the process by which we generate metaphor can satisfy them all. Dewey said that reflective thinking—the process by which we thoughtfully, personally, work to arrive in new mental places, what is considered the equivalent in his time of today’s inquiry—begins in puzzlement and proceeds through iterations of searching, considering, narrowing, hypothesizing, and testing. This is, by definition, the process of metaphor production. Lindfors sees inquiry as reaching towards another and beyond what is known; when we make metaphors we are working to make new connections, illuminations, and we do it through inner dialogue. And Wells advocates identifying inquiry acts—utterance, thought, and physical—as those that are characterized by a reaching and tentative stance, with some set of externalized, social implications and responsibilities. The act of metaphor creation is tentative and reaching in its very process, on a subliminal level, if not also on a larger, whole-purpose level. And a way that individual, silent inquiry in general has social implications also applies to metaphor creation, specifically: we are changed by what we make in our minds, and the world, through us, is also changed.

In conclusion, metaphor production is a manifestation of inquiry. It shares the tentative and social natures of inquiry and is, like inquiry, an opportunity for an individual's active mental engagement. Metaphor production is furthered by the process of inquiry, by the searching and reaching and testing inherent in the production process. And, in turn, making metaphors furthers the cause of inquiry, by pushing us to extend our understanding, to reach to others, and to participate more thoughtfully in the human discussion.

WHY WE SHOULD CARE

The final question in our discussion of metaphor construction and inquiry pursues the significance of this thinking: if when we make metaphor we are also engaging in inquiry, why does that matter? Why should we be concerned with metaphor and inquiry, when we know already that inquiry can be part of question-asking, problem-based learning, classroom discussions, research projects, and any number of other well researched and hard won intellectual tools or classroom practices? The answer, for me, lies not in inquiry but in metaphor.

Black (1979) summarizes why we should produce metaphors with his answer to the question, "Why try to see A as metaphorically B, when it is not B?" (p. 34). His answer was twofold: (1) because we can, and (2) because sometimes we need to. According to Black, sometimes our literal language resources are unable to convey the relationships, richness, and insights we want to convey; sometimes producing metaphors are our best way of doing this, of saying things we would not otherwise have the ability to say. The metaphors we make can communicate the things we cannot otherwise

communicate, but they also help us to solve problems and see solutions we otherwise would not be able to see. Clay (1991) notes this in her work about emergent literacy, “Reasoning by analogy is probably our most fruitful source of hypotheses about any intellectual problem” (p. 335), which view is supported by Gordon (1961) and his work with the Synectics group. Synectics is propelled by this notion: when we create a new metaphor, we are seeing something new or anew, and that can lead us to new hypotheses and/or new solutions.

When we create metaphors, we are also creating new vision, new thinking, new sight (Bannister, 1995; Black, 1979). Black (1979) emphasized that this newness needs to be counted as an important effect of metaphor production: “the production of a new metaphorical statement obviously introduces some small change into a world that includes statements and the thoughts they express, as well as clouds and rocks” (p. 36). This newness or freshness of perspective can be true even for the tritest of metaphors, says Bannister (1995), depending on how thoroughly and carefully the connections between target and vehicle are explored.

The question becomes, how do we incorporate or emphasize metaphorical thinking in a classroom or in our educational system as a whole? What I do not want is for teachers merely to begin assigning students to write metaphors willy-nilly: “Exchange papers with a neighbor. Put a checkmark next to the three metaphors they have included.” While I think that the question of *how* we change our approach to metaphorical thinking deserves much research, consideration, and thoughtful

experimentation, I do want to draw a picture here of what I think emphasizing metaphorical thinking can look like as part of an individual's educational experience.

Picture a student, sixteen years old, going to history class. She is quieter than usual as she walks through the locker-lined hallways because she is thinking. In the English class she is just coming from, she was given an assignment to construct a metaphor that might help to explain the dynamics of her family, particularly as they were manifested in a recent family event. They have been studying *The Crucible* in English. They talked about how the witch trials were a fiery, purifying experience like a crucible for John Proctor (after she learned what a crucible was, of course). But her teacher had pointed out a metaphor she had not even noticed: "There are wheels within wheels in this village," John Proctor had said, or something. And her class had spent much of the class period figuring out what that might mean.

But she is not worried about the metaphor assignment in general. She is quite familiar with metaphors, knows from elementary school, and from science and math, how metaphors can help to explain things that might otherwise seem confusing or unclear. She learned how to tie her shoes by learning about a bunny running around a tree and into a hole. That was a metaphor (though she did not know it at the time). She learned about the basic (basic, basic) structure of an essay when her teacher compared it to the body of a duck. Ms. Sirignano, her biology teacher, taught her that Mendelian genetics is kind of like having two outfits: if you mix and match, you can get four outfits out of two. And Mrs. Dietz, her chemistry teacher, is trying to get her to visualize the distance between a nucleus and its electrons by thinking of how far apart the planets are from the sun.

But she knows, too, that metaphors sometimes distort things. Her history class is studying the Industrial Revolution, and just yesterday, Mr. Ponzi was saying something about how, because of the Industrial Revolution, we use metaphors for factories and machines to describe a lot of things. She does not quite understand it yet, is in fact planning to ask him about it again today. But she did notice that yesterday when she called in sick to her afterschool job at Wendy's, her manager just assigned someone else to replace her on the food line, like she was a part of a machine that had broken and needed to be temporarily replaced. Is she like part of a machine at Wendy's? Does it matter that she tells jokes and helps her coworkers laugh as they work? Can that be replaced? When someone else subs for her, do her coworkers work together the same way? Or do they not? Is a machine a good metaphor for her shift at Wendy's? Or is there something better?

This thinking does make her a little bit cautious as she creates her metaphor for English class. She wants to understand her family better, to be able to explain to her friends the way it is when she goes home. And she thinks that maybe, if she can come up with a good metaphor that does not distort too much but does capture some of what she feels when her family all spends time together, like when they had dinner together yesterday for the first time in a while—if she can come up with a good metaphor for this, then maybe she can understand it better. Maybe she can figure out why family dinners usually make her sad and happy at the same time. And then maybe she can change it, change the way her family interacts, or maybe just the way she acts. She does not quite know yet how that works, why figuring out metaphors can change the way you behave.

But, she thinks, maybe that is what Mr. Ponzi is talking about in history. Maybe the machine metaphors that came out of the Industrial Revolution have changed the way we see and treat each other, particularly at work. I will listen for that in class, she thinks. She thinks that, if she listens, she might be able to make her metaphor better, shape it, craft it, with care and attention. Like the care and attention she uses as she makes her clay pots in art class. Which thought makes her smile, because it is a metaphor all by itself.

What I intended to represent by this depiction of a moment inside a high schooler's head was how metaphorical thinking can become a part of our general curriculum. Notice, this high schooler refers in her thinking to metaphor as an explicit subject for discussion from multiple grade levels and subjects: young elementary (a rabbit's run as a metaphor for shoe tying), middle-grade years (the duck body as a metaphor for the structure of an essay), science (outfits and Mendelian genetics, atoms and solar systems, as well as discussion of the clarifying and educative power of metaphors), history (historical events and their influence on societal metaphors, the power of metaphors to affect society, sometimes in negative ways), and English (literary metaphors, including using metaphors as a mode for text-to-self connections).

Notice, too, how much her thinking sounded like Lindfors' and Wells' definitions of inquiry. As she thought, she searched through her experiences to reason, to push her thinking about the assignment further, to make tentative and open connections between what she was thinking and what she has experienced. This particular moment of inquiry

occurs even before she has begun any formal metaphor production process. She is still in step one of the process—deciding to generate a metaphor. Would she have decided to make a metaphor to describe her family dynamics if her English teacher had not assigned it to her? Probably not, at least not this early in her life (nor without a therapist’s help). Would she be this invested in the assignment if it were not about something as pertinent and personally compelling as complex family relations? Maybe not. And would she have metaphoric experiences to readily draw from—lessons about what good metaphor can do and about what metaphor may negatively do—if her teachers had not exposed her to or engaged her in this kind of conversation repeatedly, over time? No. Almost certainly not.

I am not advocating, necessarily, for curriculum that is based wholesale on metaphor theory and metaphor production. Certainly I am not advocating for a curriculum designating a year or a month or a unit for the study of each of steps in the Olson Metaphor production Process, or something equally rigid and stultifying. Metaphorical thinking is powerful and, in many ways, unavoidable. I am advocating that we begin to think and talk more explicitly about metaphorical thinking and that we introduce our students, whoever they may be, to the depth and power and complexity of that conversation. Metaphor production is something we already do; now, let’s talk about it. And let’s learn to do it better.

CONCLUSION

I have used a narrow discussion of metaphor production and inquiry to pinpoint one educative benefit from metaphorical thinking that we are currently neglecting. There are more. But seeing metaphor production as inquiry opens a metaphorical door into a larger conversation about what metaphor is, what good it can do, how we already use it when we teach and learn and think, and how it already reinforces what we are trying so desperately to accomplish. For example, we are trying to engage our students in inquiry. So, we should look to metaphor production because being engaged in metaphor production brings all the benefits of metaphorical thinking and all the benefits of inquiry. Metaphor-making allows full communication, problem-solving, and newness of thought and of perspective. It is a crucial part of metaphorical thinking, which, as Lakoff and Johnson (1980) said, is endemic to our ways of interacting with the world, with the very structure of our thinking. So if we understand metaphor better, if we work to understand the process of metaphor making better, if we work to better our making of metaphors, then we can reap the benefits of metaphorical thinking, the benefits of metaphorical communication, the benefits of engaging in inquiry, and the benefits of furthering inquiry — with one act. One making. One spiraling baton wave of educative wizardry.

Chapter 8: Call for Further Inquiry

Salvador inside that wrinkled shirt, inside the throat that must clear itself and apologize each time it speaks, inside that forty-pound body of boy with its geography of scars, its history of hurt, limbs stuffed with feathers and rags, in what part of the eyes, in what part of the heart, in that cage of the chest where something throbs with both fists and knows only what Salvador knows, inside that body too small to contain the hundred balloons of happiness, the single guitar of grief, is a boy like any other disappearing out the door, beside the schoolyard gate, where he has told his brothers they must wait. [...] Grows small and smaller to the eye, dissolves into the bright horizon, flutters in the air before disappearing like a memory of kites.

Sandra Cisneros (1991), from *Woman Hollering Creek*, p. 10-11

Let her be. So all that is in her will not bloom—but in how many does it? There is still enough left to live by. Only help her to know—help make it so there is cause for her to know—that she is more than this dress on the ironing board, helpless before the iron.

Tillie Olsen, from “I Stand Here Ironing” (in *Women and Fiction*, edited by S. Cahill, 1975, p. 171)

INQUIRY ABOUT INQUIRY

This discussion of the relationship between metaphor construction and the process of inquiry had, as its purpose, a very narrow target: to explain and explore the intimate connection between the making of metaphors and the pursuit of inquiry. It has, I hope, accomplished this.

However, the dialogue must continue. We must develop more theory, extending the discussion beyond metaphor production to other areas of metaphorical thinking—metaphoric comprehension, metaphor sharing, metaphor usage—and their roles in or relationships with inquiry. We do not yet know the practical applications of seeing

metaphor in inquiry and inquiry in metaphor. Can we instruct others how to make metaphor in ways that preserve or promote the inquiry inherent in the process? Can classroom teachers do this, with the particular curricular, physical, and personal demands of their specific educational spaces? What kinds of accommodations would need to be made for the theory to serve practice and for the practice to match theory? And there is need for empirical research—what are the lived benefits, processes, patterns, and uses of metaphorical production in terms of its inquiry properties? Under what conditions and with what frequency do we already make metaphor? Can this be improved? By what kinds of instruction, with what kinds of instructors, with what participation of students?

And, too, there are myriad questions about the effect of language on our production of metaphor, on both a social and individual level. How is our ability, or our capability, or our propensity to produce metaphor affected by our language skill, experiences, and goals? Can metaphor production happen apart from language? If it does, do we recognize it as such? And does that change how we are affected by it and by its inquiry processes? Answering these questions is important. The stakes are high. Through metaphor and through inquiry, we can teach and be taught. We can change and be changed. We can understand, and we can be understood.

Lindfors (1999) wrote: “No inquiry act was ever born in a vacuum” (p. 93). This paper is, for me, one inquiry act, one attempt to reach from what I know to beyond. But this extension, enrichment, and increase of knowledge—valuable in its own right—has also proven the ground to be dark and fertile, ready for new questions and new metaphors to stretch their roots and grow.

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