Framed! Metaphor in Educational Psychology and Society

“Metaphors can kill”. That is the first sentence of a popular and widely circulated paper by George Lakoff about the 1990-91 Gulf war (Lakoff, 1991). His assertion is surprising. Especially if you understand metaphor only as a figurative device used in poetry. But metaphors have come a long way. Now they are seen as vital for learning abstract concepts. As such, understanding their use should be fundamental to educational psychology. But does the educational psychology literature reflect such understanding? If metaphors can kill, what kind of influence are they exerting in educational theory? In this selective review, I cover metaphor’s definition and its relationship to cognition. I describe five axes for understanding metaphor’s use in language and thought. Next, I review the literature on metaphor in education. Then, I list metaphor’s pitfalls with examples, and introduce framing, a compelling metaphor for metaphors. I end this paper by discussing the educational and wide-ranging social implications of framing (how does metaphor kill?).

What are Metaphors?
Like most people, I remember learning about metaphor in English class. It seemed most important, back then, to be able to tell metaphor apart from simile. For the purposes of this exploration, I use the more commonly held, broad definition of metaphor: “understanding and experiencing one kind of thing in terms of the other” (Lakoff and Johnson, 2003, p.5). This has metaphor “subsuming many of the traditional terms relating to figurative language… simile, allegory, analogy, parable, anecdote, fable, song” (Pugh, Hicks and Davis 1997, p. 14). While this stretched definition has caused some concern (Black, 1993), it is supported by most theorists (Best, 1984; Gibbs, 1996). But stretching can go too far. I am troubled, for instance, by Petrie and Oshlag’s definition of educational metaphor: “all the various categories of metaphors which are useful for increasing understanding by students” (1993, p.582). Metaphor defined in this way, by positive effect, excludes the possibility of poor (ineffective) metaphor.

Metaphor in Cognition
Theorists continue to debate metaphor’s relation to cognition (e.g. Murphy, 1996; Green, 1993). But today, most educators, psychologists, philosophers and linguists have been drawn toward metaphor as a phenomenon of thought and mental representation. Lakoff and Johnson summarize this view: “Metaphorical thought is unavoidable, ubiquitous and mostly unconscious. Abstract thought is largely, though not entirely, metaphorical” (2003, p. 272-273). Is metaphorical thought really everywhere and unavoidable? Try to describe an abstract thought. Metaphor will likely sneak into your language. Part of the reason we miss it, I think, is that we don’t recognize its many forms. For instance, metaphor can be a single (primary) descriptor: “Her mood was high”. A more complex form might include an object, as in: “then someone burst her balloon”. Even more complexity leads to “She was adrift, rocking on waves of sorrow”. It is easy to identify the last one as metaphor. We are more conscious of it. It is more difficult to recognize the first example. It is no less a metaphor, we are simply less conscious of it. (And did you notice the others in this paragraph: drawn toward, sneak into, miss, forms?)

Primary and Complex are modifiers that form one of the following five axes along which metaphors can be placed. Three of these have been described in the literature (as noted) and two are my invention. These axes should help to raise awareness of metaphor’s range in language and thought.
**Axis 1 – Primary to Complex**

Lakoff and Johnson (2003, p.251) make a convincing case for the embodiment of primary metaphors. Take for example *warm* as a primary metaphor used to describe a person. We universally associate warmth with affection because we have unconsciously embodied the feeling that comes with the warmth of our parent’s embrace. A corresponding complex metaphor example “The flames may be gone, but the embers still glow in their hearts” builds on the temperature/affection theme with more abstraction. As noted previously, primary metaphors are less conscious, and less obvious than complex ones.

**Axis 2: Dead to Active**

This historical axis (Goatly 1997, p.34) helps identify old, dead metaphors that once had concrete analogues and that now retain meaning all on their own e.g. *red herring*, *yellow belly*, *crackpot* (It is fun to speculate about their history). Active metaphors are new and fresh e.g. *tree-hugger*, *Mcjob*. There are many nearly-dead examples in between these two extremes e.g. Shawin-igate. Note that it is the cultural reference that fades with time, leaving us (in some cases) with colorful, unattached new words. Pugh, Hicks and Davis (1997) find an author who suggests that dead is sometimes good: “Good scientific metaphors lose elasticity as they gain a technical meaning. We don’t think of chemical messengers, charm, or antimatter as metaphorical terms, and yet they are. For a metaphor to stay metaphorical in science is almost a dereliction of duty. (Muscari, 1988, p.426)”

**Axis 3: Weak to Potent (Imagery)**

This description is subjective, but I trust that we would get general agreement on many examples. E.g. *Weak*-er: “She’s a cool customer”; More Potent: “She has ice in her veins”. By this point, you may be considering the cross-over between axes. There is some, to be sure, but I maintain they are independent. For example, “He’s flying high”, a relatively primary metaphor, is more visually potent than “That was over my head”, a relatively more complex metaphor.

**Axis 4: Near to Distant**

(Goatly, 1997, p.39) The Near metaphor Knowledge-broker, for example, is understood easily because knowledge can readily be seen as a commodity, like insurance. The distant metaphor dream-broker requires more imagination or context. We need to travel farther in our imagination to understand the more distant metaphor.

**Axis 5: Independent to Thematic**

In the case of an independent metaphor, like *talk is cheap*. It’s difficult to come up with a similar expression that contains *talk as commodity*. Now try that with *Time is running out*. You will soon find expressions like *Time is money*, *Time flies*, and many others. All these expressions portray time according to one theme: limited resource. It is fascinating to consider the cultures that do not treat time as any kind of limited resource (Lakoff & Johnson, 2003. p.9) How different their perspective must be from ours! Keep this illustration in mind when we discuss framing.
Metaphor in Education

Several authors have reviewed the importance of metaphor in education (Petrie & Oshlag, 1993; Cook-Sather, 2003; Pugh, Hicks & Davis, 1997). “Metaphor becomes, then, a device for exploring the unknown in terms of the known, for helping us to discover and understand new knowledge… and thus has great potential in improving both teaching and learning” (Pugh et al., 1997, p.18-19). Metaphor’s most important role lies in increasing our understanding of concepts (Mayer, 1993). Metaphor has been shown repeatedly to make concepts more memorable and understandable (Glynn & Takahashi, 1997; Lienhard, 1997; Donnelly & McDaniel, 1993; Glynn & Takahashi, 1997; Lakoff, 1993). For example, Reynolds (1982) has shown in college students that metaphor increases recall and comprehension of prose.

Since conceptual understanding often precedes the development of procedures and operations (Grow Maienza, Hahn & Joo, 2001, Rittle-Johnson, Siegler & Alibali, 2001), metaphor is useful even in mathematics. The number line, for example, is a metaphorical construct. “Numbers don’t have to be points on a line. It’s a metaphor that numbers are points on a line, just as it is a metaphor that numbers are sets” (Lakoff & Johnson, 2003, p.270) Metaphor plays a crucial role in language acquisition (Rumelhart, 1993) and metaphoric language fosters understanding in learning theory (Mayer, 1993). Not all studies have shown positive results for metaphor and understanding, but dissenters are rare (for example, see Williams & Dwyer, 1999).

There is ample evidence that metaphor can be taught (Castillo, 1998; Egan, 2001; James, 2002) and a host of authors promote their use (Mayer, 1993; Petrie & Oshlag, 1993; Cook-Sather, 2003; Pugh et al, 1997; Harris, 2001). Several authors suggest teaching metaphor to children even as young as 3 (Wilson, 2002; Egan, 2001). As Hung says, “metaphorical ideas are inherently pedagogical” (2002, p.199).

Metaphor’s Pitfalls

Criticism of metaphor is not new. Locke denounced figurative language as misleading (Goatly, 1997). Aristotle was wary of metaphor’s inherent ambiguity and obscurity. He “urged that a clear distinction be made between genuine definitions and metaphors” (Ortony, 1993, p.3). Since metaphor is so widely used now, it seems wise to follow this council from the past by reviewing the pitfalls of metaphor. By pitfalls, I mean the conditions that cause metaphor to fail in its educational goal to increase understanding and recall of a concept. There are a number of conditions that may cause metaphor to fail. I have not found a complete treatment of these in the literature, so I propose four here: vagueness, weakness, confusion and over-simplification. The first three relate to quality of imagery, the fourth, to quality of fit. I define each with illustrating examples from the cognition literature.

Vagueness

Vagueness remains a principle criticism of the Schema theory of knowledge acquisition (Reynolds, 1996). Schema theory describes packets of knowledge with various characteristics. This vague metaphor does little to help transmission and recall of this concept.
Weakness

Sternberg calls his *Triarchic* theory of Intelligence a *systems metaphor* (1990). Although he suggests that “vested interests” will be the greatest obstacle for general acceptance of his theory (1999, p.311), I think Sternberg’s weak choice of metaphor is the greater obstacle. The metaphor, *triarchic*, refers only weakly to his theory’s three categories of intelligence. In contrast, Gardner’s theory of *multiple intelligence*, also described by Sternberg as a *systems* metaphor, has a clear, self-explanatory title and has had no trouble gaining widespread support. Elsewhere, Cook-Sather’s metaphor for education: *translation* (2003) is well conceived but qualifies as weak because it conjures up little useful imagery.

Confusion

In Salomon and Perkin’s knowledge transfer metaphor (1989), *High road* and *low road* are used without any analogue in concrete terms. There is no obvious reason for calling one *high*, the other *low*. Their metaphor adds confusion. *Forward* and *backward-reaching* subsets of high road transfer suffer the same difficulty. The whole set of terms defies accurate recall.

Over-simplification

*Synaptic pruning* and *critical windows* are popular concepts in child development. Bruer (1997) decries the misapplication of basic neurological research that led to these powerful over-simplifications. Synaptic pruning was drawn from study of neuron density in infant Rhesus monkeys. Having the metaphor applied inaccurately to human infant development is a testament to its simplistic appeal.

Framing

The key feature of metaphor, both troubling and useful, is its ability to obscure some aspects of a concept and highlight others (Schon, 1993; Petrie & Oshlag, 1993; Lakoff & Johnson, 2003; Goatly, 1997, Cook-Sather, 2003). Like a well-tailored suit, a good metaphor will show off the things you want and hide the ones you don’t. Schon’s (1993) metaphorical term *framing* conjures up a useful image for this effect. We see only what’s in a frame and are completely unaware of what may be outside of its boundaries. Framing is the process by which metaphor introduces its perspective.

> “Things are selected for attention and named in such a way as to fit the frame constructed for the situation…. [The process will select] for attention a few salient features and relations from what would otherwise be an overwhelmingly complex reality” (Schon, p.146).

There are three possible outcomes when a concept is framed:

1- The user does not recognize the possibility or the effects of frame: The *invisible frame*.
2- The user may understand the frame but does not inform the audience of its effects: The *one-way frame*.
3- The user recognizes and makes explicit the limitations and effects created by the frame: The *obvious frame*.

I have chosen examples of each from education psychology and cognition literature:
Invisible Frame

Tuovinen and Sweller (1999) use cognitive load theory in the design and interpretation of their experiment on learning a database program. They interpret all results from the cognitive load perspective. They entertain no other possible explanations. They do not see the frame. Pintrich (2000) espouses a quadrant view of educational research, whereby the whole of research is distributed into a four by four matrix based on goals of scientific understanding and usefulness. Pintrich suggests that much of it should strive to fit in Bohr’s and Pasteur’s quadrants (concentration on scientific understanding with or without usefulness). There is no suggestion that the matrix might be constrictive. Pintrich does not see the frame.

Schraw and Moshman (1995), in their work on metacognitive theories, encounter difficulties explaining group solutions to Mason’s 4 card problem. Three factors they have chosen: peer interaction, cultural learning and individual construction; do not provide an explanation for groups solving the problem more readily than individuals. Framing the problem from a complexity perspective would have produced a more satisfying solution, namely the concept of emergence (Johnson, 2001).

Bruer (1997) goes to great lengths to reverse the misconceptions arising from powerful metaphors around child development. The powerful metaphorical expression developmental window is so tenacious, one wonders if there is any hope of reversal. Bruer is trying to make the frame visible to the rest of us.

One-Way Frame

In Gardner’s review of cognitive science’s computer metaphor, he states: “belief in their relevance as a model of human thought is pervasive…. In practice, they attempt to factor out these elements [affect, context, culture and history] to the maximum extent possible” (Gardner, 1985, p.41). Cognitive theorists may be aware of the frame and its exclusions, but I think that most followers of Cognitive Science are not. When taking this perspective on cognition, they remain simply unaware of affect, context, culture and history.

Obvious Frame

Examples of completely obvious frame metaphors are rare. Perhaps tellingly, I could not find a straightforward example in the cognitive science literature of an original theorist or researcher who made explicit the necessarily biased perspective of their chosen approach. Secondary reviews were more useful. Hidi and Harackiewicz, (2000) not only note the framing problem in motivation and goal theory (though they don’t call it that), but try deftly to undo the misconceptions created. For instance, they decry the polarization implied in terms like intrinsic and extrinsic motivation or mastery and performance goals. They point to the demonstrated inconsistencies of such an approach and to the barriers thus raised to future research. In a rare example of frame-awareness, Schwartzman (1977) creates a well-crafted gaming metaphor for education. In discussing his theory, he refreshingly states that “every metaphor has its limits” and details these (p.14).

Metaphors for Education

In Movements of Mind: The Matrix, Metaphors, and Re-imaging Education (2003) Cook-Sather describes production as a metaphor that has dominated approaches to education. The implications of this framing include teachers ‘supervising production from outside’ with no place or incentive to see that learning is meaningful or satisfying. Cook-Sather seeks to free our minds from constraining frames like “Education is production…. Learning is acquisition…. A teacher
is a scholar” to less restrictive ones like “Education is growth…. Learning is participation…. A teacher is an artist” (p. 965-969). She makes a strong argument for “seeking, crafting, and embracing metaphors that cast students not only as active participants in their own education but as the principle creators of their education and themselves” (p.946). Here is one example of her wonderful metaphors for teacher:

“A teacher is an artist. The artist knows what it takes to fashion works whose form and structure are holistic and unified (Dewey, 1934, p.6). An artist is someone who sees the all-overness of their process and who knows how, through that process, to create a new image (Burnaford & Hobson, 2001, p.232). Gage (1978) writes of teaching as a practical art which calls for intuition, creativity, improvisation, and expressiveness – a process that leaves room for what is implied by rules, formulas, and algorithms (p.15). Art embraces both sensory and intellectual dimensions of the human mind. One teacher who sees herself as an artist states that in her classroom the air is full of possibilities; within such a classroom, a teacher must be comfortable with ambiguity and flexibility (Burnaford & Hobson, 2001, p.233). Teaching, writes another teacher, is an art full of subtle nuance (Rachel Allender quoted in Allender 2001, p.125). Words such as holistic, all-overness, intuition and possibilities highlight the indeterminate nature of this metaphor. An artist disturbs, upsets, enlightens, and he opens ways for better understanding (Henri, 1923, p.15)” (Cook-Sather, 2003, p.969).

Not only does she help us to understand the old metaphors that have framed our system, Cook-Sather invites us “to make conscious the metaphors that inform our thoughts and actions, discern the realities we construct for ourselves and for others, and imagine the possibility of changing those” (p. 946). What better invitation to next, examine our society?

Metaphors in Society

“The essential difficulties in social policy have more to do with problem setting than with problem solving…. The framing of problems often depends upon metaphors underlying the stories which generate problem setting and set the directions of problem solving” (Schon, 1993, p.138).

George Lakoff “got tired of cursing the papers every day” (2003) and decided to do something about the way he saw the media representing conservative and progressive ideas. His Rockfield Institute has a lot of ground to catch up. Republican money has been pouring into ‘think-tanks’ for many years. Lakoff employs Schon’s concept of framing. Conservative ideas are framed by a model that Lakoff describes as the strict father. Protection and punishment are valued, laziness and dependence reviled. Within this frame, cuts to social security make sense, so does preemptive war. The most dramatic effect of this frame is death that results from war. According to Lakoff (1991), here are some of the metaphors that can kill: Hussein as sitting on our economic lifeline, having a stranglehold on the economy, the occupation of Kuwait as rape and the US there to protect freedom.

Lakoff is working at a counterbalancing progressive model: the nurturing parent. Support and fairness are prized. Within this frame, conciliation makes sense, so does welfare. The trick is not to argue within the other camp’s frame, where your points don’t make much sense, but instead to change the frame to your own, where your points seem like obvious truths.
If politicians are drawn to this idea, you can be sure that advertisers have been there for years. In this month’s Maclean’s magazine IBM advertises a business called: On Demand. It centers on a picture of a helpless office worker looking up at a mess of computer wires dangling through the ceiling. “We see through complexity” The frame: computer systems are complex. That’s bad. Once inside this frame, who could argue with the need for expert help that sees through complexity? What if you changed the frame? Say linked computers are capable of amazing things, the more complex, the better. In this case, you don’t want to decrease the complexity!

Big drug companies enjoy higher profits than any other industry (Angell, 2004). They consistently spend about 35% of sales on marketing. How do they advertise? A glance through the December, 2004 issue of Canadian Medical Association Journal shows 12 of 18 using striking visual metaphors to sell their products. For example, chronic anxiety is portrayed as a woman, brow furrowed, head swarmed by bees. The relieving medication (facing page) reproduces the woman, only younger, more attractive and happier (and free of bees, of course).

Big companies advertise with visual metaphor because it’s effective. It frames products as unquestionable good sense. Political parties will hire George Lakoff to frame their views for the same reason. He’ll frame their views as unquestionable good sense.

So, what if you’re not a politician or a drug company executive but you want to change social policy? This is perhaps the most compelling area for metaphor/frames. Recently, I heard Steven Lewis, an accomplished speaker and the U.N.’s special representative for HIV/Aids, say that he could not find a way to express what it felt like to see a country’s people decimated by a treatable disease. When I heard him reaching for tired analogies, I wish I could have told him to use the metaphor that Bono used when he spoke about the same issue last year: “The continent is burning, and the world is standing by … watching”. Imagine if our leaders adopted this frame. Wouldn’t we be compelled to respond, to react?

Conclusion
I have traveled a long way with metaphors in writing this paper. I now appreciate them as ubiquitous and vital to our understanding of abstract concepts. I see that their use should be fundamental to education but the field’s literature may not yet reflect that understanding. I am troubled that many theorists and researchers use metaphor unconsciously, insufficiently aware of pitfalls and of the problems of invisible and one-way framing. But I am hopeful. I draw strength from Cook-Sather’s frame-shifting perspectives on education, from her enlightened, truly refreshing new metaphors for teaching and learning. I am heartened by George Lakoff’s foray from academia into politics, and I know, as surely as framing appeared in the Globe and Mail after the recent US presidential elections, that his efforts will result in more support for progressive policy. Mostly, I am left with the certainty that by recognizing, questioning and re-framing social issues, we have the power to change the world. Yes indeed, metaphors can kill. But they can equally bring new meaning, hope and life!
References


