False Trees and Missing Teeth

> "Daddy, if I don't get new teeth, couldn't we just plant a few, like you plant a little tree? Wouldn't they take root like a tree, Daddy?"
>
> *(Pixie, 16/25-17/4)*

In the passage above, Pixie is trying to set her mind at rest about whether her teeth which are coming out will be replaced by new ones. And, if they aren't, can they be replaced by others planted in their place. She asks about this in the form of an analogy in which the two terms are teeth and trees. It is clear from her analogy that the process of the growing of teeth is a mystery to her, whereas the growing of trees is not. She makes the hypothetical relationship between the two terms in an effort to understand the unknown or mysterious term.

Max Black, in *Models and Metaphors,* offers us analogue models as one type of model used to understand something more fully. Unlike replicas or scale models, whose point of connection is identity, analogue models are reliable or not in reproducing a relationship.

> An analogue model is some material object system or process designed to reproduce as faithfully as possible in some new medium the structure or web of relationships in an original ... The analogue model ... is a symbolic representation of some real or imaginary original, subject to rules of interpretation for making accurate inferences from the relevant feature of the model ... *(p. 222)*

If we go back to Pixie's model, we see that she is asking if the way a tooth grows is the same as the way a tree grows. If it is, can they plant a tooth in her mouth like they can plant a tree in the ground? Closer examination shows similarities between teeth and trees which makes an inference about their ways of growing not implausible.

The most important similarity is that they both have roots which function to bring nourishment to the living structure above. Secondly, they both appear to be in holes, or perhaps more accurately, when pulled up they leave holes in the substance in which they rest. They are similar in their starting small and growing to a larger size. Children are frequently told if they don't brush their teeth, moss will grow on them — trees have moss or other green life growing on them, so that this makes them similar. All of these may have contributed to Pixie's drawing the inference she does. The question then, in evaluating the aptness of the analogue model is the relevant feature, in this case — plantability and growth. If, in this respect, teeth and trees are similar, then it is a good analogy which serves to show us something more about the nature of teeth.

> The remarkable fact that the same pattern of relationships, the same structure, can be embodied in an endless variety of different media makes a powerful land a dangerous thing of the analogue model. The risk of fallacious inference from inevitable irrelevancies and distortions in the model are now present in aggravated measure ... analogue models furnish plausible hypothesis, not proofs ... *(p. 224)*

In answer to Pixie's analogue model her father offers her another the lizard's tail — which seems to be more apt because its relevant feature — the way in which the lizard's tail regenerates — seems more like a tooth when lost than a tree when uprooted. In offering an alternative hypothesis he makes clear the fallacy in hers.

There is great potential to mislead in Pixie's question, posed in the middle of the night and obviously the source of emotional disquiet. Her father could have assented to calm her, and in the process allowed her to infer fallaciously. His offering her an alternative allows her to wonder and to inquire further.

There are two aspects to be considered for the classroom in this passage from the novel: one, the opportunity to examine an analogy, and two, the chance to see how it goes wrong. Pixie's analogy provides children the experience of reasoning with her. Discussion can reveal the nature of her comparison and exploring the possibilities of making others through analogies. There are many things about the world children are just beginning to understand — with limited vocabulary they may be at a loss to describe them exactly. The skills of reasoning by analogy open up a new avenue for understanding and expressing meaning.

Examining just how Pixie's example does not work allows children a way of learning the nature of an analogue model. They will be quick to see where it is incorrect and therefore be able to see how it ought to work. They will learn the importance of aptness in their own comparisons. Although it is true that one thing is like another, in what relevant way is its structure or system or functioning similar? This focus will help children formulate accurate analogies.

Trying to create counter-analogies like the one Pixie's father suggests, leads to expanded meanings. This process of analogy-making is one of the building blocks in thinking which is critical. It also contributes to strength in argumentation. The ability to see the relationship put forth, and then to judge whether one has inferred correctly is an essential aspect to a valid argument.

Brian Lamb

References

Black, M. *Models and Metaphors.* New York: Cornell University Press, 1962.

Lipman, M. *Pixie.* New Jersey: First Mountain Foundation, 1981.