

Notes for a conversation about learning, making and imagination

Paul Tatter, Exploratorium, San Francisco, June 17, 2011

I think that we can make no useful distinction between making and learning. Learning seems often to be assumed as something that concludes in knowing. And in our obsession for efficiency in education, we just try to skip to the end. So knowledge has become a thing that learning is about, and we have created the artificial situation in which we think there are knowers, and prospective knowers, separate from something to be known.

Knowing may be described as an attitude of presumption or of relationship with regard to things engaged in our activity, and knowledge is just whatever is not called into question, but used as a basis for action, in some situation. Another way to say this is that knowledge is a habit of action, so knowledge is more about what can safely be forgotten than what can be remembered. On the other hand, learning is a habit-breaking activity, and simply remembering does not achieve this. Young children have the charm of not yet being habit-bound.

Learning consists in some adjustment in life activity, some change in behavior with some personal risk that happens in collaboration with some concomitant adjustment or change in the environment and some change in the objects that are used or that participate in the activity. Learning is change in relationships with things, others and oneself. Because learning is a transaction of give and take among these constituents, its outcomes are always unpredictable. Learning outcomes cannot in fact be known before they occur.

I think that making is the same as this, except that making is described from the standpoint of what is made. We acknowledge this in the ways we refer to making. For example, we make things, but we also make sense, make time, make music, make love, make a living, make war, make jokes, make fun, make friends, make nice, make over, make up, make out, make way, and make do.

I am inclined to think of understanding as the appreciation that comes from having made something, in the broad senses of making. So let's make something, and attend to the qualities of our experiences in doing so.

Imagine that these straws are two-dimensional. Please make a flexible, three-dimensional object using string and scissors and all the straws in the baggie. [Wait 5 minutes.] Now please dip your three-dimensional objects into the bubble solution. [Wait 5 minutes.]

Bubble film is always surprising. I think it is fair to say that the straws and the bubble film and you are engaged in a conspiracy to do something, and that understanding resides in these moments when we are not making distinctions between the objects and ourselves. So our understanding of the straw structure is

different from our understanding of the bubble film. In fact, there is something about the bubble film that we never seem to understand. The content of our understandings of anything resides in what we have done with it. Its content is embodied in our own behavior with the behavior of the things around us. Understanding is dependent on making.

It is distressing to me that the Lincoln Center Institute has identified creative and imaginative thinking as something to be added to school curriculum. In a natural world these would be unquestioned aspects of learning. We would know this. Having to think of them as separate things means that education is already deep into crisis. In a natural world thinking is an unremarkable activity and probably always occurs for any living organism during an inhibition of a course of action.

Thinking is an opportunity for representing something as a sign. All organisms respond to signs of life, and being alive implies some sort of semiotic. The essential characteristics of life determine the conditions of learning and include, besides thinking and a semiotic, some sort of phenotype (a currently present organism that can make itself problematic), some developmental pathway with a life span, some experience of at least the replacement of one feeling by another, and some forgetfulness. These at least need to be accommodated in human learning environments and learning experiences.

Imagination is an experience of the future and the past coming together in an extended present. Imagining is the not-present in the present. Most of what is imagined is not known. It is a confluence of how we represent the future and the past in a single activity in the present. Imagination probably requires signs of some sort, but not necessarily symbols or language. Imagination can be banal as well as exhilarating. But it is nothing special. It is essential in representing something by and with another thing.

Creativity is usually unintentional and unexpected. Unlike imagination, creativity is an experience of the coming together or intersection in activity of two or more perspectives in nature, or two or more points of view in a situation, belonging either to another person, or to an object collaborating in the creation, or to the environment at the time.

What's the use of these ideas? Well, if knowing is an attitude and knowledge is what is not questioned, then education would attend much more to what is felt, unknown, unexpected and open to question. If creativity is experience of what happens when different perspectives meet, then education would attend much more to sharing perspectives. If imagination is experience of what happens when future and past meet in the present, then education would attend much more to the value and quality of the present and of being there. If learning is making and changing relationships, then education would attend much more to providing things to make with, and to the new relationships that are made.