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**** In the Foreword to Mindstorms, Papert talks about his childhood fascination with gears. Describe an object from your childhood, and explain why it was important to you (then and later).***

In grade 5, my teacher taught us how to identify a tree from it's leaf. To begin with I had an interest in nature so it wasn't difficult to get me interested in his lessons. Later on I found a book in the library about tree identification. Each page had a magnified picture of the leaf with a picture of the tree in full bloom in the background so that in addition to the leaf, the tree shape, color, and other identifying attributes could be looked at and used to identify trees. This book helped me explore the activity of identification of trees by myself. The independence that this book gave me in my learning then, taught me to value books as a rich resource for independent learning.

**** What idea (or passage) in Mindstorms was most provocative, intriguing, or surprising for you?***

I think the most provocative idea that I read was in chapter 2. Papert gives some thoughts on how to revolutionize how kids learn. He criticizes research that consists of observing the minutiae of classroom teaching and learning. He throws out that the automobile was not created by studying each detail of the horse-drawn carriage and fine-tuning this or that such as optimizing the axle size. He challenges the user with the question "how can we make the educational automobile"(pg.44). He continues by giving a clear example of why the fine-tuning method needs to be revamped in the teaching of math. The abstract math curriculum such as drawing graphs of equations that have no context (ie. y=x**2) was established because long time ago, the education given was constrained by paper and pencil and abstract equation graphing as well as other abstract concepts were the most easily taught with these materials.

The most surprising thing I read was in chapter 3. Papert discusses his experiences with grade seven aged children who played with the math software Turtle. He presents his findings and gives the following observations:

1. For most children these numbers have to be explored, and doing so is an exciting and playful process (pg.57)
2. The recursion concept (and I think he meant the subroutine), evoked the most excitement from the children (pg. 71)
3. In the classroom when children are taught "5+x=8, what is X", this is irrelevant to their lives, however with LOGO it is inferred from what he says that many more problems encountered are personally relevant such as how to make a spiral.

I thought all of his observations were surprising. I of course haven't done any experiments with learning nor do I know any theory or for that matter much practice either, but I find it hard to believe that most kids would be excited about recursion or about manipulating the numbers in the unentertaining TURTLE interface or creating a spiral, relevant to their lives.

**** Mindstorms was written nearly 25 years ago. Which ideas in the book stand the test of time? Which ones don't?***

Ideas that have stood the test of time:

1. Don't continue to do the same thing if there is a better way to do it ie. educational automobile
2. Contextualize the lessons taught
3. Using old knowledge to build new knowledge

Ideas that have not or I am uncertain if they stood the test of time:

1. Make the thing you want taught a part of the natural learning environment. He talks about how children only learn how to find all sets of possible bead colors on a string until 7/8 years of age, not because they have yet to develop the physiological mechanism but because our culture lacks a rich language involving sets that are more complex than pairs (ie.nested loops). I'm not sure if this is true (ch.1 pg.22)
2. The idea that there is more than one path in the brain to learn math or language. And derived from this is the idea that some kids just don't get math, or language etc. and this is mostly the fault of how it is taught (ch.2 pg.46)