



Philosophy of Learning

I want children to reinvent the wheel.

Of course, they are going to reinvent it anyway as part of their own learning experience. But they will do so all the more richly if wheels and talk about wheels and interest in wheels are well represented in their learning environment . . . and, above all, if the significant people in their lives sincerely believe in them as discoverers.

A full appreciation of children as inventors does not come easily. In my book, *Mindstorms*, I wrote about how reinventing gears and making my own theories about these particularly wonderful wheels helped me grow up to be a mathematician. But it took me half a lifetime to arrive at that appreciation of my own experience, and the process is by no means over. Every day still brings new insights into my own learning and with it the joyous sense of deeper empathy with other learners.

You can learn a lot about inventing and about learning by observing children. But to go further you have to jump in and do it yourself. What is most wonderful about the LEGO materials is that they allow everyone, young or old, naïve or sophisticated, boy or girl, to use the same stuff as a medium for invention.

Why not pursue your own reinvention of the wheel? Think of all the questions you can ask. Why do some vehicles have four wheels and some three and some two? Or one? What good are wheels anyway? They make the cart easier to pull . . . but why? How could any one person know all the answers?

Or, think about the many different kinds of wheels. In the LEGO materials, there are just plain wheels, gear wheels and pulley wheels. All these make things move, but there is also a black and white sectored wheel for measuring motion rather than making it happen.

Then think of the wheels you can build: ferris wheels, waterwheels, paddlewheels, steering wheels, flywheels and the kind of activity wheel people put in a hamster's cage. Don't you think you might reinvent some more?

You may discover for yourself that, like a wheel, learning can go on and on. Or, even better, your students might help you make this discovery together!

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