INTELLIGENT ROBOTS ABOUT TO START SCHOOL

Valiant Technology's Dave Catlin has been designing educational robots for 25 years. He believes we are about to see robots step out of the pages of science fiction and into our classrooms.

What do you mean by "intelligent" robots?

A robot that can interact with students in a way that provides a valuable learning experience. Traditionally, students program robots like Logo Turtles to solve a problem. They learn by doing. Logo-type robots simply do as they are told. You can use our new Roamer® like this but you can also interact with it in more natural ways than programming. For example, it can talk to you and you can talk to it.

Can you give me a practical example of this?

Students find it difficult to grasp the size of the Solar system. In one Roamer activity, the distance between the Sun and Mercury is set out to scale. The students then stand where they think the other planet might be. Roamer travels from the Sun naming each planet as it passes. The students get the chance to adjust their positions as the Roamer reveals the position of the next planet. Yet they never get it right; they're amazed as the robot just keeps going on and on. Their interaction is visual and they get an emotional sense about the vastness of space that they cannot get from looking at data or a model on a computer.

How does it help my students get better test scores?

One activity helps with negative number arithmetic. Rote rules such as two minuses are a plus are meaningless. Roamer helps students understand the idea from the perspective of difference. Once they grasp this, difficulties with negative number arithmetic disappear. Roamer helps them develop visual, spatial and kinaesthetic models of ideas: it provides them with experiences you can talk about and mental models you can build on. They learn by understanding, not just remembering.

What grades is it for?

Pre K-12: Activities range from helping young students learn to read to helping High School students understand calculus. It is a very versatile tool that supports personalized learning. It has a lot of potential in Special Education.

How is this different from Lego?

You need to build Lego robots. You use this robot. You can change the way it acts and looks to suit the subject and activity; you don't build it, you reconfigure it. You can use it as a base platform for constructing a robot using Lego, K'Nex or other things. The main aim of the product is not learning about robots, but using robots to learn.

This sounds great, but what is the cost?

The basic cost is around $180. The system is modular, so you can buy what you need when you need it. The main thing is the activities. Most of these are free and open source. Online training is also free. This makes the total cost of ownership very reasonable.