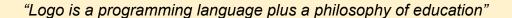# What is Logo? And Who Needs It?

by Professor Seymour Papert

*Extracted from **Logo Philosophy***
http://www.microworlds.com/company/philosophy.pdf
(adapted for Code to Learn)

What is Logo?

I have myself sometimes slipped into using an answer given by many Logoists in the form of a definition:

"Logo is a programming language plus a philosophy of education"

...and this latter is most often categorized as "*constructivism*" or "*discovery learning*."
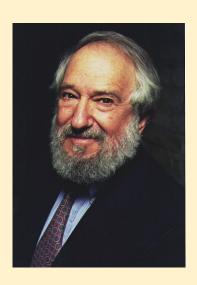
But while the Logo spirit is certainly consistent with constructivism, there is more to it than any traditional meaning of constructivism and indeed more to it than "education." The right answer to "what is Logo" cannot be "An X plus a Y." It is something more holistic and the only kind of entity that has the right kind of integrity is a culture and the only way to get to know a culture is by delving into its multiple corners.

Right or Wrong Answers?

Logoists reject School's preoccupation with getting right or wrong answers. What others might describe as "going wrong" Logoists treat as an opportunity to gain better understanding of what one is trying to do. Of course rejecting "right" vs. "wrong" does not mean that "anything goes." Discipline means commitment to the principle that once you start a project you sweat and slave to get it to work and only give up as a very last resort. Life is not about "knowing the right answer" – or at least it should not be – it is about getting things to work!

"*…Of course rejecting "right" vs. "wrong" does not mean that anything goes."*

The frame of mind behind the Logo culture's attitude to "getting it to happen" is much more than an "educational" or "pedagogic" principle. It is better described as reflecting a "philosophy of life" than a "philosophy of education." But insofar as it can be seen as an aspect of education, it is about something far more specific than constructivism in the usual sense of the word.

Constructionism

The principle of getting things done, of making things — and of making them work—is important enough, and different enough from any prevalent ideas about education, that it really needs another name. To cover it and a number of related principles (some of which will be mentioned below) I have adapted the word constructionism to refer to everything that has to do with making things and especially to do with learning by making, an idea that includes but goes far beyond the idea of learning by doing.

I want to emphasize here what might for educational decision-makers be the most important difference between the "n word" constructionism and the "v word" constructivism. The v-word refers to a theory about how math and science and everything else is learned and a proposal about how they should be taught. The n-word also refers to a general principle of learning and teaching, but it also includes a specific content area that was neglected in traditional schools but which is becoming a crucial knowledge area in the modern world.

"...what do citizens of the future need to know?"

Choosing constructivism as a basis for teaching traditional subjects is a matter for professional educators to decide. I personally think that the evidence is very strongly in favor of it, but many teachers think otherwise and I respect their views. But the constructionist content area is a different matter. This is not a decision about pedagogic theory but a decision about what citizens of the future need to know. In the past most people left the world only slightly different from how it was when they found it. The rapid and accelerating change that marks our times means that every individual will see bigger changes every few years than previous generations saw in a lifetime. So this is the choice we must make for ourselves, for our children, for our countries and for our planet: acquire the skills needed to participate with understanding in the construction of what is new OR be resigned to a life of dependency.

Teacher as Co-learner

A crucial aspect of the Logo spirit is fostering situations that the teacher has never seen before and so has to join the students as an authentic co-learner. This is the common constructivist practice of setting up situations in which students are expected to make their own discoveries, but where what they "discover" is something that the teacher already knows and either pretends not to know or exercises self-restraint in not sharing with the students. Neither deception nor restraint is necessary when teacher and student are faced with a real problem that arises

naturally in the course of a project. The problem challenges both. Both can give their all.

"...join the students as an authentic co-learner"

I like to emphasize this last point by the following analogy. The best way to become a good carpenter is by participating with a good carpenter in the act of carpentering. By analogy the way to become a good learner is by participating with a good learner in an act of learning. In other words, the student should encounter the teacher-as-learner and share the act of learning. But in school this seldom happens since the teacher already knows what is being taught and so cannot authentically be learning. What I see as an essential part of the Logo experience is this relationship of apprenticeship in learning. Logo, both in the sense of its computer system and of its culture of activities, has been shaped by striving for richness in giving rise to new and unexpected situations that will challenge teachers as much as students. In so doing, the Logo culture approaches teachers as intellectual agents.

Technology as both: Informational Medium and a Constructional Medium

It is important to recognize – only slightly simplifying a complex issue—two wings of digital technology: technology as an informational medium and technology as a constructional medium in which garb it is more like wood and bricks and steel than like printing or television. Of course the two wings are equally important; but popular perception is dominated by the informational wing because that is what people see and ceaselessly hear about and that is what reflects the predominant role of informational media in their lives.

"education...is about doing things, making things, constructing things…"

This one-sidedness in perception of technology has produced a deep distortion of how people think about its contribution to education. This has happened because education itself has two wings that also could be called "informational" and "constructional." Part of learning is getting information that might come from reading a book or listening to a teacher or by visiting sites on the Web. But that is only one part of education. The other part is about doing things, making things, constructing things. However here too there is an imbalance: in large part because of the absence of suitable technologies, the constructional side of learning has lagged in schools, taking a poor second place to the dominant informational side.

Before making my final point let me review some of the features of the Logo culture that I have mentioned in relation to the chapters of this book.

- The Logo programming language is far from all there is to it and in principle we could imagine using a different language, but programming itself is a key element of this culture.

- So is the assumption that children can program at very young ages.

- And the assumption that children can program implies something much larger: in this culture we believe (correction: we know) that children of all ages and from all social backgrounds can do much more than they are believed capable of doing. Just give them the tools and the opportunity.

- Opportunity means more than just "access" to computers. It means an intellectual culture in which individual projects are encouraged and contact with powerful ideas is facilitated.

- Doing that means teachers have a harder job. But we believe that it is a far more interesting and creative job and we have confidence that most teachers will prefer "creative" to "easy."

"...contact with powerful ideas is facilitated…"

- But for teachers to do this job they need the opportunity to learn. This requires time and intellectual support.

- Just as we have confidence that children can do more than people expect from them we have equal confidence in teachers.

- We believe in a constructivist approach to learning.

- But more than that, we have an elaborated constructionist approach not only to learning but to life.

- We believe that there is such a thing as becoming a good learner and therefore that teachers should do a lot of learning in the presence of the children and in collaboration with them.

- We believe in making learning worth while for use now and not only for banking to use later.
- This requires a lot of hard work (we've been at it for thirty years) to develop a rich collection of projects in which the interests of the individual child can meet the powerful ideas needed to prepare for a life in the twenty-first century.

My belief is that the Logo philosophy was not invented at all, but is the expression of the liberation of learning from the artificial constraints of pre-digital knowledge technologies.

"...teachers should do a lot of learning in the presence of the children and in collaboration with them."