

**BRICOLAGE**

Robert Sheehan lent me a book<sup>1</sup> by Seymour Papert, drawing my attention particularly to his partiality for "bricolage". I read some of it, and this was my reaction. It is not to be taken too seriously, but neither is it to be dismissed out of hand.

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Date: Fri May 4, 2001 1:17:16 pm Pacific/Auckland  
To: robert-s@cs.auckland.ac.nz  
Subject: bricolage

I have studied bricolage (and some other things) in the set text, and I thought it a good idea to convey my thoughts while I still had them but I didn't. This is the morning after; perhaps I can still recall the important points, but some of the more extreme reactions are now muted.

I am coming to a metaconclusion, which is that Papert is very consistent, in that he not only advocates bricolage but uses it as his machinery for thinking. We all do to some degree, perhaps, and he's right in his observation (somewhere I haven't written down references) that scientists don't work by science. They never did, and anyone who's really done it knows that; if you could work by science you'd know the answer before you started. You work by passion and guesswork and trying things and toying with ideas and looking for patterns and so on but then you write it up as though it had been an exercise in pure logic because it is important that the pure logical argument is there, and indeed it's the thing you were trying to find (or perhaps it isn't, but it's worth recording in its own right), and also because the discipline of the logic forces you to consider other possibilities which you might be tempted to ignore. Nobody cares how you got there (short of stealing it from someone else) but what we want to know is that there's a rational way to get there so no one else has to repeat your rambling and incoherent journey ever again.

Returning to the point from my rambling and incoherent prose, Papert either doesn't see the point of the last step, or he's happy sometimes to ignore it. I think I said a day or two ago that I was annoyed by his way of not thinking things through; with bricolage, you don't have to, because once you've got a thing that does what you want you can stop. You are not required to look at the general case or exceptional cases or other points of view. Debbie<sup>2</sup> arrived at the conclusion that you can use fractions with everything, at which we are all delighted and hope she won't forget it (and rather hope she goes on a bit further to work out that you can use lots of things for everything, and that it's a good idea). Seymour has arrived at the conclusion that you can use bricolage for everything, and he's wrong.

I do a lot of bricolage. I've done quite a bit in the last two days, and my books are now on shelves in a reasonably orderly way, I've solved one of my Word problems, I can use Unix, and there were a couple of others which I noticed at the time but I've forgotten. Apart from that, I do a lot in odd jobs round the house and the church, in which I've learnt that you can do surprising things with old plastic sheet, bits of bicycle inner tube, and rusty gas pipes, which happen to be three resources with which I am blessed. Fencing wire is the same principle. But you end up with a collection of curiosities unless, like Debbie, you can bang away at it for a long time, when you get into the scientist's position and occasionally achieve insight. I do just about enough with my collection of rubbish to begin to generalise, but I haven't time or motivation to do that with Word, and the odd facts I learnt will soon disappear, leaving me no better off.

Computer science does it too, and you will doubtless recall that I've moaned about this before. For example, there is some lip service to the general notion of programming, but then THE current language is presented as the way to do it. This is getting uncomfortably close to Papert's caricature of School<sup>3</sup>, and I agree with at least some of his criticism of the caricature. The other big one is (of course) operating systems, and you know about as much as I do about my views on that. I can thank Papert for revealing to me that the "standard OS course" is a masterpiece of bricolage. I recall my dismay at your demonstration that the standard course was not derived from a bottom-up analysis of the problem, which I thought honourable though flawed, but pure superstition and folklore.

Bricolage is all very well if you just want to get things done, but has its dangers. (We have demonstrated repeatedly that sacrificing a virgin reliably drives away an eclipse of the sun.) It also takes a very long time. I have assumed that the point of school is to give one a short cut to more general insights which other people have achieved, and which one has a much better chance of remembering than a lot of rules. I think it's a bit sad that people then condemn the insights as "just a lot of rules" and that people like my Derby Engineering Apprentices<sup>4</sup> clamour for the rule without the insight. Perhaps it's because the schools are not doing their jobs very well; perhaps it's because people's expectations of schools are not very realistic; perhaps it's because people are not all the same. I don't know the answer, and I can't imagine any way to get it by bricolage, though I think you could get somewhere by more conventional means.

I think differences between people are underestimated, partly because it has been trendy to look at politically correct differences (Race, gender, age) and to ignore the real ones. Papert's approach misses out motivation. He does mention Jeff<sup>2</sup>, who started with a top-down analysis, but he thinks that's the wrong answer, so he, bricoleur par excellence, ignores it. I remarked that with bricolage you can stop when you get the answer you want, and there's nothing to push you any further. (In the index, Jeff appears on just four pages, always coupled with Kevin<sup>2</sup>, who is the right answer. Debbie has 20 page references.) It's interesting that "Jeff is precise ... tends to try to impose his ideas ...", while "Kevin's warmth, easygoing nature, and interest in others make him popular" ... and he has "been given the role of Prince Charming". (So THAT's why my life has been so dreadful ....)

Jeff is real. (So is Kevin, but that isn't the point.) Too much bricolage will probably kill Jeff. Jeff is looking for organisation, and connections between things, and he likes them because they're nice, and somewhere deep down and hardly realised because they make the world far simpler in the long run. (Papert can be partial, so can I. I know Jeff pretty well. I have known Kevins too, and some of them have been charming swine.) School (Capital letter only because beginning of sentence) is intended to show the Kevins how Jeff works, because it really is easier and more reliable. Perhaps school doesn't work too well, but I don't think one is justified in concluding that the aim is invalid.

What has this to do with your PhD? Not much more with my spleen. But if I wanted to push a point I'd ask whether both Jeff and Kevin can find something in Icicle<sup>5</sup>. I suspect that they can, but perhaps some convincing arguments, preferably supported by evidence, would be nice.

My French dictionary does not mention "bricolage" or "bricoleur". The closest it gets is "bricoler", which is plausibly the parent verb of both, and defines it as " (Billiards, tennis) to hit a back stroke; (fig.) to cadge, to dodge, to do odds and ends.". The last definition is closest to Papert's sense, but I was interested to observe the somewhat underhand shade of meaning in "cadge" and "dodge". It's an old dictionary (dated 1914 in the preface, and inscribed "To. my. friend G. Creak", who was probably my grandfather) but I've got what I want, and it'll do nicely; I'm sure that a good bricoleur will stop there.

## REFERENCE

- 1 Seymour Papert "The children's machine" rethinking school in the age of the computer" (Basic Books, New York, 1987)
- 2 Identified in the book<sup>1</sup>.
- 3 For Papert, a demon.
- 4 While working at what was then Derby and District College of technology between 1969 and 1973, I was required to "teach" mathematics to a group of pupils known as Engineering Apprentices. They didn't want to know mathematics what they wanted was a recipe for getting the answer, and they were very happy just to learn the formula.
- 5 Robert was working on his PhD; Icicle was the name of one of his products, a programme with which young children could write computer programmes.