

## Constructivist computing for a mathematics learning environment

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With hindsight my proposal of November 2010 was much too ambitious. The context for the proposal was a series of much larger proposals made to JISC, Leverhulme and Nuffield which had included resources (research student or post-doc) for development. These had been made in the period July 2009 – summer 2010. The IATL proposal was really just the ‘evaluation’ phase of those earlier proposals. I had developed the over-optimistic idea that such an environment as I envisaged might not be difficult to build, and could be done ‘informally’. I have seen some models built either by research students, or my colleague Meurig Beynon, in a very short time. However, for many reasons, the learning environment I needed was much more elaborate than I expected. I have come to realise - what I did not then realise – that my vision for the constructive nature of a potential learning environment is actually very challenging indeed. The idea of ‘ingeniously guided discovery’ requires very much more preparation than a conventional ‘delivery’ approach to teaching and learning. So it was not just the technical challenges, and the use of our tools, that was an issue. I was kept going in the hope we might salvage something by the fact of having a very good programmer doing an MSc dissertation - who was keen (at one stage) on developing just such an environment as I needed. However, that did not, in the end, come to happen.

My colleague Meurig Beynon has now developed an environment for exploring simple relationships between vectors which would suit my purposes. I have done a good deal of thinking about how to present material and engage students in the learning of the target domain. There is more to do though and I am cautious about making any predictions as to what may be possible.

I very much regret that I have so little to show for the good will shown me by the IATL panel and in the award of this Fellowship. I should still be very interested to explore if even now we may be able to do some evaluation – perhaps during the coming March and April involving our own students, local teachers, or a panel of ‘experts’.