



EDUCATING THE FUTURE

What is the meaning and the implications of the recent Peter O'Connor A-level GIS text book. Our UK editor Maria Pellegrini, investigates the educational challenges for GIS in the UK.

Charles Leadbeater is a leading authority on innovation and creativity, with an extensive career with government and private companies both in the UK and worldwide. He is an advisor to the Department for Education's Innovation Unit on future strategies for more networked and personalised approaches to learning and education.

GeoConnexion met Charles Leadbeater at the recent OS Terra Future event, where he was presenting, and asked him to comment on GIS as a part of the national A-level curriculum and the potential implications this could have.

Thinking about GIS, what really strikes me, said Charles, is this: the Government set up the Power of Information Review to see how information is used and how to make it available so that people can use public information in a more creative way. Under this review it had a consultation asking the public to propose ideas on what and how they would like to do with it. It has received about 500 responses and a very large number had something to do with mapping... so it is clear that the response of the citizen to this consultation was that they would like to use maps!

This highlights the very high demand for using maps in a structured way. Also do not forget the explosion of people contributing through the web to amend maps. So there will be a new generation of people growing up with skills to create maps and so on. Thus if they can also understand the concepts behind the maps and know how to connect and understand geographic information, an expansion of the national curriculum in this sense will become very important.

But the fact that it is only at A-Level.... GeoConnexion asked. Yes, it

is odd to have something just at A-Level, replied Charles. It would have been better if you had embedded the principle of "thinking geography" much earlier. But then talking about the future of education in the UK, Charles thinks that there will be a continuing push in basic standards: English, Science and Maths... So the fact that we are shrinking the curriculum at lower level perhaps means that there is the need to make Geography and Geographic Information more attractive and be clearer on why it is needed. So the big challenge, he said, is how to make education more personal, collaborative, engaging and less top down and more interactive. This is the big agenda.

There is a big mismatch between two cultures here: the books and the teachers on one hand and the technology on the other. It is a way to deliver education through different mechanisms.

But don't you think, GeoConnexion asked, that the association with Geography is not right in the first place? Yes, it is more important to make these things explicable by what they do rather than the discipline they sit in. It would be interesting to have basic literacy in geographic information, why it would matter and what benefits it would bring because probably it would bring quite significant benefits to future society in which people make highly distributed decisions.

Finally talking about the theoretical pros and cons in this new world of web knowledge sharing, Charles said that there would be a whole range of ways of interacting which will allow professionals to work together and interact with non professionals and for non professionals to interact with each other and so on. We will have a whole range of interactions he concluded and it will be certainly be an interesting time ahead!

So with this high level picture in mind, GeoConnexion talked then to ESRI (UK) Managing Director, and enthusiastic promoter of this new educational initiative, Richard Waite so we could drill down more into ESRI (UK)'s educational initiatives.

“We want GIS to become part of everyday life”

This is a very simple vision statement from ESRI (UK), began Richard Waite and we don't say ESRI GIS, but just GIS to be part of everyday life. We want GIS be used everywhere, to become part of the infrastructure we all use. Almost to become invisible because we are convinced that the power of the technology is such that it could help in so many things. Obviously if we could choose, we would take the opportunity to sell our technology but so would everybody else. So we want GIS to become part of the world around us.

One of the ways to do that is to introduce it to children so that when they finish school, whether they go to university or not, they come to the workplace first of all understanding GIS but also expecting to see it there. In the same way children have grown up with Microsoft Office, they look for word processing and spreadsheet tools, we want them to look for GIS, because they'll know what it can do for them and want to use it. So this is one benefit.

But GIS is only part of the National curriculum for A-Level. We then asked, how is it planned to promote this to secondary or even primary schools?

The fact is that ESRI is aware of how much it can help children to learn. Children these days are much more comfortable in front of the screen than they are in front of a book or a blackboard. Children of this generation really understand computers and are very comfortable with them. So we want to use GIS as a way to help them learn effectively and NOT just in geography. There are very good examples such as The Grammar School at Leeds where they use GIS in geography, biology, history and religious studies because so many of the subjects that are taught in schools have location as part of the subject. And if we can use GIS to bring that to life for many children it will engage them more and they will learn more in schools, so we need to do more

to help children through the power of GIS.

As a company we have committed ourselves to do much more to bring GIS into schools. We are planning a major launch in April that will make GIS much more accessible to teachers and therefore to children.

So, we asked, what is the meaning of the Peter O'Connor book in this context?

The A Level book ESRI (UK) has just produced alongside the Geographical Association is the first A-level GIS teaching resource created for the UK market, said Richard. But it is only one part of the plan that we are putting together. The National Curriculum now requires teaching of GIS across the curriculum from Year 7 right through to Year 13 which is the end of A level. For many schools they are starting at the young end of the age spectrum. It is important we have the text book in place because that is where serious use of GIS is going to happen. But GIS has a role to play right down at Year 7 and possibly Year 6, the last primary school year as well. So we want to introduce it to children as young as is sensible.

We have a business partner called Digital Worlds, and together we built a GIS based on ESRI technology - not called ESRI but Digita Worlds - which is very easy to use. It is an introduction to GIS and has real GIS power behind it. We are happy to promote it to the lower age range. We think that the product will meet the needs of teachers and children from Year 7 up to the top of GCSE. If people want to go further they need more, so this is why we offer ArcView and this is why we have published this book which is a complete guide to the theory and applications of GIS, and includes the software, licensing and step by step practical exercises.

“ESRI (UK) is building an educational infrastructure”

So, GeoConnexion asked, if you need to offer something to schools from Year 7 to Year 13, surely you also need to include the teachers.

Yes, Richard explained, we understand that teachers and children need something simpler than professional GIS. We have been working



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A few Questions and Answers

GEO: It is a big challenge...but what about IT resources?

RW: Schools generally have the IT resources they need either as single PCs or on a network - many have IT labs or at least access to computers. So we don't think this is an issue. What we will be offering is Software, Data, Lesson Plans and Self-learning Materials for an affordable, fixed annual fee which is low enough to be acceptable to schools. (1:32- 0:38). This is for all secondary schools.

GEO: Some people might cynically view this as just being about money.

RW: Everybody is entitled to their point of view. We want to help create a generation of people in the workforce that are looking for ESRI software...of course that would be greatBut what we are doing in the short term is for the benefit of children. We are not expecting this to make money because we are deliberately setting prices to be affordable. We actually believe it will help children by giving them access to technology that will help them to learn. There is a long term benefit to the Company, but it is a very long term benefit so if we were only in it for the money that would be quite a high risk strategy. All of our Company is in fact excited that we will really help children learn.

GEO: It is true though that both children and teachers could contribute to future software development...

RW: It could be because we come to this from an adult, older generation perspective and we all know that children think in a different way. Children could well contribute to the future development products - and their contribution could be very valuable! We want to create a community between schools where teachers can share their own learning and help to make materials available to other teachers through a central repository. We don't want to keep things for ourselves. We want to help the whole schools' community to share and learn together and benefit from each others experience. There is no need to reinvent the wheel...clearly we will need some standards and moderation but we would like to help. If a teacher at one school creates a lesson plan for a new topic, we want to find some way to share it. They may do that locally, but it could be shared nationally. We do not have a definitive plan as it's still early days... but we will have.

GEO: Do you mean a sort of User Group?

RW: We may do this slightly differently - perhaps create a virtual group so that people can share experiences while learning themselves. Not necessarily how to use technology but how to apply it. That is the kind of User Group we want to encourage rather than the more formal consultation group which is what people normally mean by User Group.

with schools for some time now and we have been doing a lot of research recently. We think we understand what it is the teachers need. The point is that we don't want to introduce GIS just to teach geography, because we are convinced it can help to teach other subjects. But teachers are only going to take that new technology if it is very easy for them to use and if it is very relevant to what they are teaching. We have identified that we need to put four things in place. And these are the basic pillars of our infrastructure; if we don't put all four in place teachers won't have the time or inclination to consider GIS.

The first thing is that they have to have software that is easy to install – and we already have this. Secondly, they must have data, so we have put together a very relevant data bundle for them. Thirdly

and most importantly they must have lesson plans which show how the software is relevant to what they are teaching, so we have been investing in building lesson plans which link to the UK curriculum. If, for example, they are teaching a topic about volcanoes they can just take our lesson plan that shows them how to use the software and data that bring the topic to life using GIS. We want to build a library of lesson plans, some of which we will produce, but ultimately it is the teachers who will produce these and contribute them to the library. We want to build an evolving resource centre so that they can download these plans according to what they are teaching in that term and what is available. We want to make it easy to use. The important thing is that we recognise their needs. We realise they are not going to attend a training course to become experts in GIS. They do not have the time or the inclination. We used to think that we should provide training to teachers, but we changed our view. The view of one of the leading teachers at The Grammar School at Leeds is that we need to help teachers to learn just enough to get going in GIS to introduce it to their children. Then the pupils will learn how to use it. This generation is used to computer games and all sorts of things, they will find out how to use the software

“Teachers don't need to be GIS experts – they just need the right resources”

We are in the process of building an easy to consume series of small, self-learning modules which we call “bite sized podcasts” that teachers will be able to click on and it will teach them how to use the functions within the software to teach a particular topic. It is all about self-help because teachers don't have the time or money to spend on training courses; this then is the forth pillar of our approach.

In summary, we are putting together these four elements: Software, Data, Lesson Plans and Self Learning and believe that teachers will be interested and keen to use this technology. But without those, it all starts to fall apart. And back to your previous question, what we offer has to be as applicable at Year 7 as it is at A-Level. Many schools that are starting to use GIS would probably start at Year 7. It makes sense you would not start at A-level! So we want to start teaching at Year 7, but if we can't offer something for A-level no teacher or pupils are potentially interested at the early stage so we need to cover the whole age range.

Conclusion

Richard Waite concluded this first insight into this new exciting initiative by telling us that ultimately, “It is all about Community - , how to build a modern community which obviously means an online community. We have a lot of enthusiasm and a lot of energy we are putting into this and we have put in a lot of resources.

I don't want to say too much yet about what we will launch in April but one thing I can say is that this launch will just be the start. It will be enough for teachers to start teaching using GIS . And over time we want to build and build, particularly resources that we will make available. For us it is not about money, it is about using the power of technology to help children to learn!

**Richard Waite gives a detailed insight into the new launch: Go to: www.geoconnexion.com/geouk_articles.php

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