

Spatially Speaking

**A project by the Geographical Association in
Partnership with BECTA, ESRI UK and Digital
Worlds**

Evaluation report – Year 2

October 2007

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Summary of findings

With specific reference to Spatially Speaking 2006-7 four key CPD themes have emerged from this evaluation process:

- Teachers really do benefit from being given time to think and apply their professional skills to creative, collaborative curriculum development
- Developing CPD based around a technology such as GIS requires rigorous planning for training opportunities and sustained technical support for teachers in their own schools
- 'Cutting edge' development of teaching and learning (in geography) with GIS is more likely to occur when more experienced users are given the opportunity to experience 'quality time' working together at this level
- There is now a renewed need *and* a clear CPD opportunity to 'pin down' the nature of Spatially Speaking as an *action research project* with clear *research* expectations and *research* outcomes for 2007-8

SECTION 1: INTRODUCTION

At the outset of this evaluation report it is important to state that Spatially Speaking 2006-7 has made progress towards realising several of the continuing professional development (CPD) goals which the Geographical Association strives for in its 'Local Solutions' (LS) projects.

'Local Solutions' (LS) projects are built around a philosophy where teachers are given the opportunities to develop the curriculum collaboratively and creatively. Mary Biddulph, the evaluator for 2005-6 provided a comprehensive introduction to this whole CPD approach which makes extremely useful reading in the context of this report (Biddulph, 2006).

2006-7 has been an eventful and challenging year for Spatially Speaking. As the project enters its third successive year it does so with valuable knowledge and experience gained during the year.

It does so with a growing, innovative team – committed to learning *about* and *with* the use of GIS in geography, intent on sharing their experiences with each other and the wider education community.

Whilst some objectives have not been fully realised during the year the project is in a position to move on the strength of some very valuable knowledge and experience.

With this year of the project in mind, it is important to spell out the specific purpose of this report.

Firstly it is intended to be evaluative– It has been written with an eye fixed firmly on the project's original stated aims and objectives (see Section 2). The evaluation itself is based solely on evidence collected in 2006-7.

Secondly, it is intended to be formative – and is, therefore *not* written as evaluation for evaluation's sake. If the collection of evidence about impact of the project is to be meaningful then suggesting how it may be used to contribute creatively to further continuing professional development seems crucial.

At this stage it is only fair to explain how my own involvement with GIS in geography and Spatially Speaking more specifically may affect this choice of approach.

I am a geography teacher involved in research with GIS in geography at the Institute of Education and was originally asked to join the project team as an advisor in 2005. With a role already established it seems somewhat ludicrous to describe me as a completely independent evaluator! I think it would be unrealistic to expect that the two roles have not merged during the course of this year. With the benefit of hindsight, perhaps there may have

been times when one role conflicted with the other. On balance, however, I hope that my still retaining an advisory role might benefit the project as a whole.

With specific regards to the report structure I have attempted to build in elements of the formative intent that I have just described.

‘To evaluate the impact of professional development it is crucial to consider what was intended to be achieved, and what impact could reasonably be expected, in any given time frame.’

(Training and Development Agency for Schools, 2007)

I have also tried to convey the realities of what could reasonably have been expected to emerge from the project by the end of the year.

SECTION 2: THE ‘SPATIALLY SPEAKING’ PROJECT

2.1 Aim and objectives

As already stated in the introduction to this report, the central aim of ‘Spatially Speaking’ is to find out how GIS can invigorate the learning and teaching of geography. This central aim can be further elaborated upon by articulating the projects four main objectives:

- To develop learning and teaching approaches (in geography) with GIS
- To develop professional skills
- To develop support materials and resources
- To disseminate findings and outcomes to geography teachers and the wider geography educator network

2.2 Context

This is the second year of the project. ‘Spatially Speaking’ was originally set up in 2005. The project is supported both financially and practically by ESRI UK and the British Educational Communications and Technology Agency (BECTA). During the current year, Digital Worlds UK has also joined the project team providing software and training free to the project.

2.3 Structure

The ‘Spatially Speaking’ membership also draws on expertise and experience from other representatives of the GIS industry, teacher educators and educational researchers. A central aim of the project is to give the team time and space to work together to provide tried and tested pedagogical guidance that will be made available to other UK teachers via the Geographical Association’s website.

Action research is the vital process at play throughout each project. Teachers usually work in pairs within their individual schools. Three days are pivotal throughout the process: the initial planning meeting, the interim progress meeting and the final meeting to share findings. The initial planning meeting provides teachers with the opportunity to devote time to developing their action plan for the year. The interim meeting provides an opportunity to gauge and support progress. The final meeting allows participants to share their outcomes and decide on how their findings will be disseminated to the wider community of geography educators. The project leader attempts to focus the project agenda on teaching and learning.

2.4 Team Members

Team Members	Role/GIS experience and interests
David Mitchell	Second year as project leader
Dr Peter O'Connor (Bishops Stortford College)	2 nd year as team member/very experienced user of GIS/ involved in GIS-related teacher training
Steve Dunn & Mark Smith (Leeds Grammar School)	2 nd year as team members/very experienced users of GIS/involved in GIS-related teacher training
Dr Adrian Johnson (Ibstock School)	2 nd year as team member/very experienced user of GIS/involved in GIS-related teacher training
Louise Ellis (Icknield School)	2 nd year as team member/experienced user of web-based GIS sites and online viewers
Sarah Cowling (Oakgrove School)	1 st year as team members/currently developing use of web-based GIS sites and online viewers
Sergio Mattias (Woodland Middle School)	2 nd year as team member/experienced user of web-based GIS sites and online viewers
Denise Freeman (Oaks Park School)	2 nd year as team member/ some experience using ArcGIS
Neil Lobo & Alex Coulter, (Vyners School)	1 st year as team members/currently developing use of web-based GIS sites and online viewers
Bob Grinham & Caroline Hone (The Nobel School)	1 st year as team members/ some experience using ArcGIS
Robin Ghosal & Kate West ((Crawshaw School)	1 st year as team members/ some experience of using ArcGIS and online viewers
Ryan Metters (The Grove School)	Joined project in March 2007/ Masters in GIS & classroom experience with GIS
Kathryn Morrell	Currently a PGCE student/Joined the project in March 2007/Masters in GIS
Steve Kitson (Wortley High School)	1 st year as team members/currently developing use of web-based GIS sites and online viewers
Punita Chandel (Marriotts School)	Joined project in March 2007/ ICT co-coordinator
Matt Brimson & Dave Hymer (West Buckland School)	Joined at end of 2 nd year of project/curriculum development with GIS interests
Sarah Gibbons (QEB school)	Joined at end of 2 nd year of project/experienced AEGIS user
Mary Fargher	Project evaluator

SECTION 3: COLLECTING EVIDENCE FOR THE EVALUATION

This evaluation report is based directly upon evidence gathered throughout 2006-7 and aims to assess the success of the project against its original aims and objectives.

Throughout the project I was provided with a wide range of information by the project manager – largely through email but also at three key meetings – one just before the Introductory Teacher's Day on November 10th 2006 at Icknield School; the next shortly after the Interim Teacher's Day at the Institute of Education on March 22nd 2007 and the final one to discuss the evaluation report on October 11th 2007.

I attended each of the three Teachers' Days – the one at Icknield and two at the Institute of Education, University of London on March 22nd and June 14th 2007.

I visited two schools to observe GIS and geography viewers being used and to talk to the teachers and students involved – at Bishop's Stortford College on 16th October 2006 and Icknield School on 10th November 2006.

The project manager also provided teachers questionnaires on two of the three Teacher Days.

All team members were asked to produce a 1000 word report outlining their experiences of using GIS during the year 2006-7 for the website. Six of these were available at the time of writing.

3.1 The Teacher Days

10th November 2006

The introductory teacher day took place at Icknield School in Luton. The day had a clear agenda which had been sent out to team members a few days beforehand. The meeting started with a short introduction where the project leader formally outlined the meeting's objectives. The emphasis was firmly placed on striving for innovation in geography teaching and learning *with* GIS.

Although this introduction was short, it provided new and established team members with a clear sense of how the project leader saw ways in which the team could build on past progress to learn from hurdles met in 2005-6. In a similar spirit, the team were encouraged to look forward to 2006-7 *with* this strength of experience. Equally, the potential contribution of new colleagues was fully acknowledged as they were warmly welcomed.

There was an important shift in location and focus as the group moved on from the day's introduction to the classroom observation. This was a large class with 29 students sharing laptops in groups of 3-4 attempting to access and use online geography viewers. Understandably, this was a busy classroom. As the lesson proceeded, some team members chose to become involved by helping whilst others chose to observe. Despite the logistical difficulties, the observation did provide the team with some evidence of issues involved in using a small number of laptops with large groups of students.

Lunch was an absolutely stunning affair. The cooking was 'cordon bleu'; the seasoned student restaurateurs were delightful. The Spatially Speaking team returned to the afternoon session replenished and refreshed.

After lunch the project leader returned the team's focus to overall and individual aims. This led to a frank and fruitful discussion where many team members shared their own past experiences of using GIS and their expectations for the coming year. This appeared to be very effective 'ice-breaker' for the group – exposing their considerable range of difference in GIS experience but also revealing many shared professional aims.

In short, this was another pivotal point – the team coming together from a range of viewpoints, sharing a common goal – to explore how GIS *could* invigorate teaching and learning in geography.

The precise nature of these exchanges was to set the scene for other scenarios significant to the success of the project which were to reveal themselves as 2006-7 unfurled.

The poignancy of the technical difficulties experienced at the day's host school, Icknield College, were firmly re-enforced by the Head of Geography. She referred back to the lesson observed by the team earlier in the day and urged them to fully recognise and *address* these technological barriers.

The project leader delivered a presentation about GIS and online viewers and what they could 'mean for Spatially Speaking.' This gave the team a great deal of detail, particularly about online viewers. A list of useful websites was also distributed.

The team then split into groups to talk about either GIS or online viewers whilst also writing down objectives for their action plans.

22nd March 2007

The interim teacher day took place at the Institute of Education (IoE), University of London.

The meeting started with a short update from the project leader followed by the dissemination of an article about the usefulness of GIS and viewers such as Google Earth in enhancing geography education.

Several new colleagues were welcomed to the project team.

A range of short but informative presentations from team members followed.

The first presentation, from a Geography subject leader, emphasised the crucial elements of what he believed to be necessary to have in place in school if innovation with a technology such as GIS were to be achieved. He stressed the pivotal role of the subject leader and ways of overcoming technical issues.

The second presentation focused on the use of Google Earth. Again, local, in-school technical issues were highlighted. The presentation included a very useful hand-out on the basics of using Google Earth in the classroom.

The third presentation gave the group some very useful feedback on progress made by students using online viewers at Icknield School. The head of department emphasised how financial input from 'Spatially Speaking' had helped to relieve some of the pressure on laptop use for students. An interesting description of how students had now become involved in evaluating online viewer sites followed.

The next presentation focused on feedback from a geography education conference where one of the project team had presented on the use of hand-held GIS (GPS). This was a useful point for the team to discuss how using GIS innovatively through fieldwork could be achieved.

Team members from Leeds Grammar School then provided feedback on their progress in using GIS in partnership with other local schools.

The second part of the morning was taken up with a further discussion on hand-held GPS and an introduction to Digital Worlds software. This was an important shift in emphasis for the meeting – with some team members voicing concern about the potential technological complexities involved.

The first session after lunch was given over to sharing ideas and materials.

The final part of the day was opened up for more general discussion about individual needs. The focus here was very much on deciding which ways the project might proceed in order to maximise its impact for all members of the project team. This discussion was raised primarily by one of the more experienced GIS users. A request was made for clearer aims but also a baseline to start measuring progress on the way to achieving these.

The project leader re-emphasised the aim of the project in discovering what GIS can add to learning in geography. The discussion continued with concern voiced about fulfilling the practical GIS needs of all members of the group to make these aims achievable in the classroom.

The more experienced GIS users suggested practical workshops which could meet a wider range of need amongst the group. The project leader then opened the discussion up to others about a possible change in structure for the final teacher day of the year. There was a general consensus that the group would like to adopt a 'workshop approach' for their final meeting on June 14th.

14th June 2007

The final teacher's day also took place at IoE. Although there was no formal agenda issued either before or on the day, the group had been fully informed about the practical, hands-on nature of the day to be planned. The project leader stressed that the outcome for the day was to be a lesson plan for each school which could be used in their final evaluation. The group were informed that they would receive the new Digital Worlds software on disk with a range of GIS data accompanying it. This latter element of the planning for June 14th was to change a week or so before the final meeting when the group were asked to bring a laptop with them to have the software loaded on the day. The project leader made it clear that, at that time, the software had not been loaded onto the IoE network and could not therefore be accessed centrally.

The day started with the project leader emphasising the day's practical emphasis on loading Digital Worlds software in order to experience using the software first-hand in lesson preparation.

A PhD research student and a PGCE student with GIS interests visiting the team for the day were also introduced.

The project leader reminded the team about their contributions to the Spatially Speaking website: a 1000 word report about their experiences of using GIS during the year.

The rest of the morning session was taken up with difficulties arising with loading Digital Worlds. This was an unfortunate turn of events because, for reasons out of control on the day itself, this was a long and laborious task amongst such a large group.

One of the more experienced GIS users in the group suggested that in future software could either be pre-loaded or the project could provide members with portable hard drives capable of storing large amounts of data.

In the last morning session, the project leader moved the focus of the group away from the installation issues and onto a discussion about using GIS data through agencies such as the Ordnance Survey.

In the first afternoon session the group were steered back on track to more practical GIS issues via a presentation on Digital Worlds. This was a very informative session – team members were shown a range of Digital Worlds functionality and a productive discussion about developing geography lesson opportunities around GIS data ensued.

In the final afternoon session the project leader led the group in a frank discussion about the day. Teacher questionnaires were distributed. The project leader suggested that team members postpone submitting their lesson plans using Digital Worlds until the beginning of the next academic year.

Some members of the group discussed the possibility of holding a two-day meeting in the autumn where issues around lack of time would be less pressing.

Others re-introduced the idea of having a project virtual learning environment (VLE), a blog or fileshare to improve circulation of ideas and resources amongst the group.

The project leader concluded the meeting by emphasising how much had been learnt from overcoming the practical difficulties of the day and thanked the team warmly for their valued commitment to the project throughout the year.

In the informal discussions which followed, several of the more experienced members of the team gave their suggestions about moving the project forward in a slightly different format in 2007-8. They outlined the possibility of the more experienced and less experienced team members meeting separately for at least some of the allotted project time to better focus on these two sub-groups individual needs.

3.2 School Visits

I visited two schools during the year: Bishop's Stortford College on 16th October on my own and Icknield School with the rest of the team on the first teacher day on 10th November 2006.

Bishop's Stortford College

Bishop's Stortford College is a fee-paying co-educational school in Hertfordshire. The Geography department at the college has been using cutting-edge GIS since 2003 and the associated expertise amongst both staff and students reflects this.

The main focus of the visit was on lesson observation. I observed a GCSE class using GIS to interrogate aspects of their locally based coursework. I was given the opportunity to speak with students about why and how they were using GIS and to discuss with their teacher how GIS was used in the department as a tool to enhance geography.

Icknield School

Icknield School is a state co-educational school in Luton. The Geography department is quite new to GIS and currently focusing on using online viewers to develop their geography teaching. One lesson using online viewers is referred to in more detail in the description of the first teacher's day when Icknield kindly hosted Spatially Speaking (p.11).

3.3 Teacher questionnaires

These were completed on two of the three teacher days: On March 22nd and June 14th 2007. On each occasion team members were asked to complete three questions:

1. 'What are you trying to achieve in your department by using GIS?'
2. 'What things have been most useful about today, for helping you to develop GIS in your curriculum?'
3. On the interim day:
'What do you need from the project now... In order to be in a position to write about 1000 words, before the end of the summer term 2007 to evaluate how GIS has been developed in your department and how learning has been affected: i.e. WHAT is learned, HOW the pupils are learning? '

And on the final teacher day a less detailed emphasis:

'What would have made today more useful for you?'

Responses to the first question reflected the unanimous intentions of all project members to use GIS to enhance teaching and learning in their schools. Amongst the more experienced GIS users there was a little more emphasis on embedding GIS.

When asked what had been most useful about each day in helping to develop GIS in the curriculum responses were much more mixed. This appeared to reflect both the project's stage in the year and breadth of experience with GIS and the extent to which they had found that the day had met their expectations.

Teachers' written feedback on the interim day (March 22nd)

With respect to the project's stage in the year, nearly all of the team recorded positive comments about the opportunity given to view the new Digital Worlds software. Debate earlier

in the year and arising from 'Spatially Speaking 2005-6' about overcoming technological difficulties made the exposure to software that could be potentially timely for the group as a whole.

For example, on March 22nd, the newer members of the team emphasised their appreciation at sharing ideas with enthused, like-minded others whereas the more experienced GIS users voiced appreciation about the chance to swap data and discuss technical issues with each other.

When asked about their specific needs for the future at the same meeting, nearly all of the responses reflected the questionnaire guidance directing respondents to time- off timetable, hardware, training and more across team liaison.

Significantly, the more experienced GIS users focused on their ability to organise this themselves but stressed the need for time off to engage fully in this. Their requests about preferred delivery of this support were specific: paid time off-timetable to train – possibly together; ESRI teaching materials; the new Digital Worlds software and BECTA pilot data to be made available to both public and private sector schools.

Both of the new team members with formal GIS training also made similar requests with an emphasis on being given opportunities to observe more experienced team members using GIS in the classroom.

Both new and more established members of the group less familiar with GIS made similar requests for time-off timetable and resources but emphasised their need for closer hands-on guidance.

Teachers' written feedback on the final day (June 14th)

With respect to the project's stage in the year, teachers' ideas about what they were trying to achieve in their departments using GIS were considerably more developed at the final meeting – Some discussed wanting to improve spatial awareness and analysis; others focused on developing interaction and enquiry through GIS. An interesting new development in the written feedback (in comparison with written feedback on March 22nd) was a greater emphasis on wanting to measure impact of GIS and to evaluate its use more critically.

Others articulated their feelings about moving on from using free-viewers to using GIS software.

Despite widespread gratitude at receiving the Digital Worlds software, it is important to note here that although completely unintentional, the stated objectives of the final meeting could not be realised because the infrastructural pre-requisites for this were not in place on the day.

As a result, when asked what would have made the day more useful there was an almost unanimous and reasonable wish for the software to have been ready to use at the beginning of the day. These comments were generally made in good spirit – despite the frustration experienced whilst ‘waiting for something to happen’, most colleagues were supportive and stoical in their approach whilst firm in their feeling that having the software ready would be crucial at future meetings.

Some of the more experienced GIS users, though very supportive of the good intentions of the day were clearly very frustrated by what they perceived to be an unnecessary technical problem. Two were particularly concerned that the day had not developed their understanding of the use of GIS.

The questionnaires reflect an almost unanimous feeling amongst the team that they had lost an opportunity to spend time on lesson planning on the day. One team member went further and suggested that the day should not have taken place until the software was installed on the network. Another stressed the need to think much more carefully about the nature and functionality of the software in a classroom context.

Some of the team less familiar with GIS also expressed concern over difficulties experienced even when the software had been installed. Several found it hard to come to grips with their first experience of Digital Worlds without some written guidance. Three of the more experienced GIS users felt that the day had not allowed them to use time to focus on their current specific aim: to develop the use of handheld GIS in teaching and learning.

When asked what the project could now provide for the team to develop GIS for learning somewhat inevitably the focus remained firmly on technical issues. Several teachers verbalised their worries and lack of confidence about ‘downloading software’ or ‘having someone to speak to if it becomes stuck’.

Other focused on accessing more specific resources via financial support for further hardware, software and training; access to Ordnance Survey data for all of the group and more centralised GIS and viewer resources possibly via VLE.

Despite the dominance of comments about technical difficulties, all of the questionnaires reflected an enthusiasm for continuing to work together albeit for some who again advocated a different project structure for 2007-8.

Some raised the possibility of a two-day residential meeting in the autumn term. Others suggested that the increasingly diverse needs of the group may be better met with a two tier approach to meetings.

3.4 Teacher Evaluations

Team members were given clear guidelines for the evaluation by the project leader. They were asked to:

- Outline their aim in using GIS
- Identify the software they used and give reasons for their choice
- Describe the associated activities undertaken by pupils
- Outline the learning outcomes
- Summarise the 'lessons learnt' from the teaching involved
- Make recommendations for others

At the time of writing this report, six teacher evaluations had been submitted to the project leader. As project evaluator, I am very grateful to those who managed to submit their reports – they made very interesting and informative reading.

The majority of the evaluation reports submitted reflect team members' experiences with using Google Earth and other online viewers. Amongst these were some very heartfelt and detailed descriptions of teachers overcoming initial teething difficulties and beginning to come more directly to grips with teaching and learning approaches to using Google Earth and other online viewers in their geography lessons.

One school which had not previously used GIS in lessons described the impact on students of being able to pinpoint demographic variations in their local area. Significantly, the teacher highlighted the added opportunity to use the data to stimulate debate about migration and population distribution topics as a whole.

Another school focused on training students in the basic skills required to use Google Earth (GE) effectively – using an interesting concentric teaching approach – starting with learning at a local level and then moving on to regional and global place examples. This report contained information that could be very useful for other teachers considering using GE in their lessons.

Another report, submitted by a team member completing her PGCE year, provided valuable insights into using a range of web-based GIS applications. Though access to ICT facilities was difficult throughout her experiences, pupils still managed to develop their spatial awareness of the local area via maps, satellite imagery and aerial photographs as a direct result of using a GIS application. Others used thematic online maps to examine the spatial relationships between the distribution of crime and socio-economic development indicators in Nottingham.

In another evaluation, teachers reflected positively on their ability to build on their previous experiences of using online viewers. They emphasised how the financial contribution from the

project had allowed them to purchase more laptops to use in the classroom. Pupils were involved in using online viewers to analyse house prices in their local area. Both team members stressed the impact that using the online GI had in allowing students to base more developed arguments on concrete geographical evidence.

One of the particularly interesting aspects of the evaluation report from this school was its emphasis on the merits of getting pupils in evaluating online viewers and sites providing geographical information.

Another report provided intricate details of one school's experience of using Google Earth to support local fieldwork and learn about local and global issues. The report was usefully linked back to a detailed action plan made at the beginning of the year. Though still in the early stages of this curriculum development, the department already have clear targets for using GIS and online viewers in the future.

The final teacher evaluation made available at this time was submitted by team members at a school already well-established in their use of GIS. Their report contained valuable insights for others about using ESRI ArcPad software with PDAs. They described clearly and succinctly how they had developed pupil activities in fieldwork using this mobile GIS technology. Their findings emphasised the educational values of capture of GIS data in the field which can then be transferred back to the classroom GIS environment.

4 CONCLUSIONS

Project Aim: to find out how GIS can invigorate the learning and teaching of geography.

The final section of this report begins by re-iterating that Spatially Speaking 2006-7 has made progress towards further achieving this central aim.

4.1 How well have the project aim(s) and objectives met?

- **Developing learning and teaching approaches (in geography) with GIS**

From the very start of Spatially Speaking 2006-7 project members have been committed to developing learning and teaching approaches (in geography) with GIS. This has been evident throughout the year in the professional debate and exchange of ideas so characteristic of the teacher days.

However, despite these very best of intentions, specific outcomes of this first objective: to develop learning and teaching approaches (in geography) *with GIS* have not fully materialized for all team members. The reasons for the differential between intent and outcome are

important but also tangible – allowing the team to look ahead and plan strategies for overcoming these in 2007-8.

As evidence in this report already indicates, project members have generally been focused on developing two areas of their learning and teaching approaches – one larger group using the time and resources made available by Spatially Speaking to concentrate on using online viewers and the other continuing to work with dedicated GIS software such as ArcGIS.

For some of the more experienced GIS users, this development of learning and teaching approaches *with GIS* has been very evident. In particular, the financial support provided by Spatially Speaking has enabled them to invest further in supporting their already well developed pedagogy with GIS. Their appreciation of being given opportunities to meet and swap ideas and data with each other again this year has been unanimous. With an eye firmly fixed on their potential future involvement with the project, some have clearly articulated their continued commitment to supporting other less experienced GIS users. However, their need for more ‘quality time’ together (almost as a sub-project group) is an immediate, pressing issue.

For some of the less experienced GIS users, the development of learning and teaching approaches *with GIS* remains a work in progress. It is in this sense, that the project’s progress in developing learning and teaching *with GIS* has not been quite as pronounced as might have been expected at the beginning of the year.

Two significant factors contributed to this:

- The established and growing success in curriculum planning with online viewers amongst several in the group
- the stage in the project’s year at which Digital Worlds software became available to download

The fact that many team members built on their earlier, successful experiences with e.g. Google Earth and other online viewers is to be commended – Many teachers were able to use this year to further develop their confidence in using these with their pupils and have begun to embark some ambitious related curriculum development.

The new version of the GIS software which was kindly made available by Digital Worlds was not finally available to the group until the last teacher’s day on June 14th. The cause of the delay was outside of the project’s control and connected with the complexities of finalizing the end-product. The group had been provided with a beta version prior to this, but as turned out to be the case, were unlikely to use it in the classroom until the full version was available.

In this specific respect, the project has much to look forward to as all of the team now have access to the full version and several have it up and running on their school networks.

- **Developing professional skills**

Being involved in a continuing professional development project has been beneficial for team members in many ways. The curriculum development opportunities that have arisen have been evident throughout the year.

Several teachers new to GIS commented on the huge benefits associated with being able to visit other schools and witness more experienced colleagues using GIS in the classroom. Teachers really do benefit from learning from other teachers!

Being given time out of the classroom to explore ESRI ArcGIS and Digital Worlds software was seen as being very valuable by all team members. When asked directly about this aspect of developing their professional skills with GIS some did suggest that more time allocated specifically to using the software would have been even more beneficial. Significantly, all stressed the impact of the technical issues associated with not having ICT facilities set up and ready to go for training with the software on the final teacher day. This was another important event in the year – developing teacher confidence with GIS is a crucial aspect of its successful implementation.

The slower than desired progress may have been linked to how GIS-related skills were developed during the year – It is difficult to envisage successfully adopting the use of an unfamiliar technology into the classroom without the pre-requisite skills. In relation to skills specific to GIS, team members who attended courses run by Leeds Grammar School and Bishop's Stortford College and the day offered by ESRI this development was perhaps more tangible.

Several members of the team are keen to make progress with GIS software their immediate priority. Further support in the technical aspects associated with making this progress is seen as crucial by these teachers.

The project leader has indicated that ESRI UK are very keen to become more directly involved in this process and are offering the services of ArcGIS trainers to come into Spatially Speaking project schools and support their GIS-related work.

Involvement in the BECTA Map Pilot Scheme is also potentially very valuable for the team. Having free access to Ordnance Survey GIS data whilst receiving further encouragement and motivation is a huge professional development opportunity.

- **Developing support materials and resources**

Developing a bank of support materials and resources on the Spatially Speaking website has been a real strength in 2006-7. The project leader is committed to exchanging ideas and resources to team members and the wider geography education community and the Spatially Speaking website is really beginning to reflect this sharing ethos. The last year has also seen the site develop its news and further resource links very effectively.

The success achieved in developing support materials and resources which are linked directly to the project itself has been more mixed. In my final meeting with David Mitchell, the project leader he expressed his disappointment about the lack of *project-related* teaching and learning related materials produced during 2006-7. He emphasized the important role of establishing a bank of such resources which could be used directly to support team members and colleagues in the wider education community.

However, as already stated, there are many positives to consider with relation to future development of support materials and resources.

The project leader has described the forthcoming involvement of the Spatially Speaking team in the BECTA Map Pilot initiative as a potentially major factor in achieving this aim more fully on 2007-8.

Spatially Speaking will also be actively involved in the planned GIS day at the GA annual conference in Guildford in 2008. Supported by ESRI and Digital Worlds, the emphasis of the day will be very much 'hands-on'.

A DVD, sponsored by ESRI and to be distributed to schools showing 'GIS in action' is also being produced for use in the classroom but particularly for school events such as parents evenings.

David Mitchell has also produced 'Getting started with GIS 2' an article specifically aimed at helping teachers focus on the uses of GIS in the workplace.

- **Disseminating findings and outcomes to teachers and the geography educator network**

Dissemination of findings and outcomes from Spatially Speaking 2006-7 has been successful to an extent. As the project leader stresses the teacher evaluations which have been submitted thus far reflect considerable evidence of teachers and students examining spatial concepts through the use of GI both via GIS software and online viewers. It is important to stress here that without considerable support and encouragement from the project leader in

this area, several of the less experienced members of the group may have been more hesitant about submitting these.

4.2 How has the project enhanced the work of the GA regionally and locally?

The project has more than doubled in size this year. Significantly more teachers are using GIS and online viewers to support teaching and learning in geography as a result of their involvement in Spatially Speaking 2006-7. There is a significant geographical spread of team members across the United Kingdom. There has also been an emergence of smaller regional sub-groups of teachers who meet more frequently in their local area. This almost organic professional development is very characteristic of the committed way in which the team works together.

Finally, I would like to comment on how much I have enjoyed working again with everyone on the Spatially Speaking team. I began this report by referring to their professional commitment and enthusiasm and would like to conclude it by thanking them whole-heartedly for their help and co-operation during the data collection.

Mary Fargher

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