Connecting STEM Teachers Summary Report

Year 3: 2013-14

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Connecting STEM Teachers Evaluation Report 2014: Executive Summary

Introduction
The Connecting STEM Teachers programme started in September 2011 with the aim of developing a national network to inspire and support STEM teachers. The programme has been based on a ‘train the trainer’ approach where regional teacher coordinators (TCs) initially attend Continuing Professional Development (CPD) sessions developed by the Royal Academy of Engineering (RAEng) and in turn disseminate these to teachers in the regions through network meetings. TCs also disseminate STEM teaching and learning resources developed by the Academy along with associated training and build local STEM connections. During this, the third year of the project, TCs have also developed other foci for network meetings including work on a collaborative project.

The overall objectives of the programme are to promote a passion for STEM amongst teachers, to develop a greater awareness of STEM, to widen teachers’ knowledge and experience of STEM and to enable teachers to gain STEM skills. This evaluation study considers these objectives and specifically aims to:

- Explore the effects of forming regional networks of teachers and the extent of sharing of expertise
- Explore any shifts in attitudes to understanding of and engagement with STEM subjects amongst senior management, teachers and their pupils and any differences between perspectives
- Explore teachers’ perception of their knowledge and confidence
- Explore teachers’ experience of using resources and training in their teaching practice/ where and how resources are being used
- Explore extent to which project impacts on teaching approaches
- Explore project impact on teaching of engineering and raising awareness of careers opportunities

This evaluation follows on from Connecting STEM Teachers (Gartland 2012), a baseline study, and Athlete or Machine (Gartland 2013), an evaluation of programme resources for the EEnP and the Year 2 evaluation Connecting STEM Teachers (Gartland and Paczuska, 2013).

Evaluation framework
The development of STEM activity remains in its early stages in the majority of schools as the Connecting STEM Teachers project is still initiating engagement with STEM in many schools within the networks. It was decided therefore that a longitudinal strategy providing detailed information about the progress of networks in three regions would best support the aims of the evaluation. The ambition for the third year of the evaluation is to present a detailed picture of project developments in network schools, to record successes and developmental issues, to consider participants’ views of the sustainability of the project and to identify points for further development as the project continues into the next phase.

This evaluation report is based on the perceptions and views of project participants gained from observations, conversations and one to one interviews with TCs and teachers in three different regions. The approach draws on ethnography. Participant observation was undertaken at network meetings in each area. Case study schools for the evaluation in each region were selected by TCs and so are likely to be those where teachers are most committed to the regional network. Teachers at these schools were interviewed in the summer term and where possible these teachers and schools were the same as those contributing to the evaluation at the end of the previous academic year for the Year 2 report.
A loosely structured approach was taken to all conversations with the aim of enabling participants to relate and explore their own understandings, knowledge and experiences as freely as possible (Kvale 1996). Interviews were recorded and transcribed in full. These transcripts were coded and analysed drawing on grounded theory (Chramaz, 2003). In the report individual teachers’ accounts have been anonymized as far as possible. Teachers’ titles have not been used and teachers are only differentiated by subject specialism.

**Findings**

The findings are presented in three parts. Section 1 focuses on network meetings and teacher coordinator accounts of project impacts. Section 2 deals with teachers’ accounts both of project activity and the effects of the project in schools. Section 3 presents an overview of TCs and teacher’s views of project sustainability and a discussion section which indicates a range of initial successful outcomes and also identifies points for consideration in relation to future project development.

The data indicates that the project is having a significant impact in network schools. While there is still a ‘bottom up’ approach in most schools with individual subject teachers driving STEM initiatives, there are also schools that have introduced whole school STEM roles. This has enabled the development a more coherent whole school approach in these institutions. The enthusiasm and commitment of participants identified during the Year 2 of the evaluation has largely been sustained despite difficulties, unrelated to the project, encountered by individual TCs that have impacted on the extent of their input. The evaluation suggests that the project should leave a legacy of resources and activity in schools but that if network meetings were not to continue this may impact negatively on the commitment and engagement of individual teachers and the community of practice that is emerging in different regions.

**Section 1. Networks and their effects: teacher coordinators’ (TC’s) perspectives**

**Networks and network meetings**

**TC role**

The three teacher coordinators remained the same as in the Baseline and Year 2 report: a maths teacher, a D&T teacher and an independent maths consultant. Teacher coordinators identified two distinct strands of activity associated with their role. One was to provide CPD for groups of schools during network meetings or other training sessions, including work with primary schools. The other activity was acting as facilitators for network development and network activities.

CPD sessions took different forms. Some were for groups of schools, others were ‘in house’ for individual schools. Individual sessions were seen as effective but not always possible and depended on the time a TC had available.

TCs also saw themselves as facilitators, using their connections to bring STEM organisations and teachers together and enabling teachers to share their own experiences during network meetings. All three of the TCs described working closely with representatives from STEMNET in their region. Both the network meeting and collaborative event observed in the NE were supported by STEMNET. One TC reported they had merged their network with that of the local EBP (and STEMNET contract holder).

The two TCs who were also teaching full time had both encountered significant difficulties over the year which they both saw as having impacted negatively on what they had been able to achieve.
Networks and network membership

All three TCs reported having a core of between 10 and 12 schools in their networks. The TCs from the two longer established networks also described having more extended networks of between 20-25 schools which had been developed through working with other organisations, particularly STEMNET contract holders.

The movement of teachers to other schools or other roles within the school was seen to affect the stability of networks, but in some schools replacement contacts or the existence of more than one contact helped to overcome this. Some teachers moved schools but continued to attend network meetings. The functioning of networks was also affected by geographical spread in one area, and the difficulty of organising meetings during the extended exam period.

Two TCs described increasingly involving primary schools. One described working with 10 primary schools as well as secondary network schools. One described how several middle schools had recently joined the network.

One TC suggested that large academy chains were increasingly leading CPD ‘in house’. As a consequence subject teachers were finding it more difficult to go to network meetings despite valuing this provision. Another suggestion was that schools committed to the network tended to be those that were more successful in terms of meeting benchmarks. One school which had been involved with the network and taken part in a previous evaluation had withdrawn and this was in part attributed to the pressure on staff to meet ‘baseline measurements in maths, science and English’.

Subject areas represented

Networks were not dominated by a single subject area but patterns were identified by TCs that were linked to their own subject areas and connections. There was also a wider engagement of teachers from other subject areas through project activities and networking within schools. Some schools were using network meetings to support staff development.

Senior leadership support for STEM and school agendas

TCs suggested that SLTs in network schools were aware of STEM but had no detailed knowledge of how this developed in individual schools. One TC observed that teachers could be part of the network and run STEM clubs totally independently and even without the awareness of their SLTs. A strategy used in one network had been to ask teachers to approach their SLTs to provide funding for the collaborative project. This was viewed as a successful way to effectively raise SLT awareness of STEM and the Connecting STEM Teachers project.

SLT demands on teacher time were seen, at times, to prevent attendance at network meetings. Demands on TCs’ time was also high. One TC, when teaching commitments were increased, had been advised by the SLT to withdraw from STEM work. Two TCs were keen to develop STEM activity within the curriculum at their own schools though this had not yet been managed due to other demands and changes in the curriculum. The TCs based in schools were encouraged by their SLTs to develop STEM activity with feeder primary schools.

Meetings and events held

Network meetings observed in the three regions varied in size and focus. In one region network meetings held over the year included CPD on the Disaster Recovery resource, a networking meeting with a focus on the collaborative project and a meeting at Northumbria University. This TC had also visited individual schools to provide additional support with RAEng resources and with the VEX robots.

In another region meetings focused on working with VEX robots for the collaborative project, the Disaster Response resource and a celebration event involving network teachers sharing experiences of different STEM activity. The TC in this network was keen that expertise within the network was shared, particularly as one network school was already engaged in a wide range of STEM activity.
In the third region one meeting was held to provide training in the Disaster Recovery resource. Further training sessions with this resource were subsequently offered to individual schools, groups of primary schools and one secondary. A further meeting was held with the EBP at a local construction firm to raise awareness of opportunities within the construction industry.

**The focus of meetings and developing networks**

TCs raised a number of points about ways forward with networks. One was that in the more established networks it is difficult to cater for new teachers joining alongside existing network members. A related issue was that the resource boxes and training available in the first two years of the project are no longer available to new network members, but have been very effective in enabling teachers to develop STEM clubs in the past.

One response has been to develop resources locally but this is time consuming. Another response is to keep the network to the original number of schools although this might mean turning teachers away. An alternative solution being developed in one area is to launch a new regional competition and to work with schools to encourage participation in this. Another approach suggested is to continue existing activity within a school but engage a new member of staff to allow time for the development of new STEM activity.

TCs said they found the opportunities presented by CPD provided by RAEng and the celebration event valuable and that sharing ideas about ways forward for the project was beneficial.

**Project Impact**

TCs were positive about the impact of the project. One TC reported a direct ‘impact’ in 12 to 14 schools. The impact was seen in broad terms as promoting the development of young people and encouraging them to thinking more widely about STEM.

**Teacher confidence**

TCs described the project as offering an opportunity to enable teachers to develop expertise and experience in teaching STEM. This was seen as having increased teacher confidence generally and as having made them more confident about using a wider range of STEM resources in the classroom or in after school clubs. In particular increasing teacher confidence was seen as having led to teachers feeling able to use resources which they had previously regarded as something to be used by an ‘expert’. This change was seen to have allowed teachers to broaden their classroom activity in STEM. One TC suggested that in future this increased confidence could lead to more contact with industry and a greater choice of STEM activities in schools.

**Whole school engagement & cross curricular working**

Collaborative projects were seen as an opportunity to encourage teachers to think about cross subject collaboration. The Vex robotics project was viewed as particularly useful for this, broadening the focus of project activity in schools beyond maths and science where project work began.

TCs indicated that schools have discussed collaboration across the curriculum but that there are obstacles to this such as the difficulties presented by exam systems and traditional boundaries between curriculum areas. The physical layout of a school may itself limit opportunities for collaboration.

One TC described how two schools in the region have appointed someone with whole school responsibility for STEM. This offers the possibility of involving more teachers and these schools were described by the TC as ‘thinking about STEM in a different way’.
One TC described how a network school had brought projects into the D&T curriculum and through that engaged teachers from other subject areas. Another school planned to use the Disaster Response resource for collaboration between maths and geography. One TC had also worked to raise STEM awareness across schools by putting up STEM notice boards in different departments linking STEM to individual subject areas.

**Cross school collaboration**

There were a number of different approaches to cross school collaboration. One TC suggested that the collaborative project provides the best vehicle for this. In one region there had been an increase in the number of schools in the network apparently motivated by a desire to set up STEM clubs. In one project area the TC had organised a successful Year 6 day with a local primary school using the Disaster Response resource. One TC had attempted to hold network meetings at different school venues in turn to encourage wider participation by teachers from different schools.

**CIAG & STEM in the real world**

TCs reported that there is an overall lack of CIAG in schools, that whole school advice about STEM careers is lacking and that only limited information is available to pupils and this tends to be focussed on their teachers’ subject areas or on information available through STEM club activity.

One TC observed that teachers generally lacked awareness about industry and STEM careers. Some information about STEM careers has been made available through network meetings which include presentations from different STEM professionals. One TC had noted that RAEng resources profiled a number of STEM careers and jobs. This TC had organised a meeting with a local construction company to provide more information about STEM careers.

The collaborative project was seen as an opportunity for raising awareness about STEM careers. Encouraging trips to STEM companies and the use of STEM ambassadors was also seen as useful in raising awareness of different occupations, although ambassadors from industry were sometimes not readily available as expected.

**Networking with different organisations**

Two TCs who spoke at length about STEM networking in their areas clearly saw themselves as enablers, putting people and organizations in contact with each other either directly or through the Connecting STEM Teachers’ network. They described the CST network as just an element, albeit influential, in the development of a range of STEM networking involving other organizations such as STEMNET and the EBP.

It was emphasized that networks and communications between people and organizations can work in different ways and meetings should not be organized ‘just for their own sake’. The project was seen as having begun the process of putting teachers in touch with industry and providing teachers with the confidence to ‘keep going’.

**Section 2. Project effects: teachers and schools**

**Background: schools and teachers’ backgrounds**

Eight teachers were interviewed for the evaluation study. One teacher in the NE and one in Lincolnshire have contributed to the evaluation from the start of the project and two in each area have contributed to both the Year 2 and Year 3 evaluation. In the SE two teachers have contributed to both the Year 2 and Year 3 evaluation reports. Two of the teachers, one in the NE and one in the SE, have not contributed to the evaluation before but both have been longstanding members of the network in each area. Reasons for teachers not continuing to participate in the evaluation include moving to other schools and loss of engagement with the network.
Schools participating in the evaluation varied though were predominantly relatively high achieving. The participating schools in the NE included two mid-range academies and a mixed comprehensive which is in the process of joining an academy chain. In Lincolnshire schools participating included a boys’ grammar school and a secondary modern and in the SE a boys’ grammar school, a comprehensive school (a sports college) and another mid-range academy took part.

Teachers were from a range of subject backgrounds though to some extent these reflected the subject specialism of the TC in their region. In the NE contributors included a biology teacher and two maths teachers; in Lincolnshire two DT teachers and in the SE one D&T/ maths teacher, and two science teachers.

The movement of teachers to other schools emerged as a feature during the evaluation study. This may be related to the situation of the teachers involved with the project many of whom are young and who, as one TC pointed out, become involved with STEM activity as part of their professional development, adding STEM expertice to their portfolio of skills. While movement leads to discontinuity for evaluation purposes this does not necessarily hold for participation in the network. Several teachers who were moving expressed their intention of passing on the work to others or continuing the work in their new posts.

Network meetings: CPD and networking

Network meetings were regarded as central to the development of STEM and were in some instances the place where STEM activity in schools was initiated. One teacher said that the support network meetings provided was key to their success and had made it ‘easy’ for her to run a good STEM club.

The provision of resource packs and the opportunity to try out resources were identified as significant to supporting the development of STEM and to increasing teachers’ confidence in running STEM activity in schools.

Teachers viewed network meetings as valuable support networks which provided an opportunity to discuss approaches to developing STEM with other teachers and share their experiences. One teacher suggested that without the meetings there would be no opportunity for this and that having a TC who is knowledgeable and able to bring people together is also vital.

Teachers were clearly motivated by network meetings and involved themselves with planning the focus of future network activity. Work with primary schools and cascading RAEng resources and CPD was identified as important by one teacher. In one region a network meeting organised jointly with the CITB attracted careers advisers and teachers with specific relevant responsibilities for related areas rather than the usual network schools.

The collaborative project

The collaborative project was viewed as having provided a range of benefits for teachers. Planning the project had provided a focus for network meetings, had given teachers the confidence to work in an area that was ‘outside their comfort zone’ and had influenced STEM club activity. Teachers also identified how the project had enabled young people to draw on expertise they had developed outside school.

In one school participating in the competition had raised the profile of the STEM club and encouraged more pupils from across the age and ability range to become involved.

Networking with other STEM organisations

Network meetings appeared to have raised teachers’ awareness of a range of STEM organisations and encouraged engagement with them. The opportunity meetings provided to meet people from different STEM organisations and approach them directly had clearly promoted further contact.
**Issues with Network meetings**

Teachers identified problems in getting to network meetings because of other school commitments and two teachers suggested that meetings scheduled during the school day would be preferable. However, one meeting, run jointly with the CITB during the school day, attracted mainly careers advisers and only two teachers who were not from network schools. One teacher observed that the fact the meetings were also a social occasion was important in encouraging attendance.

**STEM activity in schools**

Teachers had developed a range of STEM activity in all the schools participating in the evaluation. This included STEM clubs, curricular and cross curricular work as well as other enrichment activity.

There were different patterns of STEM activity in network schools. Of those interviewed, three schools had embedded STEM across the whole school whilst in the five other schools STEM was being driven by individual subject teachers. Attendance at network meetings appeared directly responsible for much of the ongoing STEM activity.

**STEM clubs**

Some teachers had developed STEM clubs out of existing subject specific clubs including maths, D&T and science clubs. Teachers frequently described using RAEng resources in their STEM clubs but had engaged with the activities to different extents. One teacher described the difficulties of engaging pupils with the more complex subject matter of some resource boxes during club time. One teacher identified the Ideas Box as good for use in clubs because of the range of short lasting activities and the freedom for pupils to think creatively.

Teachers organised attendance at clubs differently. A few appeared to have a relatively small loyal group of students who attended regularly. One teacher selected particular groups of high achieving and more able pupils for the collaborative project while some teachers worked with mixed age and ability groups. One teacher reported predominantly male attendance and one described difficulty in maintaining numbers.

At the time of interviews, STEM club activity in several schools was based around programming VEX robots and was linked to the collaborative event. In the majority of schools only small groups of pupils (between 6 and 10) were participating in STEM club while preparing for the collaborative event, as only small numbers of pupils can work on the robot at any one time. In several schools this meant a reduction in numbers from the normal STEM club attendance and in some instances this particularly affected girls’ attendance. In schools where pupils volunteered to attend, several teachers observed that groups volunteering were mixed ability and predominantly male.

One teacher had deliberately selected a group of high achieving Year 10 girls for work on the project to raise their awareness of possibilities in STEM careers. The competitions held in both regions involved single sex schools which appeared to have increased the overall numbers of girls participating in the collaborative events.

VEX robots worked well in a STEM club context. Teachers described how pupils were able to work independently with the robots and were motivated to seek information at home and work outside normal club time. Teachers and pupils involved in the competition in both regions were very positive about the competition, providing details of positive engagement and learning outcomes for pupils.

**Developing STEM across schools and in the curriculum**

Teachers described involving teachers from other subject areas in running or supporting STEM clubs, an initiative which was at times driven by their own lack of confidence with the subject matter such as
programming the robots. In several instances, clubs were led by one teacher in a single subject area but other subject areas provided support when needed. Other extra-curricular activities included working with other STEM projects, organising visiting speakers for different groups of students and arranging trips to STEM events, companies and the Big Bang Fair. One teacher described how the engineering education scheme at their school was mainly linked to the Crest Award scheme.

Teachers had used RAEng resources to run activities for whole year groups both within their own subject areas and across the curriculum. Two teachers suggested that RAEng resources were better suited for use in curriculum time than in STEM clubs when pupils were more open to the theoretical content of the packs and the activities engaged large groups of pupils. One teacher had led CPD for other teachers in the science department to enable them to use the resources during Science Week. This had proved very successful and Science Week had also raised the profile of STEM with teachers and pupils right across the school. This teacher had also adapted her teaching in other contexts to develop a STEM approach.

Teachers described limitations to what they could achieve. One said trying to introduce STEM in her school was ‘lonely’. Teachers in other departments could be reluctant to get involved and there were constraints on teachers’ time. A few teachers appeared to view STEM as strictly an extra-curricular activity.

Individual subject teachers had been able to successfully introduce STEM in their schools to various degrees. In three schools staff appointments had been made carrying official cross school responsibility for STEM. In these schools STEM was being more effectively embedded and there was a range of cross school STEM activity. Two of these were boys’ grammar schools. In one school the STEM coordinator role had been established three years earlier, whilst in two schools appointments had been made recently. The appointment of someone with specific whole school responsibility for STEM appeared central to establishing a whole school response to STEM.

Whole school initiatives reported by teachers included cross curricular days, STEM assemblies, STEM careers days, STEM integrated with PSHE provision and across all subjects and pupils being issued with STEM folders to contain all their work in STEM subject areas.

**Real world applications and CIAG**

Engagement with the Connecting STEM Teachers network had significantly contributed to developing teachers’ own knowledge and awareness of career opportunities for young people in STEM areas. Influential activities included a lesson about STEM careers during Science Week, a careers conference, visiting speakers, using notice boards around the school and trips to STEM workplaces. Teachers also described how RAEng resources raised awareness of real world applications in different STEM subjects as well as awareness of STEM careers.

Teachers were very positive about the opportunity the project had provided for them to make connections with people from STEM workplaces or other STEM organisations pupils could talk to and find out about STEM jobs. One teacher expressed surprise that businesses were prepared to offer so much to schools. At one network meeting held jointly with CITB at a construction site, detailed information was provided about apprenticeships and graduate jobs as well as about how to support young people in their applications.

Visits to school from people working in industry were not, however, widespread. While teachers were all aware of STEMNET, several teachers reported experiencing difficulties in accessing ambassadors or being unsure how to use them. One teacher said that it was easier to develop links with people in industry directly and another expressed the view that STEMNET ambassadors were not necessary as the school had developed its own industry links.
Section 3. Project sustainability and points for consideration

Sustainability
Both TCs and teachers agreed that elements of the project such as contacts, network meetings STEM resources and collaborative working, will remain in some form after project funding ends although there were differences about which aspects this applies to and in what form the elements might survive.

Project funding and free resources were seen as having been important, even central, to initially attracting people to the networks. One TC thought that it would be difficult to organise network meetings without financial support and one teacher suggested that nothing would be left if funding stopped. Most interviewees, however, identified elements they thought were sustainable or which they believed would carry on. One teacher remarked that ‘ideas and resources are potentially long term sustainable’ and several teachers spoke about the possibility of reusing project resources and maintaining contacts and activities. Using VEX robots and running inter-school competitions was seen as sustainable by one network group following investment by the RAEng in resources. But while interviewees generally thought that activities and resources could continue there was less certainty about the possibility of maintaining network meetings which were thought to need an organiser or ‘external driver’. One TC suggested that network meetings would stop even though teachers might still remain enthusiastic about STEM. One teacher pointed out that meetings were important to ensure teachers did not feel isolated or unsupported. The importance of meetings was echoed by another teacher who explained that ‘the ideas and resources and sort of ethos are all sustainable’ but said she hoped meetings would continue to enable contact with other teachers and the sharing of ideas.

Points for Consideration
The evaluation study indicates that the project has made substantial progress towards its objectives of promoting a passion for STEM amongst teachers, developing a greater awareness of STEM, widening teachers’ knowledge and experience of STEM and enabling teachers to gain STEM skills. Regional networks have been effective in sharing expertise and there is a developing ‘community of practice’ amongst some network schools. The project has been successful in providing teachers with the confidence to try out STEM resources and to work with other STEM organisations. Project resources appear to have been widely used across network schools and are supporting STEM clubs and encouraging cross curricular STEM activity and collaboration between subject teachers. There is continuing marked enthusiasm and commitment to the project by both teachers and TCs. Four elements in particular appear significant to the project’s success: network meetings, the role of the TCs in driving initiatives, individual teacher’s commitment to driving forward STEM in their schools and the appointment of teachers with cross school responsibility for STEM. Network meetings seem vital in giving the teachers involved a shared sense of purpose. The meetings have multiple functions: as a social occasion which counters the individual feelings of isolation teachers may encounter when promoting STEM in their schools, as an opportunity for exchanging ideas and experiences, as a way of making teachers feel supported, as a source of information about STEM organisations, projects and employers, for demonstrating uses for project resources, and as a site for CPD.

TCs value opportunities they have had to work together and to share ideas and further developments might include identifying strategies for continuing and developing their networks. There is an emerging need to maintain a focus on gender issues in project activity. In several schools, the reduction of numbers of pupils in STEM club during work on programming Vex robots had adversely affected numbers of girls participating. One approach to address this might be to encourage TCs to share best practice among network schools, such as ways of engaging girls through the collaborative project.
CIAG is widely viewed as problematic in schools and TCs still view this as an area that needs to be further addressed. Network meetings have, to some extent been successful in raising teachers’ awareness of career and job opportunities within STEM. Project resources are also viewed as having supported pupils in becoming more aware of real world engineering. Some teachers have made contact with representatives from industry through network meetings and in some schools representatives from industry have worked with pupils, such as at a careers conference or giving talks to groups of pupils during lessons. However, teachers may need further support in identifying useful ways to work with STEM ambassadors such as sharing practice across network schools.

Organising ‘in house’ meetings for demonstrating resources and disseminating CPD has been valuable in reaching some teachers at individual schools. However, TC’s capacity to undertake this activity is limited and if this approach were used more widely it may deprive teachers of the breadth of insights and wider sense of purpose achieved at network meetings where teachers from several schools are present. Disseminating project ideas and resources to primary schools is widely seen as important for pupils and teachers and is supported by SLTs in secondary schools.

While developing cross curricular STEM activity is clearly challenging in some schools, teachers have developed a number of initiatives to promote STEM across the curriculum, including building STEM into the curriculum across all subject areas, collaborative projects, STEM days, STEM careers days, notice boards and STEM folders.

STEM activity is still largely driven by individual subject teachers in a number of schools but other interesting practices are emerging. Perhaps, the most exciting development is the embedding of STEM via the appointment of individuals who have cross school responsibility for STEM. This is a significant and potentially sustainable development. It would be useful to track the experiences of schools where this has taken place and to explore the impacts of this on engagement with STEM, progression in STEM subject areas and pupil attainment.

While there is evidence that project sustainability may be achieved through elements such as reusing and updating the resources, continuing to work with other STEM contacts and running inter-school competitions, it is clear that the role of a teacher coordinator is viewed as vital in holding the initiative together. Maintaining the TC role in the long term would appear to be key to further developing and embedding STEM in schools across these regions.

References
Gartland, C. and A. Paczuksa (2013) Year 2 evaluation Connecting STEM Teachers. RAEng.